

**TSG-RAN Meeting #15**  
**Jeju-do, Korea, 5 - 8 March 2002**

**RP-020072**

**Title:** Agreed CRs (Release '99 and Rel-4 category A) to TS 25.331 (3)

**Source:** TSG-RAN WG2

**Agenda item:** 7.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-020482	agreed	25.331	1278	1	R99	Measurement related corrections	F	3.9.0	3.10.0
R2-020563	agreed	25.331	1279		Rel-4	Measurement related corrections	A	4.3.0	4.4.0
R2-020483	agreed	25.331	1280	2	R99	Clarifications on Event 1D	F	3.9.0	3.10.0
R2-020564	agreed	25.331	1281		Rel-4	Clarifications on Event 1D	A	4.3.0	4.4.0
R2-020305	agreed	25.331	1284		R99	Transition from CELL_DCH to CELL_FACH state	F	3.9.0	3.10.0
R2-020484	agreed	25.331	1285		Rel-4	Transition from CELL_DCH to CELL_FACH state	A	4.3.0	4.4.0
R2-020306	agreed	25.331	1286		R99	Corrections and clarifications of Radio link timing	F	3.9.0	3.10.0
R2-020485	agreed	25.331	1287		Rel-4	Corrections and clarifications of Radio link timing	A	4.3.0	4.4.0
R2-020486	agreed	25.331	1288	1	R99	Spare values in ASN.1	F	3.9.0	3.10.0
R2-020487	agreed	25.331	1289		Rel-4	Spare values in ASN.1	A	4.3.0	4.4.0
R2-020488	agreed	25.331	1293	1	R99	Actions on reception of measurement related IEs	F	3.9.0	3.10.0
R2-020489	agreed	25.331	1294		Rel-4	Actions on reception of measurement related IEs	A	4.3.0	4.4.0
R2-020492	agreed	25.331	1297	1	R99	Timing Indication when moving to CELL_DCH state	F	3.9.0	3.10.0
R2-020493	agreed	25.331	1298		Rel-4	Timing Indication when moving to CELL_DCH state	A	4.3.0	4.4.0
R2-020440	agreed	25.331	1306	1	R99	Correction to processing RB mapping info	F	3.9.0	3.10.0
R2-020495	agreed	25.331	1307		Rel-4	Correction to processing RB mapping info	A	4.3.0	4.4.0
R2-020496	agreed	25.331	1312	1	R99	RRC Connection Release following network authentication failure	F	3.9.0	3.10.0
R2-020497	agreed	25.331	1313		Rel-4	RRC Connection Release following network authentication failure	A	4.3.0	4.4.0
R2-020338	agreed	25.331	1316		R99	Clarification on serving cell in SIB11	F	3.9.0	3.10.0
R2-020499	agreed	25.331	1317		Rel-4	Clarification on serving cell in SIB11	A	4.3.0	4.4.0

## CHANGE REQUEST

⌘ **25.331 CR 1278** ⌘ ev **r1** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Measurement related corrections		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2002-02-21
<b>Category:</b>	⌘ <b>F</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b>	⌘ R99 Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ Ambiguous measurement handling need to be corrected.
<b>Summary of change:</b>	⌘ <del>8.4.1.3: It is not clear what the UE shall do when receiving a measurement control message when in CELL_FACH state regarding intra frequency/inter frequency/inter-RAT measurements. This change aims at clarifying what the UE shall do.</del> - In Chapter 14: - For event 1a, the way the hysteresis is used in formula 4 of section 14.1.2.1 was erroneously changed between version 3.8.0 and 3.9.0 (CR 1155r1, Tdoc R2-012708), and this is corrected back. - The Cell individual offset is introduced in all formula, and in the text, it is clarified whether the CIO shall be used by the UE or not when ranking the cells . - It is clarified for all 1x events that the variables TRIGGERED_1X_EVENT related to one measurement are created/released when the measurements are created/released. - For the events where it had not been done, the dimension of the variables used in the formula is specified. For events 1c, 1d, 1e and 1f, a logarithm is introduced in the formula to make those consistent with the ones for event .  <u>Isolated impact analysis:</u> This CR has isolated impact on measurement related functionality.
<b>Consequences if not approved:</b>	⌘ Unclear description of the way measurements shall be handled that could lead to unexpected UE behaviour.

<b>Clauses affected:</b>	⌘ 8.4.1.3, 14.1.2.1, 14.1.2.2, 14.1.2.3, 14.1.2.4, 14.1.2.5, 14.1.2.6, 14.3.1.1, 14.3.1.2, 14.3.1.3
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<b>Other specs Affected:</b>	⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v4.3.0, CR 1279
	<input type="checkbox"/>	Test specifications	
	<input type="checkbox"/>	O&M Specifications	
<b>Other comments:</b>	⌘		

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

Comprehensive information and tips about how to create CRs can be found at:  
[http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

- read the IE "Measurement command";
- if the IE "Measurement command" has the value "setup":

~~If the UE is in CELL\_FACH and if the measurement type is either "intra frequency measurement", "inter frequency measurement" or "inter RAT measurement":~~

~~If the "Reporting criteria" is different from "No reporting":~~

~~Ignore the MEASUREMENT CONTROL message:~~

~~Else:~~

~~If the IE "Intra frequency cell info list", "Inter frequency cell info list" or "Inter RAT cell info list" was received, instructing the UE to remove or add some intra frequency/inter frequency/inter RAT cells from its CELL\_INFO\_LIST variable:~~

~~Ignore the MEASUREMENT CONTROL message:~~

~~Else:~~

~~Store the information received in the MEASUREMENT control message:~~

- ~~Else:~~

- store this measurement in the variable MEASUREMENT\_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists; [Indent increased one level]
- for measurement types "inter-RAT measurement" or "inter-frequency measurement": [Indent increased one level]
  - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or [Indent increased one level]
  - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements: [Indent increased one level]
    - if the measurement is valid in the current RRC state of the UE:
      - begin measurements according to the stored control information for this measurement identity. [Indent increased one level]
- for measurement type "UE positioning measurement":
  - if the UE is in CELL\_FACH state:
    - if IE "Positioning Method" is set to "OTDOA":
      - if IE "Method Type" is set to "UE assisted":
        - if IE "UE positioning OTDOA assistance data for UE assisted" is not included:

- if System Information Block type 15.4 is broadcast:
  - read System Information Block type 15.4.
  - act as specified in subclause 8.6.7.19.2.
- if IE "Method Type" is set to "UE based":
  - if IE "UE positioning OTDOA assistance data for UE based" is not included:
    - if System Information Block type 15.5 is broadcast:
      - read System Information Block type 15.5.
      - act as specified in subclause 8.6.7.19.2a.
- for any other measurement type:
  - if the measurement is valid in the current RRC state of the UE:
    - begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
  - for all IEs present in the MEASUREMENT CONTROL message:
    - if a measurement was stored in the variable MEASUREMENT\_IDENTITY associated to the identity by the IE "measurement identity":
      - replace the corresponding information stored in variable MEASUREMENT\_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;
      - resume the measurements according to the new stored measurement control information.
    - otherwise:
      - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- if the IE "measurement command" has the value "release":
  - terminate the measurement associated with the identity given in the IE "measurement identity";
  - clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT\_IDENTITY.
- if the IE "DPCH Compressed Mode Status Info" is present,:
  - and if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS\_IDENTITY):
    - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - if pattern sequence corresponding to IE "TGPSI" is already active (according to "TGPS Status Flag"):
    - deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.
  - after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:

- activate the pattern sequence stored in the variable TGPS\_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "active" at the time indicated by IE "TGCFN"; and
- begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
- if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:
  - start the concerned pattern sequence immediately at that CFN.
- not alter pattern sequences stored in variable TGPS\_IDENTITY, ~~but~~ if the pattern sequence is not identified in IE "TGPSI" in the received message.
- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and
  - refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT\_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE\_CAPABILITY\_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):
  - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

The UE may:

- if the IE "Measurement command" has the value "setup":
  - for measurement type "UE positioning measurement":
    - if the UE is CELL\_FACH state:
      - if IE "Positioning Method" is set to "GPS":
        - if IE "UE positioning GPS assistance data" is not included and variable UE\_POSITIONING\_GPS\_DATA is empty:
          - if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:
            - read System Information Block types 15, 15.1, 15.2 and 15.3.
          - act as specified in subclause 8.6.7.19.3.
- and the procedure ends.

### 14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When an intra-frequency measurement configuring event 1a is set up, the UE shall:

- create a variable TRIGGERED\_1A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1A is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell; and
  - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:
    - if the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT is set to FALSE:
      - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to TRUE;
      - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT to 1.
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT that are not part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the timer for the periodical reporting has expired:

- if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT, and not included in the current active set:
  - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED\_1A\_EVENT;
    - start a timer with the value of "Reporting interval" for this event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
      - include in "cell measurement event results" all entries of the variable TRIGGERED\_1A\_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity, [taking into account the cell individual offsets for those cells](#);
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
    - if "sent reports" in variable TRIGGERED\_1A\_EVENT is greater than "Amount of reporting" for all entries:
      - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
    - if no entry in the variable TRIGGERED\_1A\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
      - stop the reporting interval timer;
      - set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE.

Upon transition to CELL\_DCH the UE shall:

- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED\_1A\_EVENT.

Equation 1 (Triggering condition for pathloss)

$$10 \cdot \text{Log}M_{New} + CIO_{New} \leq W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1 / M_i) \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1a} - H_{1a} / 2),$$

Equation 2 (Triggering condition for all the other measurement quantities)



$$10 \cdot \text{Log}M_{New} + CIO_{New} \geq W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1a} - H_{1a} / 2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot \text{Log}M_{New} + CIO_{New} > W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1 / M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1a} + H_{1a} / 2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) equation corrected: R1a-H1a/2 should be R1a+H1a/2

$$10 \cdot \text{Log}M_{New} + CIO_{New} < W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1a} + H_{1a} / 2),$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of the cell entering the reporting range.

$CIO_{New}$  is the individual cell offset for the cell entering the reporting range if an individual cell offset is stored for that cell. Otherwise it is equal to 0.

$M_i$  is a measurement result of a cell not forbidden to affect reporting range in the active set.

$N_A$  is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result, not taking into account any cell individual offset.

for other measurements quantities.

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result, not taking into account any individual offset.

$W$  is a parameter sent from UTRAN to UE.

$R_{1a}$  is the reporting range constant.

$H_{1a}$  is the hysteresis parameter for the event 1a.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{New}$ ,  $M_i$  and  $M_{Best}$  are expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{New}$ ,  $M_i$  and  $M_{Best}$  are expressed in [mW].

#### 14.1.2.2 Reporting event 1B: A primary CPICH leaves the reporting range

When an intra-frequency measurement configuring event 1b is set up, the UE shall:

- create a variable TRIGGERED\_1B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1B is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and

- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT that are part of the active set; [in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1B\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1B\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \geq W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R + H_{1b} / 2),$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \leq W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R + H_{1b} / 2),$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} < W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R - H_{1b} / 2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} > W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R - H_{1b} / 2),$$

The variables in the formula are defined as follows:

$M_{Old}$  is the measurement result of the cell leaving the reporting range.

$CIO_{old}$  is the individual cell offset for the cell leaving the reporting range if an individual cell offset is stored for that cell. Otherwise it is equal to 0.

$M_i$  is a measurement result of a cell not forbidden to affect reporting range in the active set.

$N_A$  is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result, not taking into account any cell individual offset.

for other measurements quantities.

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result, not taking into account any cell individual offset.

$W$  is a parameter sent from UTRAN to UE.

$R_{lb}$  is the reporting range constant.

$H_{lb}$  is the hysteresis parameter for the event 1b.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{Old/New}$ ,  $M_i$  and  $M_{Best}$  are expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{Old/New}$ ,  $M_i$  and  $M_{Best}$  are expressed in [mW].

#### 14.1.2.3 Reporting event 1C: A non-active primary CPICH becomes better than an active primary CPICH

When an intra-frequency measurement configuring event 1c is set up, the UE shall:

- create a variable TRIGGERED\_1C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1C is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more a primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and
- if the equations have been fulfilled during the time "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that first primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:

- if the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT is set to FALSE:
  - start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to TRUE.
  - set "sent reports" for that primary CPICH in the variable TRIGGERED\_1C\_EVENT to 1.
- send a measurement report with IEs set as below:
  - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
  - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value. ~~ordering~~ The "primary CPICH info" for those cells shall be ordered according to their measured value taking into account their cell individual offset, beginning with the best cell to the worst one;
  - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT, and not included in the current active set:
    - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for that primary CPICH, in "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
      - increment the stored counter "sent reports" for all CPICH in "cell triggered" in variable TRIGGERED\_1C\_EVENT;
      - start a timer with the value of "Reporting interval" for this event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
      - include in "cell measurement event results" all entries of the variable TRIGGERED\_1C\_EVENT with value of IE "sent report" smaller than value of "Amount of reporting" and that are not part of the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - if "sent reports" in variable TRIGGERED\_1C\_EVENT is greater than "Amount of reporting" for all entries:

- set the IE "Periodical Reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
    - if no entry in the variable TRIGGERED\_1C\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
      - stop the reporting interval timer;
      - set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO, and to introduce the logarithm\]](#)

$$10 \text{Log}M_{New} + CIO_{New} \leq 10 \text{Log}M_{InAS} + CIO_{InAS} - H_c / 2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \text{Log}M_{New} + CIO_{New} \geq 10 \text{Log}M_{InAS} + CIO_{InAS} + H_c / 2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \text{Log}M_{New} + CIO_{New} > 10 \text{Log}M_{InAS} + CIO_{InAS} + H_c / 2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \text{Log}M_{New} + CIO_{New} < 10 \text{Log}M_{InAS} + CIO_{InAS} - H_c / 2$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of the cell not included in the active set.

[CIO<sub>New</sub> is the individual cell offset for the cell becoming better than the cell in the active set if an individual cell offset is stored for that cell. Otherwise it is equal to 0.](#)

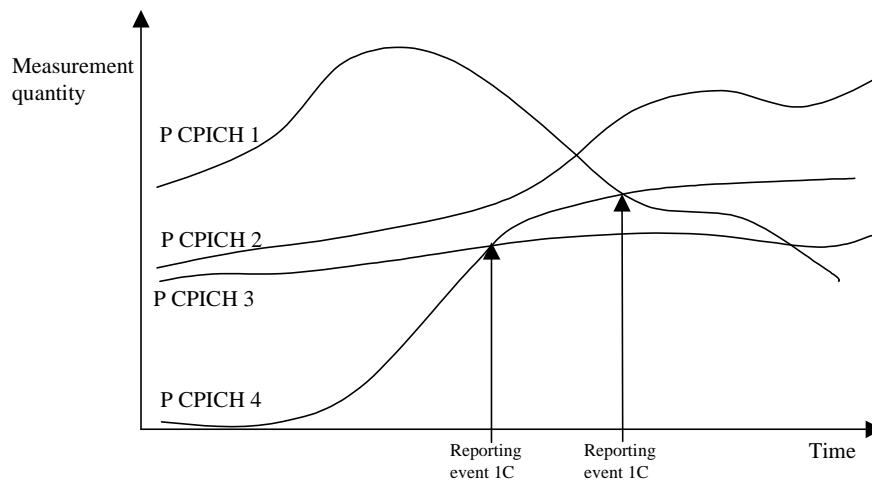
$M_{InAS}$  is the measurement result of a cell in the active set.

[CIO<sub>InAS</sub> is the individual cell offset for the cell in the active set that is becoming worse than the new cell.](#)

$H_c$  is the hysteresis parameter for the event 1c.

[If the measurement results are pathloss or CPICH-Ec/No then  \$M\_{New}\$  and  \$M\_{InAS}\$  are expressed as ratios.](#)

[If the measurement result is CPICH-RSCP then  \$M\_{New}\$  and  \$M\_{InAS}\$  are expressed in \[mW\].](#)



**Figure 14.1.2.3-1 [Informative]: A primary CPICH that is not included in the active set becomes better than a primary CPICH that is in the active set. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.**

*In this example the cells belonging to primary CPICH 1, 2 and 3 are supposed to be in the active set, but the cell transmitting primary CPICH 4 is not (yet) in the active set.*

#### 14.1.2.4 Reporting event 1D: Change of best cell

When an intra-frequency measurement configuring event 1d is set up, the UE shall:

- create a variable TRIGGERED\_1D\_EVENT related to that measurement, which shall initially contain the best cell in the active set when the measurement is initiated;
- delete this variable when the measurement is released.

When event 1D is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT:
  - if all required reporting quantities are available for that cell, and
- if the equations have been fulfilled during the time "Time to trigger":
  - set "best cell" in the variable BEST\_CELL\_1D\_EVENT to that primary CPICH that triggered the event;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

Upon transition to CELL\_DCH the UE shall:

- set "best cell" in the variable BEST\_CELL\_1D\_EVENT to the best cell of the primary CPICHs included in the active set.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to introduce the logarithm\]](#)

$$10 \text{Log}M_{NotBest} \leq 10 \text{Log}M_{Best} - H_{Id}/2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to introduce the logarithm\]](#)

$$10 \text{Log}M_{NotBest} \geq 10 \text{Log}M_{Best} + H_{Id}/2$$

The variables in the formula are defined as follows:

$M_{NotBest}$  is the measurement result of a cell not stored in "best cell" in the variable BEST\_CELL\_1D\_EVENT.

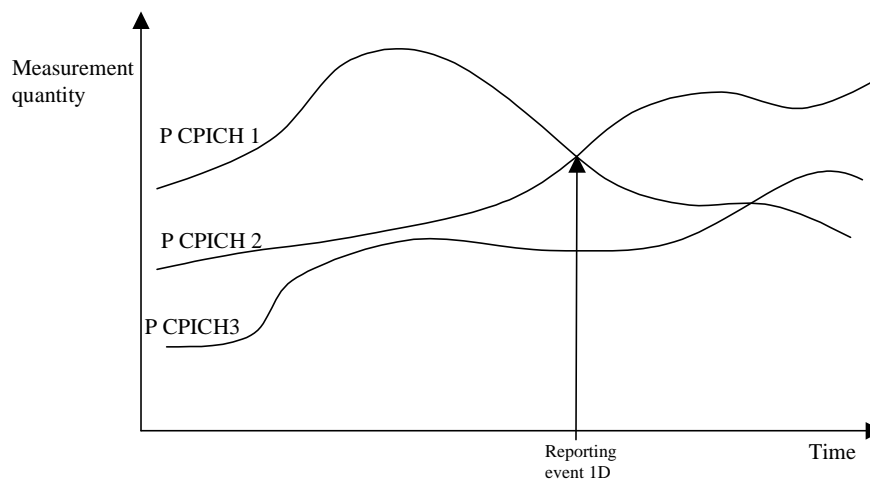
$M_{Best}$  is the measurement result of the cell stored in "best cell" in variable BEST\_CELL\_1D\_EVENT.

$H_{Id}$  is the hysteresis parameter for the event 1d.

[If the measurement results are pathloss or CPICH-Ec/No then  \$M\_{NotBest}\$  and  \$M\_{Best}\$  are expressed as ratios.](#)

[If the measurement result is CPICH-RSCP then  \$M\_{NotBest}\$  and  \$M\_{Best}\$  are expressed in \[mW\].](#)

[Note: the cell individual offsets for the two cells being compared shall not be taken into account when checking whether this event has been triggered or not.](#)



**Figure 14.1.2.4-1** [\[Informative\]](#): A primary CPICH becomes better than the previously best primary CPICH. [In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.](#)

#### 14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold

[When an intra-frequency measurement configuring event 1e is set up, the UE shall:](#)

- [create a variable TRIGGERED\\_1E\\_EVENT related to that measurement, which shall initially be empty;](#)
- [delete this variable when the measurement is released.](#)

When event 1E is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

- [if all required reporting quantities are available for that cell, and](#)
- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1e"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT that are not part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1E\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - remove that primary CPICH and sent reports from "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells in the current active set that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1e into the "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} \leq T_{le} - H_{le} / 2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} \geq T_{le} + H_{le} / 2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} > T_{le} + H_{le} / 2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm\]](#)



$$10 \log M_{New} + CIO_{New} < T_{1e} - H_{1e} / 2$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of a cell that becomes better than an absolute threshold.

$CIO_{New}$  is the individual cell offset for the cell becoming better than the absolute threshold. Otherwise it is equal to 0.

$T_{1e}$  is an absolute threshold.

$H_{1e}$  is the hysteresis parameter for the event 1e.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{New}$  is expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{New}$  is expressed in [mW].

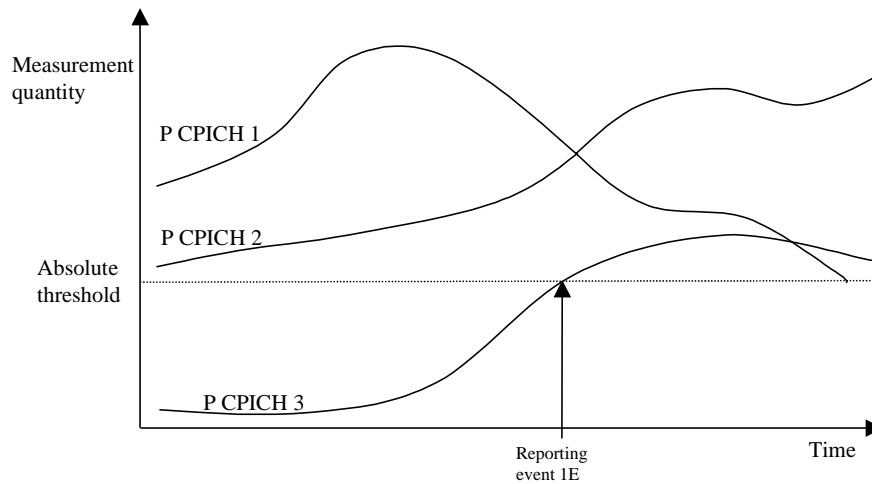


Figure 14.1.2.5-1[Informative]: Event-triggered report when a Primary CPICH becomes better than an absolute threshold. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.

#### 14.1.2.6 Reporting event 1F: A Primary CPICH becomes worse than an absolute threshold

When an intra-frequency measurement configuring event 1e is set up, the UE shall:

- create a variable TRIGGERED 1E EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1F is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and

- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency event measurement results": "Intrafrequency event identity" to "1f"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT that are part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1F\_EVENT. [\[indent decreased one level\]](#)
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - remove that primary CPICH from "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1f into the "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} \geq T_{1f} + H_{1f}/2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO, and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} \leq T_{1f} - H_{1f}/2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} < T_{1f} - H_{1f}/2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} > T_{1f} + H_{1f}/2$$

The variables in the formula are defined as follows:

$M_{New}$ ,  $M_{Old}$  is the measurement result of a cell that becomes worse than an absolute threshold

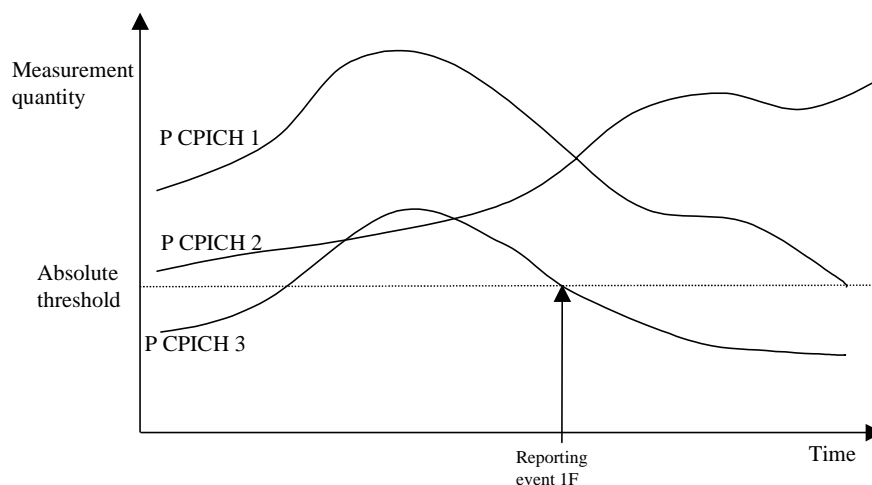
$CIO_{Old}$  is the individual cell offset for the cell becoming worse than the absolute threshold. Otherwise it is equal to 0.

$T_{If}$  is an absolute threshold

$H_{If}$  is the hysteresis parameter for the event 1f.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{Old}$  is expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{Old}$  is expressed in [mW].



**Figure 14.1.2.6-1 [Informative]:** Event-triggered report when a Primary CPICH becomes worse than an absolute threshold. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.

#### 14.3.1.1 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.

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

- create a variable TRIGGERED\_3A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equations 1 and 2 below have both been fulfilled during the time "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

- if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED\_3A\_EVENT:
  - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable.
  - send a measurement report with IEs set as below:
    - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
    - "measured results" and possible "additional measured results" according to 8.4.2.
- if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3A\_EVENT:
  - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3A\_EVENT.
- if equation 3 is fulfilled for the used frequency in UTRAN:
  - clear the variable TRIGGERED\_3A\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equations 1 and 2 below have been fulfilled during the time "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCNs is not stored into the variable TRIGGERED\_3A\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
        - "measured results" and possible "additional measured results" according to 8.4.2.
    - if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3A\_EVENT:
      - remove that BCCH ARFCN from the variable TRIGGERED\_3A\_EVENT.
  - if equation 3 is fulfilled for the used frequency in UTRAN:
    - clear the variable TRIGGERED\_3A\_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Used} \leq T_{Used} - H_{3a} / 2$$

The variables in the formula are defined as follows:

$Q_{Used}$  is the quality estimate of the used UTRAN frequency.

$T_{Used}$  is the absolute threshold that applies for the used frequency in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Equation 2: [equation modified to include the CIO](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \geq T_{Other\ RAT} + H_{3a} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Leaving triggered state conditions:

Equation 3:

$$Q_{Used} > T_{Used} + H_{3a} / 2$$

The variables in the formula are defined as follows:

$Q_{Used}$  is the quality estimate of the used UTRAN frequency.

$T_{Used}$  is the absolute threshold that applies for the used frequency in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Equation 4: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} < T_{Other\ RAT} - H_{3a} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

#### 14.3.1.2 Event 3b: The estimated quality of other system is below a certain threshold

When an inter-RAT measurement configuring event 3b is set up, the UE shall:

- create a variable TRIGGERED\_3B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3b is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3B\_EVENT:
      - store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.

- if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3B\_EVENT:
  - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3B\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3B\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.;
  - if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3B\_EVENT:
    - remove that BCCH ARFCN from the variable TRIGGERED\_3B\_EVENT.

Triggering condition:

Equation 1: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \leq T_{Other\ RAT} - H_{3b} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3b}$  is the hysteresis parameter for event 3b.

Leaving triggered state condition:

Equation 2: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} > T_{Other\ RAT} + H_{3b} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3b}$  is the hysteresis parameter for event 3b.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

### 14.3.1.3 Event 3c: The estimated quality of other system is above a certain threshold

When an inter-RAT measurement configuring event 3c is set up, the UE shall:

- create a variable TRIGGERED\_3C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3c is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3C\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3C\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3C\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equation 1 below has been fulfilled during the time "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3C\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
      - if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3C\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3C\_EVENT.

Triggering condition:

Equation 1: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \geq T_{Other\ RAT} + H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3c}$  is the hysteresis parameter for event 3c.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

Leaving triggered state condition:

Equation 2: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} < T_{Other\ RAT} - H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3c}$  is the hysteresis parameter for event 3c.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)



CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1317** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification on serving cell in SIB11		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 12 FEB 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	⌘ The specification is not clear as to whether the serving cell is included in the intra frequency cell list contained in SIB11. There is text in semantic column of the IE 'Cell info' that says 'This IE is absent for the serving cell' - this text suggests that the serving cell info should be included in the cell list in SIB11. Therefore it is proposed to state more clearly that the serving cell info should be included in the cell list in SIB11.
<b>Summary of change:</b>	⌘ Text is added to the semantic column of the IE 'intra-frequency cell info list' to clearly state that the serving cell should be included in the list in SIB11.
	<p><b>Isolated Impact Analysis</b></p> <p>Functionality corrected: Handling of cell info list in SIB 11</p> <p>Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</p>
<b>Consequences if not approved:</b>	⌘ The specifications will be unclear about whether the serving cell info is included in the cell list in SIB11. UE implementations would have to handle both cases of the cell being in the list and the cell being absent from the list.

<b>Clauses affected:</b>	⌘ 10.3.7.33		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.9.0, CR 1316
<b>Other comments:</b>	⌘		

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Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 10.3.7.33 Intra-frequency cell info list

Contains the information for the list of measurement objects for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Intra-frequency cell removal</i>	OP			Absence of this IE is equivalent to choice "Remove no intra-frequency cells".
>Remove all intra-frequency cells				No data
>Remove some intra-frequency cells				
>>Removed intra-frequency cells	MP	1 to <maxCellMeas>		
>>>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no intra-frequency cells				
New intra-frequency cells	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	OP		Integer(0 .. <maxCellMeas> - 1)	
>Cell info	MP		Cell info 10.3.7.2	<a href="#">This IE must be included for the serving cell when the IE "Intra frequency cell info list" is included in System Information Block 11.</a>
Cells for measurement	CV- <i>BCHopt</i>	1 to <maxCellMeas>		
>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas>-1)	

Condition	Explanation
<i>BCHopt</i>	This IE is not needed when sent in SYSTEM INFORMATION. Otherwise, the IE is Optional

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331G CR 1316** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification on serving cell in SIB11		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 12 FEB 2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The specification is not clear as to whether the serving cell is included in the intra frequency cell list contained in SIB11. There is text in semantic column of the IE 'Cell info' that says 'This IE is absent for the serving cell' - this text suggests that the serving cell info should be included in the cell list in SIB11. Therefore it is proposed to state more clearly that the serving cell info should be included in the cell list in SIB11.
<b>Summary of change:</b>	⌘ Text is added to the semantic column of the IE 'intra-frequency cell info list' to clearly state that the serving cell should be included in the list in SIB11.
	<p><b>Isolated Impact Analysis</b></p> <p>Functionality corrected: Handling of cell info list in SIB 11</p> <p>Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</p>
<b>Consequences if not approved:</b>	⌘ The specifications will be unclear about whether the serving cell info is included in the cell list in SIB11. UE implementations would have to handle both cases of the cell being in the list and the cell being absent from the list.

<b>Clauses affected:</b>	⌘ 10.3.7.33		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘ 25.331 v4.3.0, CR 1317	
<b>Other comments:</b>	⌘		

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

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 10.3.7.33 Intra-frequency cell info list

Contains the information for the list of measurement objects for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Intra-frequency cell removal</i>	OP			Absence of this IE is equivalent to choice "Remove no intra-frequency cells".
>Remove all intra-frequency cells				No data
>Remove some intra-frequency cells				
>>Removed intra-frequency cells	MP	1 to <maxCellMeas>		
>>>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no intra-frequency cells				
New intra-frequency cells	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	OP		Integer(0 .. <maxCellMeas> - 1)	
>Cell info	MP		Cell info 10.3.7.2	<a href="#">This IE must be included for the serving cell when the IE "Intra frequency cell info list" is included in System Information Block 11.</a>
Cells for measurement	CV- <i>BCHopt</i>	1 to <maxCellMeas>		
>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas>-1)	

Condition	Explanation
<i>BCHopt</i>	This IE is not needed when sent in SYSTEM INFORMATION. Otherwise, the IE is Optional

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1313** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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

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

<b>Title:</b>	⌘ RRC Connection Release following network authentication failure		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 09 Feb 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The AS specifications do not state the UE behaviour when the NAS determines that the network authentication has failed.
<b>Summary of change:</b>	⌘ It is stated that when indicated from upper layers that a network authentication failure has occurred, the UE shall release the RRC connection and enter idle mode considering the cell or cells to be barred.  <b>Isolated Impact Analysis</b> Functionality corrected: UE behaviour after failure of network authentication.  Isolated impact statement: Correction to a function where specification was missing procedural text or rules. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
<b>Consequences if not approved:</b>	⌘ The UE behaviour when the NAS determines a network authentication has failed is not clearly defined. This could result in UEs remaining with an RRC connection to a cell, or camped on a cell on which a network authentication has failed.

<b>Clauses affected:</b>	⌘ 8.1.4a (new), 8.1.4a.1 (new), 8.1.4a.2 (new)		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.9.0, CR 1312r1
<b>Other comments:</b>	⌘		

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

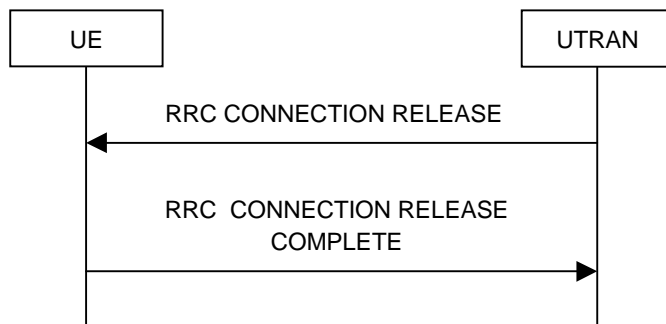
Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.



### 8.1.4 RRC connection release



**Figure 8.1.4-1: RRC Connection Release procedure on the DCCH**



**Figure 8.1.4-2: RRC Connection Release procedure on the CCCH**

#### 8.1.4.1 General

The purpose of this procedure is to release the RRC connection including all radio bearers and all signalling radio bearers between the UE and the UTRAN. By doing so, all established 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 the downlink DCCH should be used, if available. If the downlink DCCH is not available in UTRAN and the UE is in CELL\_FACH state, the downlink CCCH may be used.

UTRAN may transmit several RRC CONNECTION RELEASE messages to increase the probability of proper reception of the message by the UE. In such a case, the RRC SN for these repeated messages shall be the same. This shall also apply to the RRC CONNECTION RELEASE COMPLETE message. 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; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U\_RNTI; or
- if the message is received on DCCH:

the UE shall:

- in state CELL\_DCH:
  - initialise the counter V308 to zero;

- set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
- if the IE "Rplmn information" is present:
  - the UE may:
    - 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 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.
- in state CELL\_FACH:
  - if the RRC CONNECTION RELEASE message was received on the DCCH:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
    - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.
    - when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:
      - release all its radio resources; and
      - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers; and
      - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;
      - clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
      - clear the variable ESTABLISHED\_RABS;
      - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
      - enter idle mode;
      - perform the actions specified in subclause 8.5.2 when entering idle mode.
  - and the procedure ends.
  - if the RRC CONNECTION RELEASE message was received on the CCCH:
    - release all its radio resources;
    - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to the upper layers;
    - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

- clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
- clear the variable ESTABLISHED\_RABS;
- pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
- enter idle mode;
- perform the actions specified in subclause 8.5.2 when entering idle mode;
- and the procedure ends.

#### 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 9, 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:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS;
    - 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 Cell re-selection or radio link failure

If the UE performs cell re-selection or the radio link failure criteria in subclause 8.5.6 is met at any time during the RRC connection release procedure and the UE has not yet entered idle mode, the UE shall:

- if cell re-selection occurred (CELL\_FACH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection".
- if radio link failure occurred (CELL\_DCH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

#### 8.1.4.6 Expiry of timer T308, unacknowledged mode transmission

When in state CELL\_DCH and the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - prior to retransmitting the RRC CONNECTION RELEASE COMPLETE message:
    - if the IE "Status" in the variable INTEGRITY\_PROTECTION\_INFO has the value "Started":
      - include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

- increment the "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY\_PROTECTION\_INFO by one;
- set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY\_PROTECTION\_INFO in this message;
- recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with subclause 8.5.10.3.
- else:
  - include the same IEs as in the last unsuccessful attempt of this message.
- set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message retransmitted below to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
- send the RRC CONNECTION RELEASE COMPLETE message on signalling radio bearer RB1.
- if V308 is greater than N308:
  - release all its radio resources;
  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers;
  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;
  - clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
  - clear the variable ESTABLISHED\_RABS;
  - enter idle mode;
  - perform the actions specified in subclause 8.5.2 when entering idle mode;
  - and the procedure ends.

#### 8.1.4.7 Void

#### 8.1.4.8 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.

#### 8.1.4.9 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;
- indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers;
- clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;

- clear the variable ESTABLISHED\_RABS;
- enter idle mode;
- perform the actions specified in subclause 8.5.2 when entering idle mode;
- and the procedure ends.

#### 8.1.4.10 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.

#### 8.1.4.11 Failure to receive 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.

### 8.1.4a RRC connection release requested by upper layers

#### 8.1.4a.1 General

The purpose of this procedure is to release the RRC connection and bar the current cell or cells. The procedure is requested by upper layers when they determine that the network has failed an authentication check [5].

#### 8.1.4a.2 Initiation

If the upper layers request the release of the RRC connection, the UE shall:

- release all its radio resources;
- enter idle mode;
- perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
- if the UE was in CELL\_DCH state prior to entering idle mode:
  - consider all cells that were in the active set prior to entering idle mode to be barred according to [4]; and
  - consider the barred cells as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T<sub>barred</sub>".
- if the UE was in CELL\_FACH or CELL\_PCH or URA\_PCH state prior to entering idle mode:
  - consider the cell on which the UE was camped prior to entering idle mode to be barred according to [4]; and
  - consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T<sub>barred</sub>".

#### 8.1.5 Void

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1312** ⌘ rev **r1** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ RRC Connection Release following network authentication failure		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 09 Feb 2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The AS specifications do not state the UE behaviour when the NAS determines that the network authentication has failed.
<b>Summary of change:</b>	⌘ It is stated that when indicated from upper layers that a network authentication failure has occurred, the UE shall release the RRC connection and enter idle mode considering the cell or cells to be barred.
	<p><b>Isolated Impact Analysis</b>                  Functionality corrected: UE behaviour after failure of network authentication.</p> <p>Isolated impact statement: Correction to a function where specification was missing procedural text or rules. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</p>
<b>Consequences if not approved:</b>	⌘ The UE behaviour when the NAS determines a network authentication has failed is not clearly defined. This could result in UEs remaining with an RRC connection to a cell, or camped on a cell on which a network authentication has failed.

<b>Clauses affected:</b>	⌘ 8.1.4a (new), 8.1.4a.1 (new), 8.1.4a.2 (new)		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘ 25.331 v4.3.0, CR 1313	
<b>Other comments:</b>	⌘		

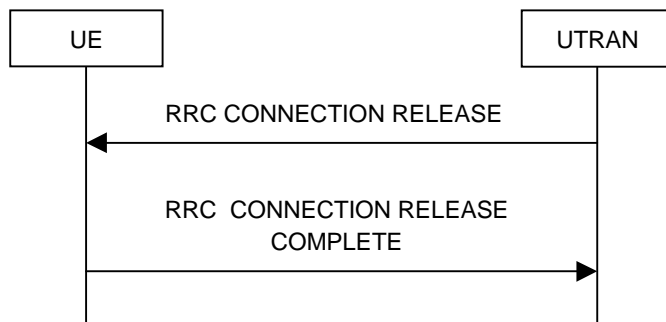
**How to create CRs using this form:**

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

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

### 8.1.4 RRC connection release



**Figure 8.1.4-1: RRC Connection Release procedure on the DCCH**



**Figure 8.1.4-2: RRC Connection Release procedure on the CCCH**

#### 8.1.4.1 General

The purpose of this procedure is to release the RRC connection including all radio bearers and all signalling radio bearers between the UE and the UTRAN. By doing so, all established 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 the downlink DCCH should be used, if available. If the downlink DCCH is not available in UTRAN and the UE is in CELL\_FACH state, the downlink CCCH may be used.

UTRAN may transmit several RRC CONNECTION RELEASE messages to increase the probability of proper reception of the message by the UE. In such a case, the RRC SN for these repeated messages shall be the same. This shall also apply to the RRC CONNECTION RELEASE COMPLETE message. 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; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U\_RNTI; or
- if the message is received on DCCH:

the UE shall:

- in state CELL\_DCH:
  - initialise the counter V308 to zero;



- set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
- if the IE "Rplmn information" is present:
  - the UE may:
    - 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 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.
- in state CELL\_FACH:
  - if the RRC CONNECTION RELEASE message was received on the DCCH:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
    - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.
    - when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:
      - release all its radio resources; and
      - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers; and
      - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;
      - clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
      - clear the variable ESTABLISHED\_RABS;
      - pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
      - enter idle mode;
      - perform the actions specified in subclause 8.5.2 when entering idle mode.
  - and the procedure ends.
  - if the RRC CONNECTION RELEASE message was received on the CCCH:
    - release all its radio resources;
    - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to the upper layers;
    - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

- clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
- clear the variable ESTABLISHED\_RABS;
- pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;
- enter idle mode;
- perform the actions specified in subclause 8.5.2 when entering idle mode;
- and the procedure ends.

#### 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 9, 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:
    - set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS;
    - 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 Cell re-selection or radio link failure

If the UE performs cell re-selection or the radio link failure criteria in subclause 8.5.6 is met at any time during the RRC connection release procedure and the UE has not yet entered idle mode, the UE shall:

- if cell re-selection occurred (CELL\_FACH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection".
- if radio link failure occurred (CELL\_DCH state):
  - perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

#### 8.1.4.6 Expiry of timer T308, unacknowledged mode transmission

When in state CELL\_DCH and the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - prior to retransmitting the RRC CONNECTION RELEASE COMPLETE message:
    - if the IE "Status" in the variable INTEGRITY\_PROTECTION\_INFO has the value "Started":
      - include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

- increment the "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY\_PROTECTION\_INFO by one;
- set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY\_PROTECTION\_INFO in this message;
- recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with subclause 8.5.10.3.
- else:
  - include the same IEs as in the last unsuccessful attempt of this message.
- set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message retransmitted below to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;
- send the RRC CONNECTION RELEASE COMPLETE message on signalling radio bearer RB1.
- if V308 is greater than N308:
  - release all its radio resources;
  - indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers;
  - clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;
  - clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;
  - clear the variable ESTABLISHED\_RABS;
  - enter idle mode;
  - perform the actions specified in subclause 8.5.2 when entering idle mode;
  - and the procedure ends.

#### 8.1.4.7 Void

#### 8.1.4.8 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.

#### 8.1.4.9 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;
- indicate the release of the established signalling connections (as stored in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED\_RABS) to upper layers;
- clear the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS;

- clear the variable ESTABLISHED\_RABS;
- enter idle mode;
- perform the actions specified in subclause 8.5.2 when entering idle mode;
- and the procedure ends.

#### 8.1.4.10 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.

#### 8.1.4.11 Failure to receive 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.

### 8.1.4a RRC connection release requested by upper layers

#### 8.1.4a.1 General

The purpose of this procedure is to release the RRC connection and bar the current cell or cells. The procedure is requested by upper layers when they determine that the network has failed an authentication check [5].

#### 8.1.4a.2 Initiation

If the upper layers request the release of the RRC connection, the UE shall:

- release all its radio resources;
- enter idle mode;
- perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;
- if the UE was in CELL\_DCH state prior to entering idle mode:
  - consider all cells that were in the active set prior to entering idle mode to be barred according to [4]; and
  - consider the barred cells as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T<sub>barred</sub>".
- if the UE was in CELL\_FACH or CELL\_PCH or URA\_PCH state prior to entering idle mode:
  - consider the cell on which the UE was camped prior to entering idle mode to be barred according to [4]; and
  - consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T<sub>barred</sub>".

#### 8.1.5 Void

CR-Form-v4

## CHANGE REQUEST

⌘ **25.331 CR 1307** ⌘ ev **-** ⌘ Current version: **4.3.0** ⌘

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

<b>Title:</b>	⌘ Correction to processing RB mapping info		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2002-02-21
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	⌘ The linkage between RLC info's "DL RLC mode" and the RB "Number of downlink RLC Logical Channels" present in the tabular is not reflected correctly in the procedural text.
<b>Summary of change:</b>	⌘ It is proposed to correct the procedural text in section 8.6.4.8 to be consistent with the tabular in section 10.3.4.21.  <b>Isolated impact</b> Corrected functionality is processing of RB Mapping Info <ul style="list-style-type: none"> <li>• Correction to a function where the specification was                         <ul style="list-style-type: none"> <li>○ Containing some contradictions.</li> </ul> </li> </ul> Would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
<b>Consequences if not approved:</b>	⌘ 25.331 includes inconsistent and potentially confusing text.

<b>Clauses affected:</b>	⌘ 8.6.4.8		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.9.0, CR 1306r1
<b>Other comments:</b>	⌘		

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

### 8.6.4.8 RB mapping info

If the IE "RB mapping info" is included, the UE shall:

- for each multiplexing option of the RB:
  - if a transport channel that would not exist as a result of the message (i.e. removed in the same message in IE "Deleted DL TrCH information" and IE "Deleted UL TrCH information") is referred to:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if a multiplexing option that maps a logical channel corresponding to a TM-RLC entity onto RACH, CPCH, FACH or DSCH is included:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if the multiplexing option realises the radio bearer on the uplink (resp. on the downlink) using two logical channels with different values of the IE "Uplink transport channel type" (resp. of the IE "Downlink transport channel type"):
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if that RB is using TM and the IE "Segmentation indication" is set to TRUE and, based on the multiplexing configuration resulting from this message, the logical channel corresponding to it is mapped onto the same transport channel as another logical channel:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if the transport channel considered in that multiplexing option is different from RACH and if that RB is using AM and the set of RLC sizes applicable to the logical channel transferring data PDUs has more than one element:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if that RB is using UM or TM and the multiplexing option realises it using two logical channels:
    - set the variable INVALID\_CONFIGURATION to TRUE.
- for each logical channel in that multiplexing option:
  - if the value of the IE "RLC size list" is set to "Explicit list":
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or
    - if the transport channel this logical channel is mapped on in this multiplexing option is different from RACH, and if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
      - set the variable INVALID\_CONFIGURATION to TRUE.
  - if the value of the IE "RLC size list" is set to "All":

- if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
- if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
  - set the variable INVALID\_CONFIGURATION to TRUE.
- if the value of the IE "RLC size list" is set to "Configured":
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and for none of the RLC sizes defined for that transport channel in the "Transport format set", the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel; or
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and for none of the RLC sizes defined in the transport format set stored for that transport channel, the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel:
    - set the variable INVALID\_CONFIGURATION to TRUE.
- if, as a result of the message this IE is included in, several radio bearers can be mapped onto the same transport channel, and the IE "Logical Channel Identity" was not included in the RB mapping info of any of those radio bearers for a multiplexing option on that transport channel or the same "Logical Channel Identity" was used more than once in the RB mapping info of those radio bearers for the multiplexing options on that transport channel:
  - set the variable INVALID\_CONFIGURATION to TRUE.
- delete all previously stored multiplexing options for that radio bearer;
- store each new multiplexing option for that radio bearer;
- select and configure the multiplexing options applicable for the transport channels to be used;
- if the IE "Uplink transport channel type" is set to the value "RACH":
  - in FDD:
    - refer the IE "RLC size index" to the RACH Transport Format Set of the first PRACH received in the IE "PRACH system information list" received in SIB5 or SIB6.
  - in TDD:
    - use the first Transport Format of the PRACH of the IE "PRACH system information list" at the position equal to the value in the IE "RLC size index".
- determine the sets of RLC sizes that apply to the logical channels used by that RB, based on the IEs "RLC size list" and/or the IEs "Logical Channel List" included in the applicable "Transport format set" (either the ones received in the same message or the ones stored if none were received); and
- in case the selected multiplexing option is a multiplexing option on RACH:
  - ignore the RLC size indexes that do not correspond to any RLC size within the Transport Format Set stored for RACH.
- if RACH is the transport channel to be used on the uplink, if that RB has a multiplexing option on RACH and if it is using AM:
  - apply the largest size amongst the ones derived according to the previous bullet for the RLC size (or RLC sizes in case the RB is realised using two logical channels) for the corresponding RLC entity.



- if that RB is using AM and the RLC size applicable to the logical channel transporting data PDUs is different from the one derived from the previously stored configuration:
  - re-establish the corresponding RLC entity;
  - configure the corresponding RLC entity with the new RLC size;
  - for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED\_RABS for all radio bearers; and
  - for the CN domain as indicated in the IE "CN domain identity" in the variable LATEST\_CONFIGURED\_CN\_DOMAIN for all signalling radio bearers:
    - if the IE "Status" in the variable CIPHERING\_STATUS of this CN domain is set to "Started":
      - if this IE was included in system information:
        - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" for this CN domain that will be included in the CELL UPDATE message that will be sent before the next transmission.
      - if this IE was included in CELL UPDATE CONFIRM:
        - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
      - if this IE was included in a reconfiguration message:
        - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.
- if that RB is using UM:
  - indicate the largest applicable RLC size to the corresponding RLC entity.
- configure MAC multiplexing according to the selected multiplexing option (MAC multiplexing shall only be configured for a logical channel if the transport channel it is mapped on according to the selected multiplexing option is the same as the transport channel another logical channel is mapped on according to the multiplexing option selected for it);
- configure the MAC with the logical channel priorities according to selected multiplexing option;
- configure the MAC with the set of applicable RLC Sizes for each of the logical channels used for that RB;
- if there is no multiplexing option applicable for the transport channels to be used:
  - set the variable INVALID\_CONFIGURATION to TRUE.
- if there is more than one multiplexing option applicable for the transport channels to be used:
  - set the variable INVALID\_CONFIGURATION to TRUE.

In case IE "~~RB mapping info~~RLC info" includes IE "Downlink RLC ~~logical channel info~~mode" ("DL RLC logical channel info is mandatory present) but IE "Number of downlink RLC logical channels" is absent in the corresponding "RB mapping info" IE, the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

Channel used in UL	DL channel type implied by "same as"
DCH	DCH
RACH	FACH
CPCH	FACH
USCH	DSCH

### 8.6.4.9 RLC Info

If the IE "RLC Info" is included, the UE shall:

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

If the IE "Transmission RLC discard" is not included for UM RLC or TM RLC, RLC discard procedure shall not be used for that radio bearer.

### 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. This parameter is not used in this release and shall be set to TRUE.
>Number of uplink RLC logical channels	CV-UL- RLC info	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH,CPCH,USCH)	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 For radio bearers mapped to RACH, "Explicit list" is the only valid choice. The UE shall regard all other choices as undefined IE values and handle these as specified in clause 9.
>>>All			Null	All RLC sizes listed in the <i>Transport Format Set</i> . 10.3.5.23
>>>Configured			Null	The RLC sizes configured for this logical channel in the <i>Transport Format Set</i> . 10.3.5.23 if present in this message or in the previously stored configuration otherwise
>>>Explicit List		1 to <maxTF>		Lists the RLC sizes that are valid for the logical channel.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the <i>RLC size</i> which arrived at that position in the <i>Transport Format Set</i> 10.3.5.23
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [15]
>Downlink RLC logical channel info	CV-DL-RLC info			
>>Number of downlink RLC logical channels	MD	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8.
>>>Downlink transport channel type	MP		Enumerated(DCH,FACH,DSCH,DCH+DSCH)	
>>>DL DCH Transport channel identity	CV-DL-DCH		Transport channel identity 10.3.5.18	
>>>DL DSCH Transport channel identity	CV-DL-DSCH		Transport channel identity 10.3.5.18	
>>>Logical channel identity	OP		Integer(1..15)	16 is reserved

## CHANGE REQUEST

⌘ **25.331 CR 1306** ⌘ ev **r1** ⌘ Current version: **3.9.0** ⌘

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

<b>Title:</b>	⌘ Correction to processing RB mapping info		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2002-02-20
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification)		Use <u>one</u> 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)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		

<b>Reason for change:</b>	⌘ The linkage between RLC info's "DL RLC mode" and the RB "Number of downlink RLC Logical Channels" present in the tabular is not reflected correctly in the procedural text.
<b>Summary of change:</b>	⌘ It is proposed to correct the procedural text in section 8.6.4.8 to be consistent with the tabular in section 10.3.4.21.  <b>Isolated impact</b> Corrected functionality is processing of RB Mapping Info <ul style="list-style-type: none"> <li>• Correction to a function where the specification was                         <ul style="list-style-type: none"> <li>○ Containing some contradictions.</li> </ul> </li> </ul> Would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
<b>Consequences if not approved:</b>	⌘ 25.331 includes inconsistent and potentially confusing text.

<b>Clauses affected:</b>	⌘ 8.6.4.8	
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ 25.331 v4.3.0, CR 1307
<b>Other comments:</b>	⌘	

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](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.
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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 8.6.4.8 RB mapping info

If the IE "RB mapping info" is included, the UE shall:

- for each multiplexing option of the RB:
  - if a transport channel that would not exist as a result of the message (i.e. removed in the same message in IE "Deleted DL TrCH information" and IE "Deleted UL TrCH information") is referred to:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if a multiplexing option that maps a logical channel corresponding to a TM-RLC entity onto RACH, CPCH, FACH or DSCH is included:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if the multiplexing option realises the radio bearer on the uplink (resp. on the downlink) using two logical channels with different values of the IE "Uplink transport channel type" (resp. of the IE "Downlink transport channel type"):
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if that RB is using TM and the IE "Segmentation indication" is set to TRUE and, based on the multiplexing configuration resulting from this message, the logical channel corresponding to it is mapped onto the same transport channel as another logical channel:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if the transport channel considered in that multiplexing option is different from RACH and if that RB is using AM and the set of RLC sizes applicable to the logical channel transferring data PDUs has more than one element:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - if that RB is using UM or TM and the multiplexing option realises it using two logical channels:
    - set the variable INVALID\_CONFIGURATION to TRUE.
- for each logical channel in that multiplexing option:
  - if the value of the IE "RLC size list" is set to "Explicit list":
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or
    - if the transport channel this logical channel is mapped on in this multiplexing option is different from RACH, and if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
    - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
      - set the variable INVALID\_CONFIGURATION to TRUE.

- if the value of the IE "RLC size list" is set to "All":
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":
    - set the variable INVALID\_CONFIGURATION to TRUE.
- if the value of the IE "RLC size list" is set to "Configured":
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and for none of the RLC sizes defined for that transport channel in the "Transport format set", the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel; or
  - if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and for none of the RLC sizes defined in the transport format set stored for that transport channel, the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel:
    - set the variable INVALID\_CONFIGURATION to TRUE.
- if, as a result of the message this IE is included in, several radio bearers can be mapped onto the same transport channel, and the IE "Logical Channel Identity" was not included in the RB mapping info of any of those radio bearers for a multiplexing option on that transport channel or the same "Logical Channel Identity" was used more than once in the RB mapping info of those radio bearers for the multiplexing options on that transport channel:
  - set the variable INVALID\_CONFIGURATION to TRUE.
- delete all previously stored multiplexing options for that radio bearer;
- store each new multiplexing option for that radio bearer;
- select and configure the multiplexing options applicable for the transport channels to be used;
- if the IE "Uplink transport channel type" is set to the value "RACH":
  - refer the IE "RLC size index" to the RACH Transport Format Set of the first PRACH received in the IE "PRACH system information list" received in SIB5 or SIB6.
- determine the sets of RLC sizes that apply to the logical channels used by that RB, based on the IEs "RLC size list" and/or the IEs "Logical Channel List" included in the applicable "Transport format set" (either the ones received in the same message or the ones stored if none were received); and
- in case the selected multiplexing option is a multiplexing option on RACH:
  - ignore the RLC size indexes that do not correspond to any RLC size within the Transport Format Set stored for RACH.
- if RACH is the transport channel to be used on the uplink, if that RB has a multiplexing option on RACH and if it is using AM:
  - apply the largest size amongst the ones derived according to the previous bullet for the RLC size (or RLC sizes in case the RB is realised using two logical channels) for the corresponding RLC entity.
- if that RB is using AM and the RLC size applicable to the logical channel transporting data PDUs is different from the one derived from the previously stored configuration:
  - re-establish the corresponding RLC entity;
  - configure the corresponding RLC entity with the new RLC size;

- for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED\_RABS for all radio bearers; and
- for the CN domain as indicated in the IE "CN domain identity" in the variable LATEST\_CONFIGURED\_CN\_DOMAIN for all signalling radio bearers:
  - if the IE "Status" in the variable CIPHERING\_STATUS of this CN domain is set to "Started":
    - if this IE was included in system information:
      - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" for this CN domain that will be included in the CELL UPDATE message that will be sent before the next transmission.
    - if this IE was included in CELL UPDATE CONFIRM:
      - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.
    - if this IE was included in a reconfiguration message:
      - set the HFN values for the corresponding RLC entity equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.
  - if that RB is using UM:
    - indicate the largest applicable RLC size to the corresponding RLC entity.
- configure MAC multiplexing according to the selected multiplexing option (MAC multiplexing shall only be configured for a logical channel if the transport channel it is mapped on according to the selected multiplexing option is the same as the transport channel another logical channel is mapped on according to the multiplexing option selected for it);
- configure the MAC with the logical channel priorities according to selected multiplexing option;
- configure the MAC with the set of applicable RLC Sizes for each of the logical channels used for that RB;
- if there is no multiplexing option applicable for the transport channels to be used:
  - set the variable INVALID\_CONFIGURATION to TRUE.
- if there is more than one multiplexing option applicable for the transport channels to be used:
  - set the variable INVALID\_CONFIGURATION to TRUE.

In case IE "~~RB mapping info~~RLC info" includes IE "Downlink RLC ~~logical channel info~~mode" ("DL RLC logical channel info" is mandatory present) but IE "Number of downlink RLC logical channels" is absent in the corresponding "RB mapping info" IE, the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

Channel used in UL	DL channel type implied by "same as"
DCH	DCH
RACH	FACH
CPCH	FACH
USCH	DSCH

#### 8.6.4.9 RLC Info

If the IE "RLC Info" is included, the UE shall:

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



If the IE "Transmission RLC discard" is not included for UM RLC or TM RLC, RLC discard procedure shall not be used for that radio bearer.

### 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. This parameter is not used in this release and shall be set to TRUE.
>Number of uplink RLC logical channels	CV-UL-RLC info	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH,CPCH,USCH)	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 For radio bearers mapped to RACH, "Explicit list" is the only valid choice. The UE shall regard all other choices as undefined IE values and handle these as specified in clause 9.
>>>All			Null	All RLC sizes listed in the <i>Transport Format Set</i> . 10.3.5.23
>>>Configured			Null	The RLC sizes configured for this logical channel in the <i>Transport Format Set</i> . 10.3.5.23 if present in this message or in the previously stored configuration otherwise
>>>Explicit List		1 to <maxTF>		Lists the RLC sizes that are valid for the logical channel.
>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the <i>RLC size</i> which arrived at that position in the <i>Transport Format Set</i> 10.3.5.23
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				user's different RBs (or logical channels). [15]
>Downlink RLC logical channel info	<i>CV-DL-RLC info</i>			
>>Number of downlink RLC logical channels	<i>MD</i>	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8.
>>>Downlink transport channel type	<i>MP</i>		Enumerated(DCH,FACH, DSCH,DCH+DSCH)	
>>>DL DCH Transport channel identity	<i>CV-DL-DCH</i>		Transport channel identity 10.3.5.18	
>>>DL DSCH Transport channel identity	<i>CV-DL-DSCH</i>		Transport channel identity 10.3.5.18	
>>>Logical channel identity	<i>OP</i>		Integer(1..15)	16 is reserved

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1298** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Timing Indication when moving to CELL_DCH state		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 18 Feb, 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The IE "Timing Indication" is a mandatory parameter in the IE "Downlink DPCH info common for all radio links". The current description regarding the IE "Timing Indication" takes hard handover into consideration, and the UE behavior in any other case, such as state transition to CELL_DCH state, is unspecified.
	<b>Isolated Impact Analysis:</b> Affected functionality is handling of Timing Indication. CR provides clarification where the specification was ambiguous or unspecified. It would not affect implementations behaving like indicated in the CR, yet it would affect implementations supporting the corrected functionality otherwise.
<b>Summary of change:</b>	⌘ It was clarified that when the IE "Downlink DPCH info common for all radio links" is included in the message, for the reason other than hard handover, the IE "Timing Indication" shall be ignored.
<b>Consequences if not approved:</b>	⌘ UE behavior is left unspecified when "Timing Indication" is included in the message to change the UE state to CELL_DCH state.

<b>Clauses affected:</b>	⌘ 8.6.6.28		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.9.0, CR 1297r1
<b>Other comments:</b>	⌘		

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

### 8.6.6.28 Downlink DPCH info common for all radio links

If the IE "Downlink DPCH info common for all RL" is included the UE shall:

- if the IE "Downlink DPCH info common for all RL" is included in a message used to perform a hard handover
  - perform actions for the IE "Timing indication" as specified in subclause 8.5.15.2, and subclause 8.3.5.1 or 8.3.5.2;
- ignore the value received in IE "CFN-targetSFN frame offset";
- if the IE "Downlink DPCH power control information" is included:
  - perform actions for the IE "DPC Mode" according to [29].
- if the IE choice "mode" is set to 'FDD':
  - if the IE "Downlink rate matching restriction information" is included:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - perform actions for the IE "spreading factor";
  - perform actions for the IE "Fixed or Flexible position";
  - perform actions for the IE "TFCI existence";
  - if the IE choice "SF" is set to 256:
    - store the value of the IE "Number of bits for pilot bits".
  - if the IE choice "SF" set to 128:
    - store the value of the IE "Number of bits for pilot bits".
- if the IE choice "mode" is set to "TDD":
  - perform actions for the IE "Common timeslot info".

If the IE "Downlink DPCH info common for all RL" is included in a message used to perform a Timing re-initialised hard handover, and ciphering is active for any radio bearer using RLC-TM, the UE shall, after having activated the dedicated physical channels indicated by that IE:

- increment HFN for RLC-TM by '1'.

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1297** ⌘ rev **r1** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Timing Indication when moving to CELL_DCH state		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 18 Feb, 2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ The IE "Timing Indication" is a mandatory parameter in the IE "Downlink DPCH info common for all radio links". The current description regarding the IE "Timing Indication" takes hard handover into consideration, and the UE behavior in any other case, such as state transition to CELL_DCH state, is unspecified.
	<p><u>Isolated Impact Analysis:</u> Affected functionality is handling of Timing Indication. CR provides clarification where the specification was ambiguous or unspecified. It would not affect implementations behaving like indicated in the CR, yet it would affect implementations supporting the corrected functionality otherwise.</p>
<b>Summary of change:</b>	⌘ It was clarified that when the IE "Downlink DPCH info common for all radio links" is included in the message, for the reason other than hard handover, the IE "Timing Indication" shall be ignored.
<b>Consequences if not approved:</b>	⌘ UE behavior is left unspecified when "Timing Indication" is included in the message to change the UE state to CELL_DCH state.

<b>Clauses affected:</b>	⌘ 8.6.6.28		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v4.3.0, CR 1298
<b>Other comments:</b>	⌘		

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### 8.6.6.28 Downlink DPCH info common for all radio links

If the IE "Downlink DPCH info common for all RL" is included the UE shall:

- if the IE "Downlink DPCH info common for all RL" is included in a message used to perform a hard handover
  - perform actions for the IE "Timing indication" as specified in subclause 8.5.15.2, and subclause 8.3.5.1 or 8.3.5.2;
- ignore the value received in IE "CFN-targetSFN frame offset";
- if the IE "Downlink DPCH power control information" is included:
  - perform actions for the IE "DPC Mode" according to [29].
- if the IE choice "mode" is set to 'FDD':
  - if the IE "Downlink rate matching restriction information" is included:
    - set the variable INVALID\_CONFIGURATION to TRUE.
  - perform actions for the IE "spreading factor";
  - perform actions for the IE "Fixed or Flexible position";
  - perform actions for the IE "TFCI existence";
  - if the IE choice "SF" is set to 256:
    - store the value of the IE "Number of bits for pilot bits".
  - if the IE choice "SF" set to 128:
    - store the value of the IE "Number of bits for pilot bits".
- if the IE choice "mode" is set to "TDD":
  - perform actions for the IE "Common timeslot info".

If the IE "Downlink DPCH info common for all RL" is included in a message used to perform a Timing re-initialised hard handover, and ciphering is active for any radio bearer using RLC-TM, the UE shall, after having activated the dedicated physical channels indicated by that IE:

- increment HFN for RLC-TM by '1'.



## CHANGE REQUEST

⌘ **25.331 CR 1294** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Actions on reception of measurement related IEs		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 12.2.2002
<b>Category:</b>	⌘ <b>A</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b>	⌘ REL-4 Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ It is not clearly specified how optional IEs are handled that are absent. This is specified with the help of a general statement.  There are very many erroneous measurement configurations that are currently not captured in the specification. Most of these erroneous configurations are obvious. It is proposed to allow UEs to send MEASUREMENT FAILURE messages in this case.  It is clarified that the UE consistency checks should be rather performed on the variable MEASUREMENT_IDENTITY than on the MEASUREMENT CONTROL message.
<b>Summary of change:</b>	⌘ Clarification on handling of optional IEs that are absent. In case of modification of the measurement the variable MEASUREMENT_IDENTITY should not be changed wrt. to these IEs Clarifying sentence included wrt to UE consistency checks on MEASUREMENT_IDENTITY. Clarify that UEs may send failure messages on additional checks than those that are currently specified.
<b>Consequences if not approved:</b>	⌘ Danger of inconsistency between UTRAN and UE. The proposals are considered to clarify the common understanding. UEs that do not conform with this CR may end up with inconsistent configurations in UTRAN and UE.

<b>Clauses affected:</b>	⌘ 8.4.1.3, 8.6.7		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.331 v3.9.0, CR 1293r1	
	<input type="checkbox"/> Test specifications		

O&M Specifications

**Other comments:** ⌘

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[http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

- read the IE "Measurement command";
- if the IE "Measurement command" has the value "setup":
  - store this measurement in the variable MEASUREMENT\_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;
  - for measurement types "inter-RAT measurement" or "inter-frequency measurement":
    - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or
    - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:
      - if the measurement is valid in the current RRC state of the UE:
        - begin measurements according to the stored control information for this measurement identity.
  - for measurement type "UE positioning measurement":
    - if the UE is in CELL\_FACH state:
      - if IE "Positioning Method" is set to "OTDOA":
        - if IE "Method Type" is set to "UE assisted":
          - if IE "UE positioning OTDOA assistance data for UE assisted" is not included:
            - if System Information Block type 15.4 is broadcast:
              - read System Information Block type 15.4.
            - act as specified in subclause 8.6.7.19.2.
          - if IE "Method Type" is set to "UE based":
            - if IE "UE positioning OTDOA assistance data for UE based" is not included:
              - if System Information Block type 15.5 is broadcast:
                - read System Information Block type 15.5.
              - act as specified in subclause 8.6.7.19.2a.
  - for any other measurement type:
    - if the measurement is valid in the current RRC state of the UE:

- begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
  - for all IEs present in the MEASUREMENT CONTROL message:
    - if a measurement was stored in the variable MEASUREMENT\_IDENTITY associated to the identity by the IE "measurement identity":
      - replace the corresponding information stored in variable MEASUREMENT\_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;
      - resume the measurements according to the new stored measurement control information.
    - otherwise:
      - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - for all optional IEs that are not present in the MEASUREMENT CONTROL message:
    - leave the currently stored information elements unchanged in the variable MEASUREMENT\_IDENTITY if not stated otherwise for that IE
- if the IE "measurement command" has the value "release":
  - terminate the measurement associated with the identity given in the IE "measurement identity";
  - clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT\_IDENTITY.
- if the IE "DPCH Compressed Mode Status Info" is present,:
  - and if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS\_IDENTITY):
    - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - if pattern sequence corresponding to IE "TGPSI" is already active (according to "TGPS Status Flag"):
    - deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.
  - after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:
    - activate the pattern sequence stored in the variable TGPS\_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "active" at the time indicated by IE "TGCFN"; and
    - begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
    - if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:
      - start the concerned pattern sequence immediately at that CFN.
  - not alter pattern sequences stored in variable TGPS\_IDENTITY, but not identified in IE "TGPSI".

- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and
  - refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT\_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE\_CAPABILITY\_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):
  - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

The UE may:

- if the IE "Measurement command" has the value "setup":
  - for measurement type "UE positioning measurement":
    - if the UE is CELL\_FACH state:
      - if IE "Positioning Method" is set to "GPS":
        - if IE "UE positioning GPS assistance data" is not included and variable UE\_POSITIONING\_GPS\_DATA is empty:
          - if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:
            - read System Information Block types 15, 15.1, 15.2 and 15.3.
          - act as specified in subclause 8.6.7.19.3.
- and the procedure ends.

## 8.6.7 Measurement information elements

On reception of measurement information elements the UE shall first store the received information in the variable MEASUREMENT\_IDENTITY. Based on the content of the variable MEASUREMENT\_IDENTITY the UE shall perform further actions as specified in 8.6.7 and 8.4. If a configuration is considered to be invalid the UE may set the variable CONFIGURATION\_INCOMPLETE to TRUE.

## CHANGE REQUEST

⌘ **25.331 CR 1293** ⌘ rev **r1** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Actions on reception of measurement related IEs		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 12.2.2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use <u>one</u> of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	⌘ It is not clearly specified how optional IEs are handled that are absent. This is specified with the help of a general statement.  There are very many erroneous measurement configurations that are currently not captured in the specification. Most of these erroneous configurations are obvious. It is proposed to allow UEs to send MEASUREMENT FAILURE messages in this case.  It is clarified that the UE consistency checks should be rather performed on the variable MEASUREMENT_IDENTITY than on the MEASUREMENT CONTROL message.
<b>Summary of change:</b>	⌘ Clarification on handling of optional IEs that are absent. In case of modification of the measurement the variable MEASUREMENT_IDENTITY should not be changed wrt. to these IEs Clarifying sentence included wrt to UE consistency checks on MEASUREMENT_IDENTITY. Clarify that UEs may send failure messages on additional checks than those that are currently specified.
<b>Consequences if not approved:</b>	⌘ Danger of inconsistency between UTRAN and UE. The proposals are considered to clarify the common understanding. UEs that do not conform with this CR may end up with inconsistent configurations in UTRAN and UE.  UEs that do consistency checks on message level are likely to send more measurement failure messages because more configurations are considered to be invalid because of the absence of the IEs. Depending on the resulting network behaviour this would be no major problem.

UEs should send failure messages if the measurement cannot be performed due to invalid configuration. UEs that do not conform with this would end up with invalid configurations without informing the network about this. This may lead to these UEs not sending measurement reports.

<b>Clauses affected:</b>	⌘	8.4.1.3, 8.6.7												
<b>Other specs affected:</b>	⌘	<table border="1"><tr><td><input type="checkbox"/></td><td>Other core specifications</td><td>⌘</td><td>25.331 v4.3.0, CR 1294</td></tr><tr><td><input type="checkbox"/></td><td>Test specifications</td><td></td><td></td></tr><tr><td><input type="checkbox"/></td><td>O&amp;M Specifications</td><td></td><td></td></tr></table>	<input type="checkbox"/>	Other core specifications	⌘	25.331 v4.3.0, CR 1294	<input type="checkbox"/>	Test specifications			<input type="checkbox"/>	O&M Specifications		
<input type="checkbox"/>	Other core specifications	⌘	25.331 v4.3.0, CR 1294											
<input type="checkbox"/>	Test specifications													
<input type="checkbox"/>	O&M Specifications													
<b>Other comments:</b>	⌘													

### How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.





### 8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

- read the IE "Measurement command";
- if the IE "Measurement command" has the value "setup":
  - store this measurement in the variable MEASUREMENT\_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;
  - for measurement types "inter-RAT measurement" or "inter-frequency measurement":
    - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or
    - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:
      - if the measurement is valid in the current RRC state of the UE:
        - begin measurements according to the stored control information for this measurement identity.
  - for measurement type "UE positioning measurement":
    - if the UE is in CELL\_FACH state:
      - if IE "Positioning Method" is set to "OTDOA":
        - if IE "Method Type" is set to "UE assisted":
          - if IE "UE positioning OTDOA assistance data for UE assisted" is not included:
            - if System Information Block type 15.4 is broadcast:
              - read System Information Block type 15.4.
            - act as specified in subclause 8.6.7.19.2.
          - if IE "Method Type" is set to "UE based":
            - if IE "UE positioning OTDOA assistance data for UE based" is not included:
              - if System Information Block type 15.5 is broadcast:
                - read System Information Block type 15.5.
              - act as specified in subclause 8.6.7.19.2a.
  - for any other measurement type:
    - if the measurement is valid in the current RRC state of the UE:
      - begin measurements according to the stored control information for this measurement identity.

- if the IE "Measurement command" has the value "modify":
  - for all IEs present in the MEASUREMENT CONTROL message:
    - if a measurement was stored in the variable MEASUREMENT\_IDENTITY associated to the identity by the IE "measurement identity":
      - replace the corresponding information stored in variable MEASUREMENT\_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;
      - resume the measurements according to the new stored measurement control information.
    - otherwise:
      - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - for all optional IEs that are not present in the MEASUREMENT CONTROL message:
    - leave the currently stored information elements unchanged in the variable MEASUREMENT\_IDENTITY if not stated otherwise for that IE
- if the IE "measurement command" has the value "release":
  - terminate the measurement associated with the identity given in the IE "measurement identity";
  - clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT\_IDENTITY.
- if the IE "DPCH Compressed Mode Status Info" is present,:
  - and if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS\_IDENTITY):
    - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - if pattern sequence corresponding to IE "TGPSI" is already active (according to "TGPS Status Flag"):
    - deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.
  - after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:
    - activate the pattern sequence stored in the variable TGPS\_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "active" at the time indicated by IE "TGCFN"; and
    - begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
    - if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:
      - start the concerned pattern sequence immediately at that CFN.
  - not alter pattern sequences stored in variable TGPS\_IDENTITY, but not identified in IE "TGPSI".
- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:

- update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and
- refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT\_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE\_CAPABILITY\_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):
  - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

The UE may:

- if the IE "Measurement command" has the value "setup":
  - for measurement type "UE positioning measurement":
    - if the UE is CELL\_FACH state:
      - if IE "Positioning Method" is set to "GPS":
        - if IE "UE positioning GPS assistance data" is not included and variable UE\_POSITIONING\_GPS\_DATA is empty:
          - if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:
            - read System Information Block types 15, 15.1, 15.2 and 15.3.
          - act as specified in subclause 8.6.7.19.3.

and the procedure ends.

## 8.6.7 Measurement information elements

On reception of measurement information elements the UE shall first store the received information in the variable MEASUREMENT\_IDENTITY. Based on the content of the variable MEASUREMENT\_IDENTITY the UE shall perform further actions as specified in 8.6.7 and 8.4. If a configuration is considered to be invalid the UE may set the variable CONFIGURATION\_INCOMPLETE to TRUE.

## CHANGE REQUEST

⌘ **25.331 CR 1289** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Spare values in ASN.1		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 22-02-2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		<b>2</b> (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		<b>R96</b> (Release 1996)
	<b>B</b> (addition of feature),		<b>R97</b> (Release 1997)
	<b>C</b> (functional modification of feature)		<b>R98</b> (Release 1998)
	<b>D</b> (editorial modification)		<b>R99</b> (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<b>REL-4</b> (Release 4)
			<b>REL-5</b> (Release 5)

**Reason for change:** ⌘ The changes included in this CR are proposed for the following reasons:

- The generic error handling upon receiving an IE with a value outside the valid range defined for this IE did not facilitate use of standard ASN.1 tools
- The generic error handling did not clarify what to do upon receiving errors in nested IEs and or in lists

**Summary of change:** ⌘ The original revision of this CR introduces the following changes:

- The current generic error handling specifies that a UE shall treat an IE with an undefined value in a same manner as a spare. This behaviour was intended to facilitate extensibility of IEs. Part of the approach was that spares would be introduced only to extend the encoded size of an IE. However, most ASN.1 tools will consider receiving a message including an IE with a value outside the defined value range, as an error at message level; a message with an invalid transfer syntax. The envisaged error behaviour should be kept for IEs for which extensibility is desired. This is done by introducing spares in the value ranges of the IE. This means that from an ASN.1 point of view the IE has a normal value; the application will have to apply the generic error handling.
- For all IEs with undefined code points an assesment has been done whether or not extensibility is needed. If so, spares are introduced. In general, the intention was to not to modify the existing behaviour
- The generic error handling has been modified to clarify that there is no ASN.1 transfer syntax error at IE level. Furthermore additional clarification is provided concerning the handling of IEs nested in another IE
- Finally, chapter 10 is updated to reflect the new principle that the ASN.1 should include the exact number of spares reserved for future extension

Revision 1 of this CR included the following modifications:

- The new spares were also introduced in the tabular format, while the specification of the existing spares was aligned

**Impact analysis:**

Impacted functionality: Support of future extension. This basically affects all messages and hence a lot of functionality may be affected

Correction type: Clarification of a function where the specification is ambiguous and incomplete. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise

Interoperability:

- Isolated impact: the impact is not noted until extensions are introduced. Although the overall functionality is not changed, for some IEs extension options are lost. However, these options were removed because the extensions were difficult/ impossible to use. Thus, since there is only a difference in behaviour for extension cases that will now not be used anymore, the CR is backwards compatible

**Consequences if not approved:**

- ⌘ UE behaviour upon receiving spare values and undefined code points is not specified unambiguously which may result in ignoring and or rejection of (system information) messages. This may result in severe interoperability problems between R99 UEs and UTRANs corresponding to a later release of the specification

**Clauses affected:**

- ⌘ 9.4, 9.6, 9.7, 9.9 (new), 10.1.1.1.1, 10.2.5, 10.2.48, 10.3.1.5, 10.3.1.10, 10.3.1.12, 10.3.3.3, 10.3.3.11, 10.3.3.13, 10.3.3.15, 10.3.3.21a, 10.3.3.22, 10.3.3.23, 10.3.3.26, 10.3.3.32, 10.3.3.33a, 10.3.3.33b, 10.3.3.34, 10.3.3.42a, 10.3.3.43, 10.3.3.46, 10.3.7.3, 10.3.7.7, 10.3.7.14, 10.3.7.15, 10.3.7.26, 10.3.7.34, 10.3.7.44, 10.3.7.45, 10.3.7.54, 10.3.7.63, 10.3.7.65, 10.3.7.67, 10.3.7.83, 10.3.7.88, 10.3.7.88a, 10.3.7.93, 10.3.7.101, 10.3.7.109, 10.3.7.111, 10.3.8.5, 10.3.8.6, 10.3.8.12, 10.3.8.21, 10.3.8.22, 11.1, 11.2, 11.3, 11.4

**Other specs affected:**

- |                            |                           |                            |
|----------------------------|---------------------------|----------------------------|
| ⌘ <input type="checkbox"/> | Other core specifications | ⌘ 25.331 v3.9.0, CR 1288r1 |
| <input type="checkbox"/>   | Test specifications       |                            |
| <input type="checkbox"/>   | O&M Specifications        |                            |

**Other comments:**

⌘

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

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

## 9.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare), ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value [49] for this IE,~~ the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
  - set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended";
  - perform procedure specific error handling according to clause 8.

If the UE receives a system information block on the BCCH with a mandatory IE having a value reserved for future extension (spare), ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value for this IE,~~ the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the system information block using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the system information block.

If the UE receives an RRC message on the BCCH or PCCH with a mandatory IE having a value reserved for future extension (spare), ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value for this IE,~~ it shall

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the message.



## 9.6 Unknown or unforeseen information element value, conditional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value [49] for this IE~~, the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
  - set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended";
  - perform procedure specific error handling according to clause 8.

If the UE receives a system information block on the BCCH for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the system information block using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the system information block.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the message.

## 9.7 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with an optional IE having a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value [49] for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the message as if the IE was not present.

If the UE receives a system information block on the BCCH with an optional IE having a value, including choice, reserved for future extension (spare), or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the system information block as if the IE was not present.

If the UE receives an RRC message on the BCCH or PCCH with an optional IE having a value, including choice, reserved for future extension (spare), or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the message as if the IE was not present.

## 9.9 Handling of errors in nested information elements

An erroneous IE may be included in another IE, which may be included in another IE and so on. This section specifies the handling of errors in mandatory IEs as well as for conditional IEs for which the specified conditions for presence are met, that are nested in another IE.

In case the UE receives an IE (IE1) that includes a mandatory IE (IE1-1) having a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), it shall consider IE1 to have an undefined value and apply the corresponding generic error handling to IE-1. In case there are many IE nesting levels, in all of which the IE is mandatory while no default value is defined, this treatment may need to be repeated several times. The following example illustrates the general principle.

ExampleMessage ::=	SEQUENCE {	
ie1	IE1	OPTIONAL,
ie2	IE2	
}		
IE1 ::=	SEQUENCE {	
ie1-1	INTEGER (1..126),	
-- ie1-1 values 13..16 are spare and should not be used in this version of the protocol		
ie1-2	IE1-2	OPTIONAL,
ie1-3	IE1-3	
}		

If in the above example, UTRAN would include ie1 and set ie1-1 to value 13 the UE experiences an error in a mandatory IE. The guideline outlined in the previous then means that the UE shall not discard the entire message but instead consider “ie1” to have an unknown value. Since IE1 is optional, the generic error handling would be to ignore “ie1”.

In case the UE receives an IE (IE1) that includes a list of another IE (IE1-1) for which one or more entries in the list have a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), it shall consider the list as if these entries were not included.

NOTE: In case the above generic error handling procedures do not result in the desired behaviour, the introduction of spares may need to be reconsidered.

#### 10.1.1.1.1 Extension of an information element with additional values or choices

In future versions of this protocol, non-critical values may be added to choices, enumerated and size constrained types.

For choices, enumerated and size constrained types it is possible to indicate how many non-critical spare values need to be reserved for future extension. In this case, the tabular format should indicate the number of spare values that are needed. ~~Within the ASN.1 spare values should only be used to increase the encoded size of an IE. This means that the ASN.1 should only include spares if the number of spare values that is needed exceeds the number of undefined code points that exist after encoding of the information element.~~ The value range defined in ASN.1 for the extensible IE should include the number of spares that are needed, since a value outside the range defined for this IE will result in a general ASN.1 violation error.

For downlink messages, spare values may be defined for non-critical information elements for which the need is specified to be MD or OP (or CV case leading to MD or OP). In this case, a receiver not comprehending the received spare value shall consider the information element to have the default value or consider it to be absent respectively.

For uplink messages spare values may be defined for all information elements, including those for which the need is specified to be MP (or CV case leading to MP).

In all cases at most one spare should be defined for choices. In this case, information elements applicable to the spare choices shall be added to the end of the message.

## 10.2.5 CELL CHANGE ORDER FROM UTRAN

This message is used to order a cell change from UTRA to another radio access technology, e.g., GSM.

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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
<b>RB Information elements</b>				
RAB information list	OP	1 to <maxRABs etup>		For each RAB to be handed over
>RAB info	MP		RAB info 10.3.4.8	
<b>Other information elements</b>				
Target cell description	MP			
>CHOICE <i>Radio Access Technology</i>	MP			<del>At least one Two spare choice values are needed.</del> <del>Criticality: Reject, is needed.</del>
>>GSM				
>>>BSIC	MP		BSIC 10.3.8.2	
>>>Band Indicator	MP		Enumerated (DCS 1800 band used, PCS 1900 band used)	Indicates how to interpret the BCCH ARFCN
>>>BCCH ARFCN	MP		Integer (0..1023)	[45]
>>>NC mode	OP		Bit string(3)	[43]
>>IS-2000				

## 10.2.48 SYSTEM INFORMATION

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message type	CV- <i>channel1</i>		Message type	
SFNprime	CV- <i>channel2</i>		Integer(0..40 94 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
CHOICE <i>Segment combination</i>	MP			<u>Five spares are needed</u>
>Combination 1				(no data)
>Combination 2				
>>First Segment	MP		First Segment, 10.2.48.1	
>Combination 3				
>>Subsequent Segment	MP		Subsequent Segment, 10.2.48.3	
>Combination 4				
>>Last segment	MP		Last segment (short), 10.2. 48.5	
>Combination 5				
>>Last segment	MP		Last Segment (short) 10.2.4 8.5	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 6				
>>Last Segment	MP		Last Segment (short), 10.2.48.5	
>>>Complete list	MP	1 to maxSIBper Msg		Note 1
>>>Complete	MP		Complete SIB (short), 10.2. 48.7	
>Combination 7				
>>Last Segment	MP		Last Segment (short), 10.2.48.5	
>>>Complete list	MP	1..< maxSIBper Msg>		Note 1
>>>Complete	MP		Complete SIB (short), 10.2. 48.7	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 8				
>>>Complete list	MP	1 to maxSIBper Msg		Note 1

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Complete	MP		Complete SIB (short), 10.2.48.7	
>Combination 9				
>>Complete list	MP	1..MaxSIB perMsg		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.48.7	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 10				
>>>Complete SIB of size 215 to 226	MP		Complete SIB, 10.2.48.6	
>Combination 11				
>>Last segment of size 215 to 222	MP		Last segment, 10.2.48.4	

Condition	Explanation
<i>channel1</i>	The IE is mandatory present if the message is sent on the FACH and not needed otherwise.
<i>channel2</i>	This IE is mandatory present if the channel is BCH, otherwise it is not needed.

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.

## 10.3.1.5 IMSI (GSM-MAP)

This IE contains an International Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN. Setting specified in [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMSI	MP	6 to <del>45</del> 21		The first element contains the first IMSI digit, the second element the second IMSI digit and so on. <u>Although normally upto 15 digits are used for this IE, a bigger length is used to support future extension.</u>
>IMSI digit	MP		INTEGER(0..9)	



## 10.3.1.10 Paging record type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging record type identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/ P-TMSI, IMSI (DS-41), TMSI (DS-41))	<u>Three spare values are needed</u>

### 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)	<u>One spare value is needed</u>

## 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, uplink data transmission, paging response, re-entered service area, radio link failure, RLC unrecoverable error)	<del>At least one</del> One spare value is 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-RAT cell re-selection, Inter-RAT cell change order, Registration, Detach, Originating High Priority Signalling, Originating Low Priority Signalling, Call re-establishment, Terminating High Priority Signalling, Terminating Low Priority Signalling, Terminating – cause unknown)	<del>At least one</del> Twelve spare values are needed.

10.3.3.13 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 update occurred, invalid configuration, configuration incomplete, unsupported measurement)	<del>At least one</del> <u>Seven</u> spare values <u>are</u> needed.

## 10.3.3.15 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 <i>UE id type</i>	MP			
>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.5	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	MP		TMSI (GSM-MAP) 10.3.1.17	
->>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 10.3.1.4	
>ESN (DS-41)			Bit string (SIZE (32))	TIA/EIA/IS-2000-4
>IMSI (DS-41)			Octet string (SIZE (5..7))	TIA/EIA/IS-2000-4
>IMSI and ESN (DS-41)				TIA/EIA/IS-2000-4
>>IMSI (DS-41)	MP		Octet string (SIZE (5..7))	TIA/EIA/IS-2000-4
>>ESN (DS-41)	MP		Bit string (SIZE (32))	TIA/EIA/IS-2000-4
>TMSI (DS-41)			Octet string (SIZE (2..4217))	TIA/EIA/IS-2000-4 Although normally upto 12 digits are used for this IE, a bigger length is used to support future extension.

## 10.3.3.21a Measurement capability extension

This IE may be used to replace the measurement capability information provided within IE "Measurement capability".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
FDD measurements	MP	1 to <maxFreq BandsFDD >		
>FDD Frequency band	MD		Enumerated( FDD2100, FDD1900)	The default value is the same as indicated in the IE "Frequency band" included in the IE " UE radio access capability extension". <del>At least one Six spare values is are needed</del>
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on the FDD frequency band indicated by the IE "FDD Frequency band"
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on the FDD frequency band indicated by the IE "FDD Frequency band"
TDD measurements	CV- <i>tdt_sup</i>	1 to <maxFreq BandsTDD >		
>TDD Frequency band	MP		Enumerated( a, b, c)	
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD frequency band indicated by the IE "TDD Frequency band"
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD frequency band indicated by the IE "TDD Frequency band"
GSM measurements	CV- <i>gsm_sup</i>	1 to <maxFreq BandsGS M>		
>GSM Frequency band	MP		Enumerated( GSM450, GSM480, GSM850, GSM900P, GSM900E, GSM1800, GSM1900)	as defined in [45]. <del>at least one Nine spare values are needed.</del>
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM frequency band indicated by the IE "GSM Frequency band"

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM frequency band indicated by the IE "GSM Frequency band"
Multi-carrier measurement	CV- <i>mc_sup</i>			
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
<i>tdd_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "TDD" or "FDD/TDD". Otherwise this field is not needed in the message.
<i>gsm_sup</i>	The IE is mandatory present if the IE "Support of GSM" has the value TRUE. Otherwise this field is not needed in the message.
<i>mc_sup</i>	The IE is mandatory present if the IE "Support of multi-carrier" has the value TRUE. Otherwise this field is not needed in the message.

### 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, Terminating High Priority Signalling, Terminating Low Priority Signalling, Terminating – cause unknown )	<u>One spare value is needed</u>

### 10.3.3.23 Paging record



Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Used paging identity</i>	MP			
>CN identity				
>>Paging cause	MP		Paging cause 10.3.3.22	
>>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>>CHOICE <i>UE Identity</i>	MP			Three spare values are needed
>>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.5	
>>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.17	
>>>>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				
>>U-RNTI	MP		U-RNTI 10.3.3.47	
>>>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 <i>Used paging identity</i>	Condition under which the given <i>used paging identity</i> is chosen
CN identity	For CN originating pages (for idle mode UEs)
UTRAN identity	For UTRAN originating pages (for connected mode UEs)

10.3.3.26 Protocol error cause

This IE indicates the cause for a message or information that 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, Information element missing, Message extension not comprehended)	<del>At least one</del> <u>Two</u> spare values are needed.

## 10.3.3.32 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject, user inactivity), directed signalling connection re-establishment)	<u>One spare value is needed.</u>

## 10.3.3.33a RF capability FDD extension

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE power class extension	MP		Enumerated(1..4)	as defined in [21]. <del>At least one</del> <u>Four spare values is-are</u> needed
Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in [21]. NOTE: Not applicable if UE is not operating in frequency band a (as defined in [21]).

## 10.3.3.33b RF capability TDD

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE power class	MP		Enumerated(1..4)	as defined in [22]
Radio frequency bands	MP		Enumerated(a, b, c, a+b, a+c, b+c, a+b+c)	as defined in [22]. <u>One spare value needed.</u>
Chip rate capability	MP		Enumerated(3.84Mcps, 1.28Mcps)	as defined in [22]

## 10.3.3.34 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 <u>One spare value is needed.</u>
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(3,4,5,6,8,16,30)	

## 10.3.3.42a UE radio access capability extension

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Frequency band specific capability list	MP	1 to <maxFreqbandsFDD>		
>Frequency band	MP		Enumerated(FDD2100, FDD1900)	<del>At least one</del> Six spare values <u>is</u> <u>are</u> needed
>RF capability FDD extension	MD		RF capability FDD extension 10.3.3.33a	the default values are the same values as in the immediately preceding IE "RF capability FDD extension"; the first occurrence is MP
>Measurement capability extension	MP		Measurement capability extension 10.3.3.21a	

## 10.3.3.43 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. This IE should not be used by the UE in this release of the protocol. <u>One spare value is needed.</u>
N301	MD		Integer(0..7)	Default value is 2. This IE should not be used by the UE in this release of the protocol.
T302	MD		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 4000. <u>One spare value is needed.</u>
N302	MD		Integer(0..7)	Default value is 3.
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. <del>At least one</del> <u>Three spare values are</u> needed. Note 1.
N304	MD		Integer(0..7)	Default value is 2. Note 1.
T305	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. <u>One spare value is needed.</u>
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 160. Note 1.
T309	MD		Integer(1...8)	Value in seconds. Default value is 5. Note 1.
T310	MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is 160. Note 1.
N310	MD		Integer(0 .. 7)	Default value is 4. Note 1.
T311	MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is 2000. Note 1.
T312	MD		Integer (0..15)	Value in seconds. Default value is 1. The value 0 is not used in this version of the specification.
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 3. Note 1.
N313	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200)	Default value is 20. Note 1.
T314	MD		Integer(0, 2, 4, 6, 8, 12, 16, 20)	Value in seconds. Default value is 12. Note 1.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180. Note 1.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1. Note 1.
T316	MD		Integer(0, 10, 20, 30, 40, 50, infinity)	Value in seconds. Default value is 30. <u>One spare value is needed.</u>
T317	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds Default value is 180.

NOTE 1: If the value of SIB1 changes, the UE shall re-read SIB1 and use the new value of the parameter, if modified.

## 10.3.3.46 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)	At least <u>o</u> ne spare value is needed.



## 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 10.3.7.63	
Cell synchronisation information	OP		Cell synchronisation information 10.3.7.6	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>CPICH Ec/N0	OP		Integer(0..49)	According to CPICH_Ec/No in [19] and [20] <u>Fourteen spare values are needed.</u>
>>CPICH RSCP	OP		Integer(0..91)	According to CPICH_RSCP in [19] and [20]. <u>Thirty- six spare values are needed.</u>
>>Pathloss	OP		Integer(46..158)	In dB <u>Fifteen spare values are needed.</u>
>TDD				
>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9	
>>Proposed TGSN	OP		Integer (0..14)	Proposal for the next TGSN
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54	
>>Pathloss	OP		Integer(46..158)	In dB <u>Fifteen spare values are needed.</u>
>>Timeslot list	OP	1 to <maxTS>		
>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>CHOICE event result</b>	MP			One spare value is needed.
>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-RAT measurement event results			Inter-RAT measurement event results 10.3.7.28	For IS-2000 results, include fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.69	
>Quality measurement event results			Quality measurement event results 10.3.7.57	
>UE internal measurement event results			UE internal measurement event results 10.3.7.78	
>UE positioning measurement event results			UE positioning measurement event results 10.3.7.101	

<b>CHOICE event result</b>	<b>Condition under which the given event result is chosen</b>
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-RAT measurement event results	If measurement type = inter-RAT 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
UE positioning measurement event results	If measurement type = UE positioning measurement

## 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)	<u>Two spare values are needed.</u>

## 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 10.3.6.36	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(0..76 )	According to UTRA_carrier_RSSI_LEV in [19] and [20]. <u>Two spare values are needed.</u>
>Inter-frequency cell measurement results	OP	1 to <maxCellMeas>		
>>Cell measured results	MP		Cell measured results 10.3.7.3	

## 10.3.7.26 Inter-RAT measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT measurement results	OP	1 to <maxOther RAT-16>		
>CHOICE <i>system</i>	MP			At least one spare value is needed
>>GSM				
>>>Measured GSM cells	MP	1 to <maxReportedGSMCells>		
>>>>GSM carrier RSSI	OP		bit string(6)	RXLEV, [46]. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit.
>>>>CHOICE <i>BSIC</i>	MP			
>>>>>Verified BSIC				
>>>>>>inter-RAT cell id	MP		Integer(0..<maxCellMeasurements>-1)	
>>>>>Non verified BSIC				
>>>>>>BCCH ARFCN	MP		Integer (0..1023)	[45]
>>>>>>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.52	

## 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,1i)	<u>Seven spare values are needed.</u>

### 10.3.7.44 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 <i>Measurement</i>	MP			One spare value is needed.
>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-RAT measured results list			Inter-RAT measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.67	
>Quality measured results list			Quality measured results list 10.3.7.55	
>UE Internal measured results			UE Internal measured results 10.3.7.76	
>UE positioning measured results			UE positioning measured results 10.3.7.99	

### 10.3.7.45 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	Version
Measurement result for current cell					
CHOICE <i>mode</i>	MP				
>FDD					
>>CHOICE <i>measurement quantity</i>	MP			One spare value is needed.	
>>>CPICH Ec/No			Integer(0..49 )	In dB. According to CPICH_Ec/No in [19]	

Information Element/group name	Need	Multi	Type and reference	Semantics description	Version
				<u>Fourteen spare values are needed</u>	
>>>CPICH RSCP			Integer(0..91)	In dBm. According to CPICH_RSCP_LEV in [19]. <u>Thirty- six spare values are needed.</u>	
>>>Pathloss			Integer(46..158)	In dB. <u>Fifteen spare values are needed.</u>	
>TDD					
>>CHOICE <i>TDD option</i>	MP				REL-4
>>>3.84 Mcps TDD					REL-4
>>>>Timeslot List	OP	1 to 14			
>>>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info	
>>>1.28 Mcps TDD					REL-4
>>>>Timeslot List	OP	1 to 6			REL-4
>>>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info	REL-4
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54		
Measurement results for monitored cells	OP	1 to 7			
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.63	It is absent for current cell	
>CHOICE <i>mode</i>	MP				
>>FDD					
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>>CHOICE <i>measurement quantity</i>	OP			It is absent for current cell. <u>One spare value is needed.</u>	
>>>>CPICH Ec/NO			Integer(0..49)	In dB. According to CPICH_Ec/No in [19]. <u>Fourteen spare values are needed.</u>	
>>>>>CPICH RSCP			Integer(0..91)	In dBm. According to CPICH_RSCP_LEV in [19]. <u>Thirty- six spare values are needed.</u>	
>>>>>Pathloss			Integer(46..158)	In dB	

Information Element/group name	Need	Multi	Type and reference	Semantics description	Version
			58)	<u>Fifteen spare values are needed.</u>	
>>TDD					
>>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9		
>>>Primary CCPCH RSCP	MP		Primary CCPCH RSCP info 10.3.7.54		

NOTE: Monitored cells consist of current cell and neighbouring cells.



## 10.3.7.54 Primary CCPCH RSCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Primary CCPCH RSCP	MP		Integer(0..91 )	According to P-CCPCH_RSCP_LEV in [19] and [20]. <u>Thirty- six spare values are needed.</u>

## 10.3.7.63 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>type</i>	MP			
>Type 1			Integer(0..9830399)	According to T1_SFNSFN_TIME in [19] and [20], <u>6946816 spare values are needed.</u>
>Type 2			Integer(0..40961)	According to T2_SFNSFN_TIME in [19] and [20], <u>24574 spare values are needed.</u>

## 10.3.7.65 Timeslot ISCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Timeslot ISCP	MP		Integer (0..91)	According to UE_TS_ISCP_LEV in [20] <u>Thirty- six spare values are needed.</u>

## 10.3.7.66 Traffic volume event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume event identity	MP		Enumerated(4a, 4b)	

## 10.3.7.67 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. <u>Twelve spare values are needed.</u>
>Average of 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 <u>Twelve spare values are needed.</u>
>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. <u>Two spare values are needed.</u>

### 10.3.7.83 UE Rx-Tx time difference type 1

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 1	MP		Integer(768..1280)	In chips. 511 spare values are needed.

## 10.3.7.88 UE positioning GPS acquisition assistance

This IE contains parameters that enable fast acquisition of the GPS signals in UE-assisted GPS positioning.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Reference Time</i>	MP			
GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds rounded down to the nearest millisecond unit.
UTRAN GPS reference time	OP			
>UTRAN GPS timing of cell frames	MP		Integer(0 ... 232243199999)	GPS timing of cell frames in steps of 1 chip.
>CHOICE <i>mode</i>	OP			
>>FDD				
>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship
>>TDD				
>>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship
>SFN	MP		Integer(0..4095)	The SFN which the UTRAN GPS timing of cell frames time stamps.
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Integer (0..63)	
>Doppler (0 <sup>th</sup> order term)	MP		Real(-5120..5117.5 by step of 2.5)	Hz
>Extra Doppler	OP			
>>Doppler (1 <sup>st</sup> order term)	MP		Real (-0.966..0.483 by step of 0.023)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Enumerated (12,5,25,50,100,200)	Hz. <u>Three spare values are needed.</u>
>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		Real(0..348.75 by step of 11.25)	Degrees
>>Elevation	MP		Real(0..78.75 by step of 11.25)	Degrees

<b>CHOICE Reference time</b>	<b>Condition under which the given reference time is chosen</b>
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

10.3.7.88a UE positioning GPS Additional Assistance Data Request

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and Reference</b>	<b>Semantics description</b>
Almanac	MP		Boolean	TRUE means requested
UTC Model	MP		Boolean	TRUE means requested
Ionospheric model	MP		Boolean	TRUE means requested
Navigation Model	MP		Boolean	TRUE means requested
DGPS Corrections	MP		Boolean	TRUE means requested
Reference Location	MP		Boolean	TRUE means requested
Reference Time	MP		Boolean	TRUE means requested
Acquisition Assistance	MP		Boolean	TRUE means requested
Real-Time Integrity	MP		Boolean	TRUE means requested
Navigation Model Additional data	CV- <i>Navigation Model</i>			this IE is present only if "Navigation Model" is set to TRUE otherwise it is absent
>GPS Week	MP		Integer (0..1023)	
>GPS_Toe	MP		Integer (0..167)	GPS time of ephemeris in hours of the latest ephemeris set contained by the UE. <u>Eighty- eight spare values needed.</u>
>T-Toe limit	MP		Integer (0..10)	ephemeris age tolerance of the UE to UTRAN in hours. <u>Five spare values needed.</u>
>Satellites list related data	MP	0 to <maxSat>		
>>SatID	MP		Integer (0..63)	
>>IODE	MP		Integer (0..255)	Issue of Data Ephemeris for SatID

## 10.3.7.93 UE positioning GPS measured results

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Reference Time</i>	MP			
>UTRAN reference time				
>>UE GPS timing of cell frames	MP		Integer(0..3715891199999)	GPS Time of Week in units of 1/16 <sup>th</sup> UMTS chips according to [19]. <u>33209832177664 spare values are needed.</u>
>>>CHOICE <i>mode</i>	MP			
>>>>FDD				
>>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship.
>>>>TDD				
>>>>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship.
>>>>>Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid. If UE GPS timing of cell frames is included this is also the SFN which is time stamped.
>GPS reference time only				
>>GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time is the GPS TOW measured by the UE.
Measurement Parameters	MP	1 to <maxSat>		
>Satellite ID	MP		Enumerated(0..63)	
>C/N <sub>0</sub>	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 units of dB-Hz (typical levels will be in the range of 20 – 50 dB-Hz).
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1022)	Unit in GPS chips.
>Fractional GPS Chips	MP		Integer(0..(2 <sup>10</sup> -1))	Scale factor 2 <sup>-10</sup>
>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.

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	$0.5 \leq P < 0.5625$
I	X	Y	$0.5 * (1 + x/8) * 2^y$	$x_{i-1} \leq P < x_i$
62	110	111	112	$104 \leq P < 112$
63	111	111	--	$112 \leq P$



## 10.3.7.101 UE positioning measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE positioning measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Event ID</i>	MP			<u>One spare value is needed.</u>
>7a				
>>UE positioning Position estimate info	MP		UE positioning Position estimate info 10.3.7.109	
>7b				
>>UE positioning OTDOA measured results	MP		UE positioning OTDOA measured results 10.3.7.105	
>7c				
>>UE positioning GPS measurement	MP		UE positioning GPS measured results 10.3.7.93	

## 10.3.7.109 UE positioning position estimate info

The purpose of this IE is to provide the position 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
CHOICE <i>Reference Time</i>	MP			
>UTRAN GPS reference time				
>>UE GPS timing of cell frames	MP		Integer(0..3715891199999)	GPS Time of Week in units of 1/16 <sup>th</sup> UMTS chips according to [19]. <u>33209832177664 spare values are needed.</u>
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship
>>>TDD				
>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship.
>>Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid and which the UTRAN GPS timing of cell frames time stamps.
>GPS reference time only				
>>GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
>Cell timing				
>>SFN	MP		Integer(0..4095)	SFN during which the position was calculated.
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for SFN
>>>TDD				
>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies reference cell for SFN
CHOICE <i>Position estimate</i>	MP			
>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	

10.3.7.109a UE positioning Relative Time Difference quality

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Relative Time Difference Std Resolution	MP		Bit string(2)	Std Resolution field includes the resolution used in Std of Relative Time Difference field. Encoding on two bits as follows: '00' 10 meters '01' 20 meters '10' 30 meters '11' Reserved
Std of Relative Time Difference	MP		Bit string(5)	Std of Relative Time difference field includes standard deviation of (SFN-SFN relative time difference + Fine SFN-SFN). Following linear 5 bit encoding is used: '00000' 0 - (R*1-1) meters '00001' R*1 - (R*2-1) meters '00010' R*2 - (R*3-1) meters ... '11111' R*31 meters or more where R is the resolution defined by Std Resolution field. E.g. R=20 m corresponds to 0-19 m, 20-39 m,...,620+ m.

10.3.7.110 UE positioning reporting criteria

The triggering of the event-triggered reporting for an UE positioning measurement.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>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, 60,300,900,1 800,3600,72 00)	Indicates how often the UE should make the measurement In seconds
>CHOICE <i>Event ID</i>	MP			
>>7a				
>>>Threshold Position Change	MP		Integer(10,2 0,30,40,50,1 00,200,300,5 00,1000,200 0,5000,1000 0,20000,500 00,100000)	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. 5,1,2,3,4,5,1 0,20,50,100, 200,500,100 0,2000,5000 )	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 ,5,10,20,50,1 00)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

10.3.7.111 UE positioning reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information desired 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, Cell ID)	
Response Time	MP		Integer(1,2,4	This IE shall be ignored.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			, 8, 16, 32, 64, 128)	
Horizontal Accuracy	CV- MethodType		Bit string(7)	The uncertainty is derived from the "uncertainty code" k by $r = 10 * (1.1^k - 1)$
Vertical Accuracy	CV- MethodType		Bit string(7)	The uncertainty is derived from the "uncertainty code" k by $r = 45 * (1.025^k - 1)$
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 IE shall be ignored.
Additional Assistance Data Request	MP		Boolean	TRUE indicates that the UE is requested to send the IE "Additional assistance Data Request" when the IE "UE positioning Error" is present in the UE positioning measured results.
Environment Characterisation	OP		Enumerated( possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	<u>One spare value is needed.</u>

Condition	Explanation
Method Type	The IE is optional if the IE "Method Type" is "UE assisted"; otherwise it is mandatory present.

10.3.8.5 Inter-RAT change failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT change failure cause	MP		Enumerated( Configuration unacceptable, physical channel failure, protocol error, unspecified)	At least 3 spare values, criticality = default, are required. Four spare values are needed.
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	The IE is mandatory present if the IE "Inter-RAT handover change failure cause" has the value "Protocol error" and not needed otherwise.

10.3.8.6 Inter-RAT handover failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT handover failure cause	MD		Enumerated( Configuration unacceptable, physical channel failure, protocol error, inter-RAT protocol error, unspecified)	Default value is "unspecified". Eleven At least one spare values are needed
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	The IE is mandatory present if the IE "Inter-RAT handover failure cause" has the value "Protocol error" and not needed otherwise.

## 10.3.8.12 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 <i>diagnostics type</i>	MP			At least one spare choice value is needed.
>Protocol error cause			Protocol error cause 10.3.3.26	

### 10.3.8.21 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		Enumerated, see below	

The list of values to encode is:

- Master information block,
- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,
- System Information Type 15,
- System Information Type 15.1,
- System Information Type 15.2,
- System Information Type 15.3,
- System Information Type 15.4,
- System Information Type 15.5,
- System Information Type 16,
- System Information Type 17,
- System Information Type 18,



Scheduling Block 1,

Scheduling Block 2.

In addition, ~~at least one~~ two spare values, ~~criticality: ignore, is~~ are needed.

### 10.3.8.22 SIB type SIBs only

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type SIBs only	MP		Enumerated, see below	

The list of values to encode is:

- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,
- System Information Type 15,
- System Information Type 15.1,
- System Information Type 15.2,
- System Information Type 15.3,
- System Information Type 15.4,
- System Information Type 15.5,
- System Information Type 16,

System Information Type 17,

System Information Type 18.

In addition, ~~at least one~~ five spare values, ~~criticality: ignore, is~~ are needed.

# 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 [14]. PDU and IE definitions are grouped into separate ASN.1 modules.

## 11.0 General

Some messages and/or IEs may include one or more IEs with name "dummy" that are included only in the ASN.1. The UE should avoid sending information elements that are named "dummy" to UTRAN. Likewise, UTRAN should avoid sending IEs with name "dummy" to the UE. If the UE anyhow receives an information element named "dummy", it shall ignore the IE and process the rest of the message as if the IE was not included.

**NOTE:** An IE with name "dummy" concerns an information element that was (erroneously) included in a previous version of the specification and has been removed by replacing it with a dummy with same type.

If the abstract syntax of an IE is defined using the ASN.1 type "BIT STRING", and this IE corresponds to a functional IE definition in tabular format, in which the significance of bits is semantically defined, the following general rule shall be applied:

The bits in the ASN.1 bit string shall represent the semantics of the functional IE definition in decreasing order of bit significance;

- with the first (or leftmost) bit in the bit string representing the most significant bit; and
- with the last (or rightmost) bit in the bit string representing the least significant bit.

## 11.1 General message structure

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

```
BEGIN
```

```
IMPORTS
```

```

ActiveSetUpdate,
ActiveSetUpdateComplete,
ActiveSetUpdateFailure,
AssistanceDataDelivery,
CellChangeOrderFromUTRAN,
CellChangeOrderFromUTRANFailure,
CellUpdate,
CellUpdateConfirm-CCCH,
CellUpdateConfirm,
CounterCheck,
CounterCheckResponse,
DownlinkDirectTransfer,
HandoverToUTRANComplete,
InitialDirectTransfer,
HandoverFromUTRANCommand-GSM,
HandoverFromUTRANCommand-CDMA2000,
HandoverFromUTRANFailure,
MeasurementControl,
MeasurementControlFailure,
MeasurementReport,
PagingType1,
PagingType2,
PhysicalChannelReconfiguration,
PhysicalChannelReconfigurationComplete,
PhysicalChannelReconfigurationFailure,
PhysicalSharedChannelAllocation,
PUSCHCapacityRequest,
RadioBearerReconfiguration,
RadioBearerReconfigurationComplete,
RadioBearerReconfigurationFailure,
RadioBearerRelease,

```

```

RadioBearerReleaseComplete,
RadioBearerReleaseFailure,
RadioBearerSetup,
RadioBearerSetupComplete,
RadioBearerSetupFailure,
RRCConnectionReject,
RRCConnectionRelease,
RRCConnectionRelease-CCCH,
RRCConnectionReleaseComplete,
RRCConnectionRequest,
RRCConnectionSetup,
RRCConnectionSetupComplete,
RRCStatus,
SecurityModeCommand,
SecurityModeComplete,
SecurityModeFailure,
SignallingConnectionRelease,
SignallingConnectionReleaseIndication,
SystemInformation-BCH,
SystemInformation-FACH,
SystemInformationChangeIndication,
TransportChannelReconfiguration,
TransportChannelReconfigurationComplete,
TransportChannelReconfigurationFailure,
TransportFormatCombinationControl,
TransportFormatCombinationControlFailure,
UECapabilityEnquiry,
UECapabilityInformation,
UECapabilityInformationConfirm,
UplinkDirectTransfer,
UplinkPhysicalChannelControl,
URAUpdate,
URAUpdateConfirm,
URAUpdateConfirm-CCCH,
UTRANMobilityInformation,
UTRANMobilityInformationConfirm,
UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
  IntegrityCheckInfo
FROM InformationElements;

--*****
--
-- Downlink DCCH messages
--
--*****

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

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate           ActiveSetUpdate,
    assistanceDataDelivery   AssistanceDataDelivery,
    cellChangeOrderFromUTRAN CellChangeOrderFromUTRAN,
    cellUpdateConfirm        CellUpdateConfirm,
    counterCheck             CounterCheck,
    downlinkDirectTransfer   DownlinkDirectTransfer,
    handoverFromUTRANCommand-GSM HandoverFromUTRANCommand-GSM,
    handoverFromUTRANCommand-CDMA2000 HandoverFromUTRANCommand-CDMA2000,
    measurementControl       MeasurementControl,
    pagingType2              PagingType2,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    radioBearerReconfiguration RadioBearerReconfiguration,
    radioBearerRelease       RadioBearerRelease,
    radioBearerSetup         RadioBearerSetup,
    rrcConnectionRelease     RRCConnectionRelease,
    securityModeCommand      SecurityModeCommand,
    signallingConnectionRelease SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    transportFormatCombinationControl TransportFormatCombinationControl,
    ueCapabilityEnquiry      UECapabilityEnquiry,
    ueCapabilityInformationConfirm UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl UplinkPhysicalChannelControl,

```

```

uraUpdateConfirm          URAUpdateConfirm,
utranMobilityInformation  UTRANMobilityInformation,
extensionspare7         NULL,
spare6                    NULL,
spare5                    NULL,
spare4                    NULL,
spare3                    NULL,
spare2                    NULL,
spare1                    NULL
}

```

```

--*****
--
-- Uplink DCCH messages
--
--*****

```

```

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

```

```

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete      ActiveSetUpdateComplete,
    activeSetUpdateFailure       ActiveSetUpdateFailure,
    cellChangeOrderFromUTRANFailure CellChangeOrderFromUTRANFailure,
    counterCheckResponse         CounterCheckResponse,
    handoverToUTRANComplete      HandoverToUTRANComplete,
    initialDirectTransfer        InitialDirectTransfer,
    handoverFromUTRANFailure     HandoverFromUTRANFailure,
    measurementControlFailure    MeasurementControlFailure,
    measurementReport           MeasurementReport,
    physicalChannelReconfigurationComplete PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete   RadioBearerReleaseComplete,
    radioBearerReleaseFailure    RadioBearerReleaseFailure,
    radioBearerSetupComplete     RadioBearerSetupComplete,
    radioBearerSetupFailure      RadioBearerSetupFailure,
    rrcConnectionReleaseComplete RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete  RRCConnectionSetupComplete,
    rrcStatus                    RRCStatus,
    securityModeComplete        SecurityModeComplete,
    securityModeFailure         SecurityModeFailure,
    signallingConnectionReleaseIndication SignallingConnectionReleaseIndication,
    transportChannelReconfigurationComplete TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure TransportFormatCombinationControlFailure,
    ueCapabilityInformation      UECapabilityInformation,
    uplinkDirectTransfer        UplinkDirectTransfer,
    utranMobilityInformationConfirm UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure UTRANMobilityInformationFailure,
    extensionspare2         NULL,
    spare1                      NULL
}

```

```

--*****
--
-- Downlink CCCH messages
--
--*****

```

```

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

```

```

DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm          CellUpdateConfirm-CCCH,
    rrcConnectionReject       RRCConnectionReject,
    rrcConnectionRelease      RRCConnectionRelease-CCCH,
}

```

```

rrcConnectionSetup          RRCConnectionSetup,
uraUpdateConfirm           URAUpdateConfirm-CCCH,
extensionspare3           NULL,
spare2                     NULL,
spare1                     NULL
}

--*****
--
-- Uplink CCCH messages
--
--*****

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

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate              CellUpdate,
    rrcConnectionRequest   RRCConnectionRequest,
    uraUpdate              URAUpdate,
    extensionspare1       NULL
}

--*****
--
-- PCCH messages
--
--*****

PCCH-Message ::= SEQUENCE {
    message                 PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1            PagingType1,
    extensionspare       NULL
}

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

DL-SHCCH-Message ::= SEQUENCE {
    message                 DL-SHCCH-MessageType
}

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

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

UL-SHCCH-Message ::= SEQUENCE {
    message                 UL-SHCCH-MessageType
}

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

--*****
--
-- BCCH messages sent on FACH
--
--*****

BCCH-FACH-Message ::= SEQUENCE {

```

```

    message                BCCH-FACH-MessageType
  }

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation                SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    extensionspare2                NULL
    spare1                            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,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IEs :
    URA-Identity,
-- User Equipment IEs :
    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CapabilityUpdateRequirement-r4,
    CapabilityUpdateRequirement-r4-ext,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    EstablishmentCause,
    FailureCauseWithProtErr,
    FailureCauseWithProtErrTrId,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    N-308,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithMoreInfo,
    Rb-timer-indicator,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,

```

```

RRC-StateIndicator,
RRC-TransactionIdentifier,
SecurityCapability,
START-Value,
STARTList,
U-RNTI,
U-RNTI-Short,
UE-RadioAccessCapability,
UE-RadioAccessCapability-r4-ext,
UE-RadioAccessCapability-v370ext,
UE-RadioAccessCapability-v380ext,
DL-PhysChCapabilityFDD-v380ext,
UE-ConnTimersAndConstants,
UE-SecurityInformation,
URA-UpdateCause,
UTRAN-DRX-CycleLengthCoefficient,
WaitTime,
-- Radio Bearer IEs :
DefaultConfigIdentity,
DefaultConfigMode,
DL-CounterSynchronisationInfo,
PredefinedConfigIdentity,
PredefinedConfigStatusList,
RAB-Info,
RAB-Info-Post,
RAB-InformationList,
RAB-InformationReconfigList,
RAB-InformationSetupList,
RAB-InformationSetupList-r4,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReconfigList-r4,
RB-InformationReleaseList,
RB-WithPDCP-InfoList, SRB-InformationSetupList,
SRB-InformationSetupList2,
UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-CommonTransChInfo-r4,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
TFCS-Identity,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList,
-- Physical Channel IEs :
Alpha,
CCTrCH-PowerControlInfo,
CCTrCH-PowerControlInfo-r4,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformation-r4,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-List-r4,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-InformationPerRL-PostTDD-LCR-r4,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
MaxAllowedUL-TX-Power,
OpenLoopPowerControl-IPDL-TDD-r4,
PDSCH-CapacityAllocationInfo,
PDSCH-CapacityAllocationInfo-r4,
PDSCH-Identity,

```



```

PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
PUSCH-CapacityAllocationInfo-r4,
PUSCH-Identity,
RL-AdditionInformationList,
RL-RemovalInformationList,
SpecialBurstScheduling,
SSDT-Information,
TFC-ControlDuration,
SSDT-UL-r4,
TimeslotList,
TimeslotList-r4,
TX-DiversityMode,
UL-ChannelRequirement,
UL-ChannelRequirement-r4,
UL-ChannelRequirementWithCPCH-SetID,
UL-ChannelRequirementWithCPCH-SetID-r4,
UL-DPCH-Info,
UL-DPCH-Info-r4,
UL-DPCH-InfoPostFDD,
UL-DPCH-InfoPostTDD,
UL-DPCH-InfoPostTDD-LCR-r4,
UL-SynchronisationParameters-r4,
UL-TimingAdvance,
UL-TimingAdvanceControl,
UL-TimingAdvanceControl-r4,
-- Measurement IES :
AdditionalMeasurementID-List,
Frequency-Band,
EventResults,
InterFreqEventResults-LCR-r4-ext,
InterRAT-TargetCellDescription,
MeasuredResults,
MeasuredResults-v390ext,
MeasuredResultsList,
MeasuredResultsList-LCR-r4-ext,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementCommand-r4,
MeasurementIdentity,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList,
UE-Positioning-GPS-AssistanceData,
UE-Positioning-Measurement-v390ext,
UE-Positioning-OTDOA-AssistanceData,
UE-Positioning-OTDOA-AssistanceData-r4ext,
UE-Positioning-OTDOA-AssistanceData-UEB,
UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IES :
BCCH-ModificationInfo,
CDMA2000-MessageList,
GSM-MessageList,
InterRAT-ChangeFailureCause,
InterRAT-HO-FailureCause,
InterRAT-UE-RadioAccessCapabilityList,
InterRAT-UE-SecurityCapList,
IntraDomainNasNodeSelector,
ProtocolErrorMoreInformation,
Rplmn-Information,
Rplmn-Information-r4,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM InformationElements

maxSIBperMsg
FROM Constant-definitions;

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

```

```

ActiveSetUpdate ::= CHOICE {
  r3
    activeSetUpdate-r3          SEQUENCE {
      ActiveSetUpdate-r3-IEs,
      nonCriticalExtensions     SEQUENCE {
        activeSetUpdate-r4-ext  ActiveSetUpdate-r4-ext-IEs,
        nonCriticalExtensions    SEQUENCE {} OPTIONAL
      } OPTIONAL
    },
  later-than-r3
    rrc-TransactionIdentifier   RRC-TransactionIdentifier,
    criticalExtensions          SEQUENCE {}
}

```

```

ActiveSetUpdate-r3-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
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo  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
}

```

```

ActiveSetUpdate-r4-ext-IEs ::= SEQUENCE {
  -- Physical channel IEs
  -- The following IE extends SSdT-Information. FDD only.
  ssdt-UL                      SSdT-UL-r4                   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,
  ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo  OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions      SEQUENCE {} OPTIONAL
}

```

```

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

```

```

-- *****
--
-- Assistance Data Delivery
--
-- *****

```

```

AssistanceDataDelivery ::= CHOICE {

```

```

    r3                SEQUENCE {
      assistanceDataDelivery-r3 AssistanceDataDelivery-r3-IEs,
      nonCriticalExtensions    SEQUENCE {
        assistanceDataDelivery-r3-r4-ext
          AssistanceDataDelivery-r3-r4-ext-IEs,
        nonCriticalExtensions    SEQUENCE {} OPTIONAL
      } OPTIONAL
    },
    later-than-r3      SEQUENCE {
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
      criticalExtensions        SEQUENCE {}
    }
  }

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  -- Measurement Information Elements
  ue-positioning-GPS-AssistanceData UE-Positioning-GPS-AssistanceData
  OPTIONAL,
  ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB
  OPTIONAL
}

AssistanceDataDelivery-r3-r4-ext-IEs ::= SEQUENCE {
  ue-Positioning-OTDOA-AssistanceData-r4ext UE-Positioning-OTDOA-AssistanceData-r4ext OPTIONAL
}

-- *****
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- *****

CellChangeOrderFromUTRAN ::= CHOICE {
  r3                SEQUENCE {
    cellChangeOrderFromUTRAN-IEs CellChangeOrderFromUTRAN-r3-IEs,
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
  },
  later-than-r3      SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    criticalExtensions        SEQUENCE {}
  }
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  -- not used in this release of the specification
  dummy                    IntegrityProtectionModeInfo OPTIONAL,
  activationTime           ActivationTime              OPTIONAL,
  rab-InformationList      RAB-InformationList         OPTIONAL,
  interRAT-TargetCellDescription InterRAT-TargetCellDescription
}

-- *****
--
-- CELL CHANGE ORDER FROM UTRAN FAILURE
--
-- *****

CellChangeOrderFromUTRANFailure ::= CHOICE {
  r3                SEQUENCE {
    cellChangeOrderFromUTRANFailure-r3
      CellChangeOrderFromUTRANFailure-r3-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  -- dummy is not used in this version of the protocol
  dummy            SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    criticalExtensions        SEQUENCE {}
  }
}

CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  -- not used in this release of the specification

```

```

        dummy                IntegrityProtectionModeInfo        OPTIONAL,
        interRAT-ChangeFailureCause    InterRAT-ChangeFailureCause
    }
-- *****
--
-- CELL UPDATE
--
-- *****

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                U-RNTI,
    startList              STARTList,
    am-RLC-ErrorIndicationRb2-3or4    BOOLEAN,
    am-RLC-ErrorIndicationRb5orAbove    BOOLEAN,
    cellUpdateCause        CellUpdateCause,
    failureCause            FailureCauseWithProtErrTrId        OPTIONAL,
    -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
    rb-timer-indicator      Rb-timer-indicator,
    -- Measurement IEs
    measuredResultsOnRACH    MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions    SEQUENCE {} OPTIONAL
}

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

CellUpdateConfirm ::= CHOICE {
    r3                      SEQUENCE {
        cellUpdateConfirm-r3        CellUpdateConfirm-r3-IEs,
        nonCriticalExtensions        SEQUENCE {
            cellUpdateConfirm-r3-r4-ext    CellUpdateConfirm-r3-r4-ext-IEs,
            nonCriticalExtensions        SEQUENCE {} OPTIONAL
        }
        OPTIONAL
    },
    later-than-r3          SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            CHOICE {
            r4                      SEQUENCE {
                cellUpdateConfirm-r4        CellUpdateConfirm-r4-IEs,
                nonCriticalExtensions        SEQUENCE {} OPTIONAL
            },
            criticalExtensions        SEQUENCE {}
        }
    }
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo            CipheringModeInfo        OPTIONAL,
    activationTime                ActivationTime        OPTIONAL,
    new-U-RNTI                    U-RNTI        OPTIONAL,
    new-C-RNTI                    C-RNTI        OPTIONAL,
    rrc-StateIndicator            RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4    BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove    BOOLEAN,
    -- CN information elements
    cn-InformationInfo            CN-InformationInfo        OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                  URA-Identity        OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList      RB-InformationReleaseList    OPTIONAL,
    rb-InformationReconfigList      RB-InformationReconfigList    OPTIONAL,
    rb-InformationAffectedList      RB-InformationAffectedList    OPTIONAL,
    dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo    OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo          UL-CommonTransChInfo        OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList    OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                          SEQUENCE {

```

```

        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
}

CellUpdateConfirm-r3-r4-ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- The following IE extends SSdT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL                        SSdT-UL-r4                        OPTIONAL
}

CellUpdateConfirm-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo    IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                  OPTIONAL,
    activationTime                  ActivationTime                      OPTIONAL,
    new-U-RNTI                     U-RNTI                            OPTIONAL,
    new-C-RNTI                     C-RNTI                            OPTIONAL,
    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-r4     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-r4        DL-CommonTransChInfo-r4           OPTIONAL,
    dl-DeletedTransChInfoList-r4    DL-DeletedTransChInfoList-r4     OPTIONAL,
    dl-AddReconfTransChInfoList-r4  DL-AddReconfTransChInfoList-r4   OPTIONAL,
    -- Physical channel IEs
    frequencyInfo-r4               FrequencyInfo-r4                   OPTIONAL,
    maxAllowedUL-TX-Power-r4        MaxAllowedUL-TX-Power-r4         OPTIONAL,
    ul-ChannelRequirement-r4        UL-ChannelRequirement-r4         OPTIONAL,
    modeSpecificPhysChInfo-r4      CHOICE {
        fdd                            SEQUENCE {
            dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL
        },
        tdd                            NULL
    },
    dl-CommonInformation-r4         DL-CommonInformation-r4           OPTIONAL,
    dl-InformationPerRL-List-r4     DL-InformationPerRL-List-r4       OPTIONAL
}

-- *****

```

```

--
-- CELL UPDATE CONFIRM for CCCH
--
-- *****

CellUpdateConfirm-CCCH ::= CHOICE {
  r3
    -- 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 {
      cellUpdateConfirm-r3-r4-ext CellUpdateConfirm-r3-r4-ext-IEs,
      nonCriticalExtensions       SEQUENCE {} OPTIONAL
    }
    OPTIONAL
  },
  later-than-r3
    SEQUENCE {
      u-RNTI                U-RNTI,
      rrc-TransactionIdentifier RRC-TransactionIdentifier,
      criticalExtensions     CHOICE {
        r4
          -- The rest of the message is identical to the one sent on DCCH.
          cellUpdateConfirm-r4 CellUpdateConfirm-r4-IEs,
          nonCriticalExtensions SEQUENCE {} OPTIONAL
        },
      criticalExtensions     SEQUENCE {}
    }
  }
}

-- *****
--
-- COUNTER CHECK
--
-- *****

CounterCheck ::= CHOICE {
  r3
    counterCheck-r3      CounterCheck-r3-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  later-than-r3
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    criticalExtensions        SEQUENCE {}
  }
}

CounterCheck-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  -- Radio bearer IEs
  rb-COUNT-C-MSB-InformationList RB-COUNT-C-MSB-InformationList
}

-- *****
--
-- COUNTER CHECK RESPONSE
--
-- *****

CounterCheckResponse ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  -- Radio bearer IEs
  rb-COUNT-C-InformationList RB-COUNT-C-InformationList OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions     SEQUENCE {} OPTIONAL
}

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= CHOICE {
  r3
    downlinkDirectTransfer-r3 DownlinkDirectTransfer-r3-IEs,

```

```

        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    later-than-r3                      SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

DownlinkDirectTransfer-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    -- Core network IEs
    cn-DomainIdentity                 CN-DomainIdentity,
    nas-Message                        NAS-Message
}

-- *****
--
-- HANOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= CHOICE {
    r3                                SEQUENCE {
        handoverToUTRANCommand-r3     HandoverToUTRANCommand-r3-IEs,
        nonCriticalExtensions          SEQUENCE {
            handoverToUTRANCommand-r3-r4-ext
                HandoverToUTRANCommand-r3-r4-ext-IEs,
            nonCriticalExtensions      SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions                CHOICE {
        r4                              SEQUENCE {
            handoverToUTRANCommand-r4  HandoverToUTRANCommand-r4-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        },
        criticalExtensions              SEQUENCE {}
    }
}

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    new-U-RNTI                        U-RNTI-Short,
    dummy                              ActivationTime          OPTIONAL,
    cipheringAlgorithm                 CipheringAlgorithm    OPTIONAL,
    -- Radio bearer IEs
    -- Specification mode information
    specificationMode                  CHOICE {
        complete                        SEQUENCE {
            srb-InformationSetupList    SRB-InformationSetupList,
            rab-InformationSetupList    RAB-InformationSetupList    OPTIONAL,
            ul-CommonTransChInfo       UL-CommonTransChInfo,
            ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo       DL-CommonTransChInfo,
            dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
            ul-DPCH-Info               UL-DPCH-Info,
            modeSpecificInfo            CHOICE {
                fdd                    SEQUENCE {
                    dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
                    cpch-SetInfo        CPCH-SetInfo          OPTIONAL
                },
                tdd                    NULL
            },
            dl-CommonInformation        DL-CommonInformation,
            dl-InformationPerRL-List    DL-InformationPerRL-List,
            frequencyInfo               FrequencyInfo
        },
        preconfiguration                SEQUENCE {
            predefinedConfigIdentity    PredefinedConfigIdentity,
            defaultConfig               SEQUENCE {
                defaultConfigMode      DefaultConfigMode,
                defaultConfigIdentity  DefaultConfigIdentity
            }
        }
    },
    -- All IEs that include an FDD/TDD choice are split in two IEs for this message,
    -- one for the FDD only elements and one for the TDD only elements, so that one
    -- FDD/TDD choice in this level is sufficient.
    preConfigMode                      CHOICE {
        predefinedConfigIdentity        PredefinedConfigIdentity,
        defaultConfig                   SEQUENCE {
            defaultConfigMode            DefaultConfigMode,
            defaultConfigIdentity        DefaultConfigIdentity
        }
    }
}

```

```

    },
    rab-Info
    modeSpecificInfo
        fdd
            ul-DPCH-Info
            dl-CommonInformationPost
            dl-InformationPerRL-List
            frequencyInfo
        },
        tdd
            ul-DPCH-Info
            dl-CommonInformationPost
            dl-InformationPerRL
            frequencyInfo
            primaryCCPCH-TX-Power
    }
}
},
-- Physical channel IEs
maxAllowedUL-TX-Power
MaxAllowedUL-TX-Power
}

HandoverToUTRANCommand-r3-r4-ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- The following IE extends SSdT-Information, which is included in
-- DL-CommonInformation. FDD only.
ssdt-UL
SSdT-UL-r4
OPTIONAL
}

HandoverToUTRANCommand-r4-IEs ::= SEQUENCE {
-- User equipment IEs
new-U-RNTI
activationTime
cipheringAlgorithm
U-RNTI-Short,
ActivationTime
CipheringAlgorithm
OPTIONAL,
OPTIONAL,
-- Radio bearer IEs
rab-Info
RAB-Info-Post,
-- Specification mode information
specificationMode
complete
SEQUENCE {
    srb-InformationSetupList
    rab-InformationSetupList
    ul-CommonTransChInfo
    ul-AddReconfTransChInfoList
    dl-CommonTransChInfo
    dl-AddReconfTransChInfoList
    ul-DPCH-Info
    modeSpecificInfo
        fdd
            dl-PDSCH-Information
            cpch-SetInfo
        },
        tdd
            NULL
    },
    dl-CommonInformation
    dl-InformationPerRL-List
    frequencyInfo
    DL-CommonInformation-r4,
    DL-InformationPerRL-List-r4,
    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
rab-Info
modeSpecificInfo
    fdd
        ul-DPCH-Info
        dl-CommonInformationPost
        dl-InformationPerRL-List
        frequencyInfo
    },
    tdd
        tdd384
            ul-DPCH-Info
            dl-InformationPerRL
            frequencyInfo
            primaryCCPCH-TX-Power
        SEQUENCE {
            UL-DPCH-InfoPostFDD,
            DL-CommonInformationPost,
            DL-InformationPerRL-ListPostFDD,
            FrequencyInfoFDD
        }
    CHOICE {
        SEQUENCE {
            UL-DPCH-InfoPostTDD,
            DL-InformationPerRL-PostTDD,
            FrequencyInfoTDD,
            PrimaryCCPCH-TX-Power
        }
    }
}

```



```

    },
    tdd128
        ul-DPCH-Info
        dl-InformationPerRL
        frequencyInfo
        primaryCCPCH-TX-Power
    },
    SEQUENCE {
        UL-DPCH-InfoPostTDD-LCR-r4,
        DL-InformationPerRL-PostTDD-LCR-r4,
        FrequencyInfoTDD,
        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,
-- Radio bearer IEs
count-C-ActivationTime ActivationTime OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions SEQUENCE {} OPTIONAL
}
-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
-- Core network IEs
cn-DomainIdentity CN-DomainIdentity,
intraDomainNasNodeSelector IntraDomainNasNodeSelector,
nas-Message NAS-Message,
-- Measurement IEs
measuredResultsOnRACH MeasuredResultsOnRACH OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions SEQUENCE {} OPTIONAL
}
-- *****
--
-- HANDOVER FROM UTRAN COMMAND
--
-- *****

HandoverFromUTRANCommand-GSM ::= CHOICE {
r3 SEQUENCE {
handoverFromUTRANCommand-GSM-r3
HandoverFromUTRANCommand-GSM-r3-IEs,
nonCriticalExtensions SEQUENCE {} OPTIONAL
},
later-than-r3 SEQUENCE {
rrc-TransactionIdentifier RRC-TransactionIdentifier,
criticalExtensions SEQUENCE {}
}
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
-- User equipment IEs
rrc-TransactionIdentifier RRC-TransactionIdentifier,
activationTime ActivationTime OPTIONAL,
-- Radio bearer IEs
toHandover-Info RAB-Info OPTIONAL,
-- Measurement IEs
frequency-band Frequency-Band,
-- Other IEs
gsm-message CHOICE {
single-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
gsm-MessageList          SEQUENCE {
    gsm-Messages          GSM-MessageList
}
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                      SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
        nonCriticalExtensions
    },
    later-than-r3          SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    activationTime                ActivationTime                OPTIONAL,
    -- Radio bearer IEs
    toHandover-Info              RAB-Info                    OPTIONAL,
    -- Other IEs
    cdma2000-MessageList         CDMA2000-MessageList
}

-- *****
--
-- HANDOVER FROM UTRAN FAILURE
--
-- *****

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    -- Other IEs
    interRAT-HO-FailureCause     InterRAT-HO-FailureCause    OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- INTER RAT HANDOVER INFO
--
-- *****

InterRATHandoverInfo ::= SEQUENCE {
    -- This structure is defined for historical reasons, backward compatibility with 04.18
    predefinedConfigStatusList    CHOICE {
        absent                     NULL,
        present                     PredefinedConfigStatusList
    },
    uE-SecurityInformation        CHOICE {
        absent                     NULL,
        present                     UE-SecurityInformation
    },
    ue-CapabilityContainer        CHOICE {
        absent                     NULL,
        present                     OCTET STRING (SIZE (0..63))
        -- octet aligned string containing IE UE-RadioAccessCapabilityInfo
    },
    -- Non critical extensions
    v390NonCriticalExtensions     CHOICE {
        absent                     NULL,
        present                     SEQUENCE {
            interRATHandoverInfo-v390ext    InterRATHandoverInfo-v390ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions          SEQUENCE {}                OPTIONAL
        }
    }
}
}

```

```

InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext    OPTIONAL,
  dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

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

MeasurementControl ::= CHOICE {
  r3
    SEQUENCE {
      measurementControl-r3          MeasurementControl-r3-IEs,
      v390nonCriticalExtensions      SEQUENCE {
        measurementControl-v390ext    MeasurementControl-v390ext,
        nonCriticalExtensions         SEQUENCE {
          measurementControl-r3-r4-ext MeasurementControl-r3-r4-ext-IEs,
          nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }
      } OPTIONAL
    } OPTIONAL
  },
  later-than-r3
    SEQUENCE {
      rrc-TransactionIdentifier      RRC-TransactionIdentifier,
      criticalExtensions             CHOICE {
        r4
          SEQUENCE {
            measurementControl-r4      MeasurementControl-r4-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
          }
        },
      criticalExtensions             SEQUENCE {}
    }
}

MeasurementControl-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier          RRC-TransactionIdentifier,
  -- Measurement IEs
  measurementIdentity                MeasurementIdentity,
  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
}

MeasurementControl-r3-r4-ext-IEs ::= SEQUENCE {
  ue-Positioning-OTDOA-AssistanceData-r4ext    UE-Positioning-OTDOA-AssistanceData-r4ext    OPTIONAL
}

MeasurementControl-v390ext ::= SEQUENCE {
  ue-Positioning-Measurement-v390ext    UE-Positioning-Measurement-v390ext    OPTIONAL
}

MeasurementControl-r4-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier          RRC-TransactionIdentifier,
  -- Measurement IEs
  measurementIdentity                MeasurementIdentity,
  measurementCommand                 MeasurementCommand-r4,
  -- 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 {}      OPTIONAL
    }

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
-- Measurement IEs
    measurementIdentity      MeasurementIdentity,
    measuredResults           MeasuredResults         OPTIONAL,
    measuredResultsOnRACH     MeasuredResultsOnRACH   OPTIONAL,
    additionalMeasuredResults MeasuredResultsList     OPTIONAL,
    eventResults              EventResults            OPTIONAL,
-- Extension mechanism for non- release99 information
    v390nonCriticalExtensions SEQUENCE {
        measurementReport-v390ext MeasurementReport-v390ext,
        nonCriticalExtensions    SEQUENCE {
            measurementReport-r3-r4-ext MeasurementReport-r3-r4-ext-IEs,
            nonCriticalExtensions    SEQUENCE {}      OPTIONAL
        }
    }
}

MeasurementReport-v390ext ::= SEQUENCE {
    measuredResults-v390ext MeasuredResults-v390ext OPTIONAL
}

MeasurementReport-r3-r4-ext-IEs ::= SEQUENCE {
    interFreqEventResults-LCR InterFreqEventResults-LCR-r4-ext OPTIONAL,
    additionalMeasuredResults-LCR MeasuredResultsList-LCR-r4-ext OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
-- User equipment IEs
    pagingRecordList          PagingRecordList       OPTIONAL,
-- Other IEs
    bcch-ModificationInfo     BCCH-ModificationInfo  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}      OPTIONAL
}

-- *****
--
-- PAGING TYPE 2
--
-- *****

PagingType2 ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    pagingCause                PagingCause,
-- Core network IEs
    cn-DomainIdentity          CN-DomainIdentity,
    pagingRecordTypeID         PagingRecordTypeID,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}      OPTIONAL
}

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

PhysicalChannelReconfiguration ::= CHOICE {
    r3 SEQUENCE {
        physicalChannelReconfiguration-r3
    }
}

```

```

        PhysicalChannelReconfiguration-r3-IEs,
        nonCriticalExtensions SEQUENCE {
            physicalChannelReconfiguration-r3-r4-ext PhysicalChannelReconfiguration-r3-r4-ext-
IEs,
            nonCriticalExtensions SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3 SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions CHOICE {
            r4 SEQUENCE {
                physicalChannelReconfiguration-r4
                PhysicalChannelReconfiguration-r4-IEs,
                nonCriticalExtensions SEQUENCE {} OPTIONAL
            },
            criticalExtensions SEQUENCE {}
        }
    }
}

```

```

PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo CipheringModeInfo OPTIONAL,
    activationTime ActivationTime OPTIONAL,
    new-U-RNTI U-RNTI OPTIONAL,
    new-C-RNTI C-RNTI OPTIONAL,
    rrc-StateIndicator RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo CN-InformationInfo OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity URA-Identity OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL,
    -- Physical channel IEs
    frequencyInfo FrequencyInfo OPTIONAL,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    ul-ChannelRequirement UL-ChannelRequirementWithCPCH-SetID OPTIONAL,
    -- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
    -- between UL DPCH info, 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
}

```

```

PhysicalChannelReconfiguration-r3-r4-ext-IEs ::= SEQUENCE {
    -- Physical channel IEs
    -- The following IE extends SSDT-Information, which is included in
    -- DL-CommonInformation. FDD only.
    ssdt-UL SSDT-UL-r4 OPTIONAL
}

```

```

PhysicalChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo CipheringModeInfo OPTIONAL,
    activationTime ActivationTime OPTIONAL,
    new-U-RNTI U-RNTI OPTIONAL,
    new-C-RNTI C-RNTI OPTIONAL,
    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-r4 OPTIONAL,
}

```

```

-- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
-- between UL DPCH info, CPCH SET info and CPCH set ID.
modeSpecificInfo CHOICE {
    fdd SEQUENCE {
        dl-PDSCH-Information DL-PDSCH-Information OPTIONAL
    },
    tdd NULL
},
dl-CommonInformation DL-CommonInformation-r4 OPTIONAL,
dl-InformationPerRL-List DL-InformationPerRL-List-r4 OPTIONAL
}

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

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance UL-TimingAdvance OPTIONAL,
    -- Radio bearer IEs
    count-C-ActivationTime ActivationTime OPTIONAL,
    rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfoList OPTIONAL,
    ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions SEQUENCE {} OPTIONAL
}

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

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

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

PhysicalSharedChannelAllocation ::= CHOICE {
    r3 SEQUENCE {
        physicalSharedChannelAllocation-r3
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    later-than-r3 SEQUENCE {
        c-RNTI C-RNTI OPTIONAL,
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions CHOICE {
            r4 SEQUENCE {
                physicalSharedChannelAllocation-r4
                nonCriticalExtensions SEQUENCE {} OPTIONAL
            },
            criticalExtensions SEQUENCE {}
        }
    }
}

PhysicalSharedChannelAllocation-r3-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 10.2.25.
        trafficVolumeReportRequest  INTEGER (0..255)              OPTIONAL,
        iscpTimeslotList            TimeslotList                  OPTIONAL,
        requestPCCPCHRSCP           BOOLEAN
    }

PhysicalSharedChannelAllocation-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- Physical channel IEs
    ul-TimingAdvance          UL-TimingAdvanceControl-r4          OPTIONAL,
    pusch-CapacityAllocationInfo PUSCH-CapacityAllocationInfo-r4  OPTIONAL,
    pdsch-CapacityAllocationInfo PDSCH-CapacityAllocationInfo-r4  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 10.2.25.
    iscpTimeslotList          TimeslotList-r4                    OPTIONAL,
    requestPCCPCHRSCP         BOOLEAN
}

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

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
    c-RNTI          C-RNTI          OPTIONAL,
    -- Measurement IEs
    trafficVolume   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 {} OPTIONAL
}

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

RadioBearerReconfiguration ::= CHOICE {
    r3 SEQUENCE {
        radioBearerReconfiguration-r3 RadioBearerReconfiguration-r3-IEs,
        nonCriticalExtensions SEQUENCE {
            radioBearerReconfiguration-r3-r4-ext
            nonCriticalExtensions RadioBearerReconfiguration-r3-r4-ext-IEs,
            SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3 SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions CHOICE {
            r4 SEQUENCE {
                radioBearerReconfiguration-r4 RadioBearerReconfiguration-r4-IEs,
                nonCriticalExtensions SEQUENCE {} OPTIONAL
            },
            criticalExtensions SEQUENCE {}
        }
    }
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,

```

```

    integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo                CipheringModeInfo                OPTIONAL,
    activationTime                    ActivationTime                    OPTIONAL,
    new-U-RNTI                       U-RNTI                          OPTIONAL,
    new-C-RNTI                       C-RNTI                          OPTIONAL,
    rrc-StateIndicator               RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo              OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                      URA-Identity                   OPTIONAL,
-- Radio bearer IEs
  rab-InformationReconfigList       RAB-InformationReconfigList     OPTIONAL,
  rb-InformationReconfigList       RB-InformationReconfigList,
-- NOTE: IE rb-InformationReconfigList should be optional in later versions of this message
  rb-InformationAffectedList       RB-InformationAffectedList     OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo             UL-CommonTransChInfo           OPTIONAL,
  ul-deletedTransChInfoList        UL-DeletedTransChInfoList      OPTIONAL,
  ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo          CHOICE {
    fdd                             SEQUENCE {
      cpch-SetID                   CPCH-SetID                     OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList     OPTIONAL,
    },
    tdd                             NULL
  }
  dl-CommonTransChInfo             DL-CommonTransChInfo           OPTIONAL,
  dl-DeletedTransChInfoList        DL-DeletedTransChInfoList      OPTIONAL,
  dl-AddReconfTransChInfoList      DL-AddReconfTransChInfo2List   OPTIONAL,
-- Physical channel IEs
  frequencyInfo                    FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement          OPTIONAL,
  modeSpecificPhysChInfo          CHOICE {
    fdd                             SEQUENCE {
      dl-PDSCH-Information         DL-PDSCH-Information           OPTIONAL,
    },
    tdd                             NULL
  },
  dl-CommonInformation             DL-CommonInformation           OPTIONAL,
  dl-InformationPerRL-List         DL-InformationPerRL-List
-- NOTE: IE dl-InformationPerRL-List should be optional in later versions of this message
}

RadioBearerReconfiguration-r3-r4-ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- The following IE extends SSdT-Information, which is included in
-- DL-CommonInformation. FDD only.
  ssdt-UL                          SSdT-UL-r4                     OPTIONAL
}

RadioBearerReconfiguration-r4-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
  cipheringModeInfo                CipheringModeInfo                OPTIONAL,
  activationTime                    ActivationTime                    OPTIONAL,
  new-U-RNTI                       U-RNTI                          OPTIONAL,
  new-C-RNTI                       C-RNTI                          OPTIONAL,
  rrc-StateIndicator               RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo                CN-InformationInfo              OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                      URA-Identity                   OPTIONAL,
-- Radio bearer IEs
  rab-InformationReconfigList       RAB-InformationReconfigList     OPTIONAL,
  rb-InformationReconfigList       RB-InformationReconfigList-r4   OPTIONAL,
  rb-InformationAffectedList       RB-InformationAffectedList     OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo             UL-CommonTransChInfo           OPTIONAL,
  ul-deletedTransChInfoList        UL-DeletedTransChInfoList      OPTIONAL,
  ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo          CHOICE {
    fdd                             SEQUENCE {
      cpch-SetID                   CPCH-SetID                     OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList     OPTIONAL,
    },
  },
}

```



```

        tdd                                NULL
    }
    dl-CommonTransChInfo                   DL-CommonTransChInfo-r4           OPTIONAL,
    dl-DeletedTransChInfoList              DL-DeletedTransChInfoList         OPTIONAL,
    dl-AddReconfTransChInfoList            DL-AddReconfTransChInfo2List     OPTIONAL,
-- Physical channel IEs
    frequencyInfo                          FrequencyInfo                     OPTIONAL,
    maxAllowedUL-TX-Power                   MaxAllowedUL-TX-Power            OPTIONAL,
    ul-ChannelRequirement                   UL-ChannelRequirement-r4        OPTIONAL,
    modeSpecificPhysChInfo                  CHOICE {
        fdd                                SEQUENCE {
            dl-PDSCH-Information           DL-PDSCH-Information           OPTIONAL
        },
        tdd                                NULL
    },
    dl-CommonInformation                    DL-CommonInformation-r4         OPTIONAL,
    dl-InformationPerRL-List                DL-InformationPerRL-List-r4     OPTIONAL
}

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

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier              RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo              IntegrityProtActivationInfo      OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                       UL-TimingAdvance                OPTIONAL,
-- Radio bearer IEs
    count-C-ActivationTime                  ActivationTime                    OPTIONAL,
    rb-UL-CiphActivationTimeInfo            RB-ActivationTimeInfoList       OPTIONAL,
    ul-CounterSynchronisationInfo           UL-CounterSynchronisationInfo   OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions                   SEQUENCE {} OPTIONAL
}

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

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

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

RadioBearerRelease ::= CHOICE {
    r3                                       SEQUENCE {
        radioBearerRelease-r3              RadioBearerRelease-r3-IEs,
        nonCriticalExtensions              SEQUENCE {
            radioBearerRelease-r3-r4-ext    RadioBearerRelease-r3-r4-ext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                            SEQUENCE {
        rrc-TransactionIdentifier           RRC-TransactionIdentifier,
        criticalExtensions                  CHOICE {
            r4                               SEQUENCE {
                radioBearerRelease-r4       RadioBearerRelease-r4-IEs,
                nonCriticalExtensions       SEQUENCE {} OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

```

```

}
}
RadioBearerRelease-r3-IEs ::= SEQUENCE {
  -- User equipment IES
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IES
  cn-InformationInfo              CN-InformationInfo                OPTIONAL,
  signallingConnectionRelIndication CN-DomainIdentity                OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                    URA-Identity                      OPTIONAL,
  -- Radio bearer IES
  rab-InformationReconfigList     RAB-InformationReconfigList     OPTIONAL,
  rb-InformationReleaseList       RB-InformationReleaseList,
  rb-InformationAffectedList      RB-InformationAffectedList     OPTIONAL,
  dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo   OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo           UL-CommonTransChInfo            OPTIONAL,
  ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                  CPCH-SetID                      OPTIONAL,
      addReconfTransChDRAC-Info    DRAC-StaticInformationList     OPTIONAL
    },
    tdd                            NULL
  }
  dl-CommonTransChInfo           DL-CommonTransChInfo            OPTIONAL,
  dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
  dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List    OPTIONAL,
  -- Physical channel IES
  frequencyInfo                  FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
  ul-ChannelRequirement           UL-ChannelRequirement           OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                            SEQUENCE {
      dl-PDSCH-Information        DL-PDSCH-Information           OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonInformation            DL-CommonInformation            OPTIONAL,
  dl-InformationPerRL-List        DL-InformationPerRL-List        OPTIONAL
}

RadioBearerRelease-r3-r4-ext-IEs ::= SEQUENCE {
  -- Physical channel IES
  -- The following IE extends SSdT-Information, which is included in
  -- DL-CommonInformation. FDD only.
  ssdt-UL                         SSdT-UL-r4                      OPTIONAL
}

RadioBearerRelease-r4-IEs ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  rrc-StateIndicator              RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IES
  cn-InformationInfo              CN-InformationInfo                OPTIONAL,
  signallingConnectionRelIndication CN-DomainIdentity                OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                    URA-Identity                      OPTIONAL,
  -- Radio bearer IES
  rab-InformationReconfigList     RAB-InformationReconfigList     OPTIONAL,
  rb-InformationReleaseList       RB-InformationReleaseList,
  rb-InformationAffectedList      RB-InformationAffectedList     OPTIONAL,
  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-r4       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-r4      OPTIONAL,
        modeSpecificPhysChInfo        CHOICE {
            fdd                        SEQUENCE {
                dl-PDSCH-Information   DL-PDSCH-Information         OPTIONAL
            },
            tdd                        NULL
        },
        dl-CommonInformation          DL-CommonInformation-r4       OPTIONAL,
        dl-InformationPerRL-List      DL-InformationPerRL-List-r4   OPTIONAL
    }

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

RadioBearerReleaseComplete ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo       IntegrityProtActivationInfo     OPTIONAL,
-- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                 UL-TimingAdvance               OPTIONAL,
-- Radio bearer IEs
    count-C-ActivationTime           ActivationTime                   OPTIONAL,
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList      OPTIONAL,
    ul-CounterSynchronisationInfo    UL-CounterSynchronisationInfo  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}                   OPTIONAL
}

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

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

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

RadioBearerSetup ::= CHOICE {
    r3                                SEQUENCE {
        radioBearerSetup-r3          RadioBearerSetup-r3-IEs,
        nonCriticalExtensions        SEQUENCE {
            radioBearerSetup-r3-r4-ext  RadioBearerSetup-r3-r4-ext-IEs,
            nonCriticalExtensions      SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {

```

```

rrc-TransactionIdentifier      RRC-TransactionIdentifier,
criticalExtensions             CHOICE {
    r4                         SEQUENCE {
        radioBearerSetup-r4   RadioBearerSetup-r4-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    criticalExtensions        SEQUENCE {}
}
}
}

RadioBearerSetup-r3-IEs ::= SEQUENCE {
-- User equipment IEs
rrc-TransactionIdentifier      RRC-TransactionIdentifier,
integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
cipheringModeInfo             CipheringModeInfo             OPTIONAL,
activationTime                 ActivationTime                 OPTIONAL,
new-U-RNTI                    U-RNTI                       OPTIONAL,
new-C-RNTI                    C-RNTI                       OPTIONAL,
rrc-StateIndicator            RRC-StateIndicator,
utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- UTRAN mobility IEs
ura-Identity                   URA-Identity                 OPTIONAL,
-- Core network IEs
cn-InformationInfo            CN-InformationInfo           OPTIONAL,
-- Radio bearer IEs
srb-InformationSetupList      SRB-InformationSetupList     OPTIONAL,
rab-InformationSetupList      RAB-InformationSetupList     OPTIONAL,
rb-InformationAffectedList    RB-InformationAffectedList   OPTIONAL,
dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL,
-- Transport channel IEs
ul-CommonTransChInfo         UL-CommonTransChInfo        OPTIONAL,
ul-deletedTransChInfoList     UL-DeletedTransChInfoList    OPTIONAL,
ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList  OPTIONAL,
modeSpecificTransChInfo      CHOICE {
    fdd                         SEQUENCE {
        cpch-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
}

RadioBearerSetup-r3-r4-ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- The following IE extends SSDT-Information, which is included in
-- DL-CommonInformation. FDD only.
ssdt-UL                        SSDT-UL-r4                   OPTIONAL
}

RadioBearerSetup-r4-IEs ::= SEQUENCE {
-- User equipment IEs
integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
cipheringModeInfo             CipheringModeInfo             OPTIONAL,
activationTime                 ActivationTime                 OPTIONAL,
new-U-RNTI                    U-RNTI                       OPTIONAL,
new-C-RNTI                    C-RNTI                       OPTIONAL,
rrc-StateIndicator            RRC-StateIndicator,
utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- UTRAN mobility IEs
ura-Identity                   URA-Identity                 OPTIONAL,
-- Core network IEs
cn-InformationInfo            CN-InformationInfo           OPTIONAL,

```

```

-- Radio bearer IEs
  srb-InformationSetupList      SRB-InformationSetupList      OPTIONAL,
  rab-InformationSetupList      RAB-InformationSetupList-r4  OPTIONAL,
  rb-InformationAffectedList    RB-InformationAffectedList  OPTIONAL,
-- 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-r4     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-r4     OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information       DL-PDSCH-Information       OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation          DL-CommonInformation-r4     OPTIONAL,
  dl-InformationPerRL-List      DL-InformationPerRL-List-r4  OPTIONAL
}

```

```

-- *****
--
-- 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
  count-C-ActivationTime         ActivationTime                 OPTIONAL,
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList    OPTIONAL,
  ul-CounterSynchronisationInfo  UL-CounterSynchronisationInfo  OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                 OPTIONAL
}

```

```

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

```

```

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

```

```

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

```

```

RRCConnectionReject ::= CHOICE {
  r3                              SEQUENCE {
    rrcConnectionReject-r3      RRCConnectionReject-r3-IEs,

```

```

        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    later-than-r3                      SEQUENCE {
        initialUE-Identity             InitialUE-Identity,
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

RRCConnectionReject-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
    initialUE-Identity                InitialUE-Identity,
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    rejectionCause                    RejectionCause,
    waitTime                          WaitTime,
    redirectionInfo                   RedirectionInfo                OPTIONAL
}

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

RRCConnectionRelease ::= CHOICE {
    r3                                 SEQUENCE {
        rrcConnectionRelease-r3       RRCConnectionRelease-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                          SEQUENCE {
                rrcConnectionRelease-r4 RRCConnectionRelease-r4-IEs,
                nonCriticalExtensions   SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

RRCConnectionRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    n-308                              N-308                        OPTIONAL,
    -- The IE above is conditional on the UE state.
    releaseCause                      ReleaseCause,
    rplmn-information                 Rplmn-Information            OPTIONAL
}

RRCConnectionRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    n-308                              N-308                        OPTIONAL,
    -- The IE above is conditional on the UE state.
    releaseCause                      ReleaseCause,
    rplmn-information                 Rplmn-Information-r4        OPTIONAL
}

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

RRCConnectionRelease-CCCH ::= CHOICE {
    r3                                 SEQUENCE {
        rrcConnectionRelease-CCCH-r3  RRCConnectionRelease-CCCH-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        u-RNTI                        U-RNTI,
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                          SEQUENCE {
                rrcConnectionRelease-CCCH-r4 RRCConnectionRelease-CCCH-r4-IEs,
                nonCriticalExtensions       SEQUENCE {} OPTIONAL
            },
        }
    }
}

```

```

        criticalExtensions          SEQUENCE {}
    }
}

RRCConnectionRelease-CCCH-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionRelease  RRCConnectionRelease-r3-IEs
}

RRCConnectionRelease-CCCH-r4-IEs ::= SEQUENCE {
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionRelease  RRCConnectionRelease-r4-IEs
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    errorIndication            FailureCauseWithProtErr           OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}                       OPTIONAL
}

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

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

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

RRCConnectionSetup ::= CHOICE {
    r3                          SEQUENCE {
        rrcConnectionSetup-r3    RRCConnectionSetup-r3-IEs,
        nonCriticalExtensions     SEQUENCE {
            rrcConnectionSetup-r3-r4-ext  RRCConnectionSetup-r3-r4-ext-IEs,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions     SEQUENCE {}                       OPTIONAL
        } OPTIONAL
    },
    later-than-r3               SEQUENCE {
        initialUE-Identity        InitialUE-Identity,
        rrc-TransactionIdentifier  RRC-TransactionIdentifier,
        criticalExtensions        CHOICE {
            r4                     SEQUENCE {
                rrcConnectionSetup-r4    RRCConnectionSetup-r4-IEs,
                nonCriticalExtensions     SEQUENCE {}                       OPTIONAL
            },
            criticalExtensions      SEQUENCE {}
        }
    }
}
}

```

```

RRCConnectionSetup-r3-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,
  rrc-StateIndicator         RRC-StateIndicator,
  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,
  -- NOTE: IE ul-AddReconfTransChInfoList should be optional in later versions of this message
  dl-CommonTransChInfo       DL-CommonTransChInfo        OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
  -- NOTE: IE dl-AddReconfTransChInfoList should be optional in later versions of this message
  -- 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
}

```

```

RRCConnectionSetup-r3-r4-ext-IEs ::= SEQUENCE {
  capabilityUpdateRequirement-r4-ext CapabilityUpdateRequirement-r4-ext OPTIONAL,
  -- Physical channel IEs
  -- The following IE extends SSdT-Information, which is included in
  -- DL-CommonInformation. FDD only.
  ssdt-UL                    SSdT-UL-r4                  OPTIONAL
}

```

```

RRCConnectionSetup-r4-IEs ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  activationTime              ActivationTime                OPTIONAL,
  new-U-RNTI                 U-RNTI,
  new-c-RNTI                 C-RNTI                      OPTIONAL,
  rrc-StateIndicator         RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient,
  capabilityUpdateRequirement CapabilityUpdateRequirement-r4 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-r4        OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList  OPTIONAL,
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power  OPTIONAL,
  ul-ChannelRequirement-r4   UL-ChannelRequirement-r4  OPTIONAL,
  dl-CommonInformation-r4    DL-CommonInformation-r4  OPTIONAL,
  dl-InformationPerRL-List-r4 DL-InformationPerRL-List-r4  OPTIONAL
}

```

```

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

```

```

RRCConnectionSetupComplete ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
  rrc-TransactionIdentifier    RRC-TransactionIdentifier,
  startList                    STARTList,
  ue-RadioAccessCapability     UE-RadioAccessCapability  OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,

```



```

-- Non critical extensions
v370NonCriticalExtensions          SEQUENCE {
  rrcConnectionSetupComplete-v370ext  RRCConnectionSetupComplete-v370ext,
  v380NonCriticalExtensions          SEQUENCE {
    rrcConnectionSetupComplete-v380ext  RRCConnectionSetupComplete-v380ext-IEs,
    -- Reserved for future non critical extension
    v4NonCriticalExtensions          SEQUENCE {
      rrcConnectionSetupComplete-r3-r4-ext
      RRCConnectionSetupComplete-r3-r4-ext-IEs,
      nonCriticalExtensions-r4          SEQUENCE {}          OPTIONAL
    }
  }
}
OPTIONAL
}
OPTIONAL
}

RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-v370ext  UE-RadioAccessCapability-v370ext  OPTIONAL
}

RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-v380ext  UE-RadioAccessCapability-v380ext  OPTIONAL,
  dl-PhysChCapabilityFDD-v380ext    DL-PhysChCapabilityFDD-v380ext
}

RRCConnectionSetupComplete-r3-r4-ext-IEs ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-r4-ext    UE-RadioAccessCapability-r4-ext  OPTIONAL
}

-- *****
--
-- RRC FAILURE INFO
--
-- *****

RRC-FailureInfo ::= CHOICE {
  r3          SEQUENCE {
    rRC-FailureInfo-r3          RRC-FailureInfo-r3-IEs,
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
  },
  criticalExtensions          SEQUENCE {}
}

RRC-FailureInfo-r3-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  failureCauseWithProtErr      FailureCauseWithProtErr
}

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

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

SecurityModeCommand ::= CHOICE {
  r3          SEQUENCE {
    securityModeCommand-r3      SecurityModeCommand-r3-IEs,
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
  },
  later-than-r3          SEQUENCE {
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,

```

```

        criticalExtensions          SEQUENCE {}
    }
}

SecurityModeCommand-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    securityCapability              SecurityCapability,
    cipheringModeInfo              CipheringModeInfo              OPTIONAL,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
-- Core network IEs
    cn-DomainIdentity              CN-DomainIdentity,
-- Other IEs
    ue-SystemSpecificSecurityCap    InterRAT-UE-SecurityCapList    OPTIONAL
}

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

SecurityModeComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.

-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo    OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList     OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

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

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

SignallingConnectionRelease ::= CHOICE {
    r3                             SEQUENCE {
        signallingConnectionRelease-r3 SignallingConnectionRelease-r3-IEs,
        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    },
    later-than-r3                  SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

SignallingConnectionRelease-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
-- Core network IEs
    cn-DomainIdentity              CN-DomainIdentity
}

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

```

```

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

```

```

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

```

```

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
    sfn-Prime                SFN-Prime,
    payload                  CHOICE {
        noSegment            NULL,
        firstSegment         FirstSegment,
        subsequentSegment    SubsequentSegment,
        lastSegmentShort     LastSegmentShort,
        lastAndFirst        SEQUENCE {
            lastSegmentShort LastSegmentShort,
            firstSegment      FirstSegmentShort
        },
        lastAndComplete      SEQUENCE {
            lastSegmentShort LastSegmentShort,
            completeSIB-List CompleteSIB-List
        },
        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,
        spare5                NULL,
        spare4                NULL,
        spare3                NULL,
        spare2                NULL,
        spare1                NULL
    }
}

```

```

-- *****
--
-- 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
        },
        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,
    spare5                       NULL,
    spare4                       NULL,
    spare3                       NULL,
    spare2                       NULL,
    spare1                       NULL
}
}

-- *****
--
-- 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          BIT STRING (SIZE (226))
  -- In case the SIB data is less than 226 bits, padding shall be used
  -- The same padding bits shall be used as defined in clause 12.1
}

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 {} OPTIONAL
}

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

TransportChannelReconfiguration ::= CHOICE {
  r3                       SEQUENCE {
    transportChannelReconfiguration-r3
    TransportChannelReconfiguration-r3-IEs,
    nonCriticalExtensions   SEQUENCE {
      transportChannelReconfiguration-r3-r4-ext
      TransportChannelReconfiguration-r3-r4-ext-IEs,
      nonCriticalExtensions SEQUENCE {} OPTIONAL
    } OPTIONAL
  },
  later-than-r3            SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    criticalExtensions        CHOICE {
      r4                       SEQUENCE {
        transportChannelReconfiguration-r4
        TransportChannelReconfiguration-r4-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
      },
      criticalExtensions       SEQUENCE {}
    }
  }
}

TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo        CipheringModeInfo OPTIONAL,
  activationTime            ActivationTime OPTIONAL,
  new-U-RNTI                U-RNTI OPTIONAL,
  new-C-RNTI                C-RNTI OPTIONAL,
  rrc-StateIndicator        RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo        CN-InformationInfo OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity              URA-Identity OPTIONAL,
  -- Radio bearer IEs
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL,
  -- Transport channel IEs

```

```

    ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
    ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
    modeSpecificTransChInfo       CHOICE {
        fdd                        SEQUENCE {
            cpch-SetID             CPCH-SetID             OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                        NULL
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList   OPTIONAL,
-- Physical channel IEs
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power       OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement       OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd                        SEQUENCE {
            dl-PDSCH-Information   DL-PDSCH-Information   OPTIONAL
        },
        tdd                        NULL
    },
    dl-CommonInformation          DL-CommonInformation         OPTIONAL,
    dl-InformationPerRL-List      DL-InformationPerRL-List     OPTIONAL
}

TransportChannelReconfiguration-r3-r4-ext-IEs ::= SEQUENCE {
-- Physical channel IEs
-- The following IE extends SSDT-Information, which is included in
-- DL-CommonInformation. FDD only.
    ssdt-UL                       SSDT-UL-r4                   OPTIONAL
}

TransportChannelReconfiguration-r4-IEs ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
    cipheringModeInfo             CipheringModeInfo             OPTIONAL,
    activationTime                 ActivationTime                 OPTIONAL,
    new-U-RNTI                    U-RNTI                       OPTIONAL,
    new-C-RNTI                    C-RNTI                       OPTIONAL,
    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   OPTIONAL,
    modeSpecificTransChInfo       CHOICE {
        fdd                        SEQUENCE {
            cpch-SetID             CPCH-SetID             OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                        NULL
    }
    dl-CommonTransChInfo          DL-CommonTransChInfo-r4      OPTIONAL,
    dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList   OPTIONAL,
-- Physical channel IEs
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power       OPTIONAL,
    ul-ChannelRequirement         UL-ChannelRequirement-r4     OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd                        SEQUENCE {
            dl-PDSCH-Information   DL-PDSCH-Information   OPTIONAL
        },
        tdd                        NULL
    },
    dl-CommonInformation          DL-CommonInformation-r4      OPTIONAL,
    dl-InformationPerRL-List      DL-InformationPerRL-List-r4  OPTIONAL
}

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

```

```

TransportChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  -- Radio bearer IEs
  count-C-ActivationTime          ActivationTime                OPTIONAL,
  rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList     OPTIONAL,
  ul-CounterSynchronisationInfo    UL-CounterSynchronisationInfo  OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

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

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

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

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

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

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

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

UECapabilityEnquiry ::= CHOICE {

```

```

r3
  ueCapabilityEnquiry-r3      SEQUENCE {
    nonCriticalExtensions     UECapabilityEnquiry-r3-IEs,
    ueCapabilityEnquiry-r3-r4-ext SEQUENCE {
      nonCriticalExtensions   UECapabilityEnquiry-r3-r4-ext-IEs,
    }
  }
  OPTIONAL
},
later-than-r3                SEQUENCE {
  rrc-TransactionIdentifier   RRC-TransactionIdentifier,
  criticalExtensions          SEQUENCE {}
}
}

UECapabilityEnquiry-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier   RRC-TransactionIdentifier,
  capabilityUpdateRequirement CapabilityUpdateRequirement
}

UECapabilityEnquiry-r3-r4-ext-IEs ::= SEQUENCE {
  capabilityUpdateRequirement-r4-ext CapabilityUpdateRequirement-r4-ext
}

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

UECapabilityInformation ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier   RRC-TransactionIdentifier           OPTIONAL,
  ue-RadioAccessCapability    UE-RadioAccessCapability           OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList
  OPTIONAL,
  v370NonCriticalExtensions    SEQUENCE {
    ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
    v380NonCriticalExtensions      SEQUENCE {
      ueCapabilityInformation-v380ext UECapabilityInformation-v380ext-IEs,
      -- Reserved for future non critical extension
    }
    v4NonCriticalExtensions      SEQUENCE {
      ueCapabilityInformation-r3-r4-ext
      UECapabilityInformation-r3-r4-ext,
      nonCriticalExtensions-r4    SEQUENCE {}           OPTIONAL
    }
  }
  OPTIONAL
}
}
OPTIONAL

UECapabilityInformation-v370ext ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext   OPTIONAL
}

UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext   OPTIONAL,
  dl-PhysChCapabilityFDD-v380ext   DL-PhysChCapabilityFDD-v380ext
}

UECapabilityInformation-r3-r4-ext ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability-r4-ext   UE-RadioAccessCapability-r4-ext   OPTIONAL
}

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

UECapabilityInformationConfirm ::= CHOICE {
  r3
    SEQUENCE {
      ueCapabilityInformationConfirm-r3
      UECapabilityInformationConfirm-r3-IEs,
      nonCriticalExtensions          SEQUENCE {}           OPTIONAL
    }
},

```



```

    later-than-r3          SEQUENCE {
      rrc-TransactionIdentifier  RRC-TransactionIdentifier,
      criticalExtensions          SEQUENCE {}
    }
  }
UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier  RRC-TransactionIdentifier
}
-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

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

UplinkPhysicalChannelControl ::= CHOICE {
  r3          SEQUENCE {
    uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
    nonCriticalExtensions            SEQUENCE {
      -- In case of TDD, the following IE is included instead of the IE
      -- up-IPDL-Parameters in up-OTDOA-AssistanceData
      openLoopPowerControl-IPDL-TDD  OpenLoopPowerControl-IPDL-TDD-r4  OPTIONAL,
      -- Extension mechanism for non- release4 information
      noncriticalExtensions          SEQUENCE {}          OPTIONAL
    }
  },
  later-than-r3          SEQUENCE {
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    criticalExtensions        CHOICE {
      r4          SEQUENCE {
        uplinkPhysicalChannelControl-r4 UplinkPhysicalChannelControl-r4-IEs,
        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
      },
      criticalExtensions          SEQUENCE {}
    }
  }
}

UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier  RRC-TransactionIdentifier,
  -- Physical channel IEs
  ccTrCH-PowerControlInfo    CCTrCH-PowerControlInfo          OPTIONAL,
  timingAdvance              UL-TimingAdvanceControl          OPTIONAL,
  alpha                      Alpha                          OPTIONAL,
  specialBurstScheduling      SpecialBurstScheduling          OPTIONAL,
  prach-ConstantValue        ConstantValue                  OPTIONAL,
  pusch-ConstantValue        ConstantValue                  OPTIONAL
}

UplinkPhysicalChannelControl-r4-IEs ::= SEQUENCE {
  -- Physical channel IEs
  ccTrCH-PowerControlInfo    CCTrCH-PowerControlInfo-r4          OPTIONAL,
  tddOption                  CHOICE {
    tdd384                    SEQUENCE {
      timingAdvance            UL-TimingAdvanceControl-r4  OPTIONAL,
      alpha                    Alpha                          OPTIONAL,
      prach-ConstantValue      ConstantValue                  OPTIONAL,
      pusch-ConstantValue      ConstantValue                  OPTIONAL,
      openLoopPowerControl-IPDL-TDD  OpenLoopPowerControl-IPDL-TDD-r4  OPTIONAL
    }
  }
}

```

```

        },
        tdd128
        SEQUENCE {
            ul-SynchronisationParameters UL-SynchronisationParameters-r4 OPTIONAL
        }
    }
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
    -- User equipment IES
    u-RNTI U-RNTI,
    ura-UpdateCause URA-UpdateCause,
    protocolErrorIndicator ProtocolErrorIndicatorWithMoreInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions SEQUENCE {} OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= CHOICE {
    r3 SEQUENCE {
        uraUpdateConfirm-r3 URAUpdateConfirm-r3-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    later-than-r3 SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions SEQUENCE {}
    }
}

URAUUpdateConfirm-r3-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,
    rrc-StateIndicator RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- CN information elements
    cn-InformationInfo CN-InformationInfo OPTIONAL,
    -- UTRAN mobility IES
    ura-Identity URA-Identity OPTIONAL,
    -- Radio bearer IES
    dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= CHOICE {
    r3 SEQUENCE {
        uraUpdateConfirm-CCCH-r3 URAUpdateConfirm-CCCH-r3-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    later-than-r3 SEQUENCE {
        u-RNTI U-RNTI,
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions SEQUENCE {}
    }
}

URAUUpdateConfirm-CCCH-r3-IEs ::= SEQUENCE {
    -- User equipment IES
    u-RNTI U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.

```

```

        uraUpdateConfirm                URAUpdateConfirm-r3-IEs
    }
-- *****
--
-- UTRAN MOBILITY INFORMATION
--
-- *****

UTRANMobilityInformation ::= CHOICE {
    r3                SEQUENCE {
        uranMobilityInformation-r3    UTRANMobilityInformation-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    later-than-r3    SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

UTRANMobilityInformation-r3-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,
    ue-ConnTimersAndConstants       UE-ConnTimersAndConstants   OPTIONAL,
-- CN information elements
    cn-InformationInfo              CN-InformationInfoFull    OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                    URA-Identity                    OPTIONAL,
-- Radio bearer IEs
    dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {} OPTIONAL
}

-- *****
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- *****

UTRANMobilityInformationConfirm ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
-- Radio bearer IEs
    count-C-ActivationTime          ActivationTime                  OPTIONAL,
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList     OPTIONAL,
    ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {} OPTIONAL
}

-- *****
--
-- UTRAN MOBILITY INFORMATION FAILURE
--
-- *****

UTRANMobilityInformationFailure ::= SEQUENCE {
-- UE information elements
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    failureCause                   FailureCauseWithProtErr,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {} OPTIONAL
}
}
END

```

## 11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=
```

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

```
--  
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)  
--  
-- *****
```

```
BEGIN
```

```
IMPORTS
```

```
    hiPDSCHidentities,  
    hiPUSCHidentities,  
    hiRM,  
    maxAC,  
    maxAdditionalMeas,  
    maxASC,  
    maxASCmap,  
    maxASCPersist,  
    maxCCTrCH,  
    maxCellMeas,  
    maxCellMeas-1,  
    maxCNdomains,  
    maxCPCHsets,  
    maxDPCH-DLchan,  
    maxDPDCH-UL,  
    maxDRACclasses,  
    maxFACHPCH,  
    maxFreq,  
    maxFreqBandsFDD,  
    maxFreqBandsTDD,  
    maxFreqBandsGSM,  
    maxInterSysMessages,  
    maxLoCHperRLC,  
    maxMeasEvent,  
    maxMeasIntervals,  
    maxMeasParEvent,  
    maxNumCDMA2000Freqs,  
    maxNumFDDFreqs,  
    maxNumGSMFreqRanges,  
    maxNumTDDFreqs,  
    maxOtherRAT,  
    maxPage1,  
    maxPCPCH-Apsig,  
    maxPCPCH-ApsubCh,  
    maxPCPCH-CDsig,  
    maxPCPCH-CDsubCh,  
    maxPCPCH-SF,  
    maxPCPCHs,  
    maxPDCPAlgoType,  
    maxPDSCH,  
    maxPDSCH-TFCIgroups,  
    maxPRACH,  
    maxPRACH-FPACH,  
    maxPredefConfig,  
    maxPUSCH,  
    maxRABsetup,  
    maxRAT,  
    maxRB,  
    maxRBallRABs,  
    maxRBMuxOptions,  
    maxRBperRAB,  
    maxReportedGSMCells,  
    maxSRBsetup,  
    maxRL,  
    maxRL-1,  
    maxROHC-PacketSizes-r4,  
    maxROHC-Profile-r4,  
    maxSCCPCH,  
    maxSat,  
    maxSIB,  
    maxSIB-FACH,  
    maxSystemCapability,  
    maxTF,  
    maxTF-CPCH,  
    maxTFC,  
    maxTFCI-2-Combs,  
    maxTGPS,  
    maxTrCH,  
    maxTrCHpreconf,  
    maxTS,
```

```

maxTS-1,
maxTS-LCR,
maxTS-LCR-1,
maxURA
FROM Constant-definitions;

Ansi-41-IDNNS ::=                                BIT STRING (SIZE (14))

CN-DomainIdentity ::=                            ENUMERATED {
    cs-domain,
    ps-domain }

CN-DomainInformation ::=                         SEQUENCE {
    cn-DomainIdentity
    cn-DomainSpecificNAS-Info
    NAS-SystemInformationGSM-MAP
}

CN-DomainInformationFull ::=                     SEQUENCE {
    cn-DomainIdentity
    cn-DomainSpecificNAS-Info
    NAS-SystemInformationGSM-MAP,
    CN-DRX-CycleLengthCoeff
    CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList ::=                     SEQUENCE (SIZE (1..maxCNdomains)) OF
    CN-DomainInformation

CN-DomainInformationListFull ::=                 SEQUENCE (SIZE (1..maxCNdomains)) OF
    CN-DomainInformationFull

CN-DomainSysInfo ::=                             SEQUENCE {
    cn-DomainIdentity
    cn-Type
    CHOICE {
        gsm-MAP
        ansi-41
        NAS-SystemInformationGSM-MAP,
        NAS-SystemInformationANSI-41
    },
    cn-DRX-CycleLengthCoeff
    CN-DRX-CycleLengthCoefficient
}

CN-DomainSysInfoList ::=                         SEQUENCE (SIZE (1..maxCNdomains)) OF
    CN-DomainSysInfo

CN-InformationInfo ::=                           SEQUENCE {
    plmn-Identity
    cn-CommonGSM-MAP-NAS-SysInfo
    cn-DomainInformationList
    PLMN-Identity
    NAS-SystemInformationGSM-MAP
    CN-DomainInformationList
    OPTIONAL,
    OPTIONAL,
    OPTIONAL
}

CN-InformationInfoFull ::=                       SEQUENCE {
    plmn-Identity
    cn-CommonGSM-MAP-NAS-SysInfo
    cn-DomainInformationListFull
    PLMN-Identity
    NAS-SystemInformationGSM-MAP
    CN-DomainInformationListFull
    OPTIONAL,
    OPTIONAL,
    OPTIONAL
}

Digit ::=                                       INTEGER (0..9)

Gsm-map-IDNNS ::=                               SEQUENCE {
    routingbasis
    localPTMSI
    routingparameter
    CHOICE {
        RoutingParameter
    },
    tMSIofsamePLMN
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
    tMSIofdifferentPLMN
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
    iMSIresponsetopaging
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
    iMSIUEinitiatedEvent
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
    iMEI
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
    spare21
    routingparameter
    SEQUENCE {
        RoutingParameter
    },
}

```

<pre>         spare12         routingparameter       }     },     enteredparameter   } </pre>	<pre>         SEQUENCE {           RoutingParameter         }         BOOLEAN </pre>
IMEI ::=	SEQUENCE (SIZE (15)) OF IMEI-Digit
IMEI-Digit ::=	INTEGER (0..15)
IMSI-GSM-MAP ::=	SEQUENCE (SIZE (6..1521)) OF Digit
<pre> IntraDomainNasNodeSelector ::=   version   release99   cn-Type     gsm-Map-IDNNS     ansi-41-IDNNS   },   later   futurecoding } </pre>	<pre>         SEQUENCE {           CHOICE {             SEQUENCE {               CHOICE {                 Gsm-map-IDNNS,                 Ansi-41-IDNNS               }             }           },           SEQUENCE {             BIT STRING (SIZE (15))           }         } </pre>
LAI ::=	SEQUENCE { PLMN-Identity, 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 }
<pre> PLMN-Identity ::=   mcc   mnc } </pre>	<pre>         SEQUENCE {           MCC,           MNC         } </pre>
<pre> PLMN-Type ::=   gsm-MAP   plmn-Identity },   ansi-41   p-REV   min-P-REV   sid   nid },   gsm-MAP-and-ANSI-41   plmn-Identity   p-REV   min-P-REV   sid   nid   spare } </pre>	<pre>         CHOICE {           SEQUENCE {             PLMN-Identity           },           SEQUENCE {             P-REV,             Min-P-REV,             SID,             NID           },           SEQUENCE {             PLMN-Identity,             P-REV,             Min-P-REV,             SID,             NID,             NULL           }         } </pre>

```

RAB-Identity ::=
    gsm-MAP-RAB-Identity
    ansi-4l-RAB-Identity
}
CHOICE {
    BIT STRING (SIZE (8)),
    BIT STRING (SIZE (8))
}

RAI ::=
    lai
    rac
}
SEQUENCE {
    LAI,
    RoutingAreaCode
}

RoutingAreaCode ::=
    BIT STRING (SIZE (8))

RoutingParameter ::=
    BIT STRING (SIZE (10))

TMSI-GSM-MAP ::=
    BIT STRING (SIZE (32))

-- *****
--
--     UTRAN MOBILITY INFORMATION ELEMENTS (10.3.2)
--
-- *****

AccessClassBarred ::=
    ENUMERATED {
        barred, notBarred }

AccessClassBarredList ::=
    SEQUENCE (SIZE (maxAC)) OF
        AccessClassBarred

AllowedIndicator ::=
    ENUMERATED {
        allowed, notAllowed }

CellAccessRestriction ::=
    cellBarred
    cellReservedForOperatorUse
    cellReservationExtension
    accessClassBarredList
}
SEQUENCE {
    CellBarred,
    ReservedIndicator,
    ReservedIndicator,
    AccessClassBarredList
} OPTIONAL

CellBarred ::=
    barred
    intraFreqCellReselectionInd
    t-Barred
},
notBarred
}
CHOICE {
    SEQUENCE {
        AllowedIndicator,
        T-Barred
    },
    NULL
}

CellIdentity ::=
    BIT STRING (SIZE (28))

CellSelectReselectInfoSIB-3-4 ::=
    mappingInfo
    cellSelectQualityMeasure
    cpich-Ec-N0
    q-HYST-2-S
    -- Default value for q-HYST-2-S is q-HYST-1-S
    },
    cpich-RSCP
    modeSpecificInfo
    fdd
        s-Intrasearch
        s-Intersearch
        s-SearchHCS
        rat-List
        q-QualMin
        q-RxlevMin
    },
    tdd
        s-Intrasearch
        s-Intersearch
        s-SearchHCS
        rat-List
        q-RxlevMin
    },
    q-Hyst-1-S
    t-Reselection-S
    hcs-ServingCellInformation
}
SEQUENCE {
    MappingInfo
    CHOICE {
        SEQUENCE {
            Q-Hyst-S
        } OPTIONAL
        NULL
    },
    CHOICE {
        SEQUENCE {
            S-SearchQual
            S-SearchQual
            S-SearchRXLEV
            RAT-FDD-InfoList
            Q-QualMin,
            Q-RxlevMin
        } OPTIONAL,
        SEQUENCE {
            S-SearchRXLEV
            S-SearchRXLEV
            S-SearchRXLEV
            RAT-TDD-InfoList
            Q-RxlevMin
        } OPTIONAL,
        Q-Hyst-S,
        T-Reselection-S,
        HCS-ServingCellInformation
    } OPTIONAL,
}

```

```

    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

MapParameter ::=                    INTEGER (0..99)

Mapping ::=                          SEQUENCE {
    rat                             RAT,
    mappingFunctionParameterList    MappingFunctionParameterList
}

Mapping-LCR-r4 ::=                  SEQUENCE {
    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 }

-- In this list, mapping for FDD and 3.84Mcps TDD is defined. For 1.28Mcps TDD, Mapping-LCR-r4
-- is used instead.
MappingInfo ::=                     SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

-- Actual value = IE value * 2
Q-Hyst-S ::=                         INTEGER (0..20)

RAT ::=                              ENUMERATED {
    ultra-FDD,
    ultra-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 }

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

-- *****
--
--     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-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
-- The following is for 3.84Mcps TDD update requirement
        ue-RadioCapabilityTDDUpdateRequirement-TDD  BOOLEAN,
        systemSpecificCapUpdateReqList             SystemSpecificCapUpdateReqList    OPTIONAL
    }

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
        ue-RadioCapabilityUpdateRequirement-TDD128  BOOLEAN
    }

CapabilityUpdateRequirement-r4 ::= SEQUENCE {
        ue-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
        ue-RadioCapabilityTDDUpdateRequirement-TDD384  BOOLEAN,
        ue-RadioCapabilityTDDUpdateRequirement-TDD128  BOOLEAN,
        systemSpecificCapUpdateReqList                 SystemSpecificCapUpdateReqList    OPTIONAL
    }

CellUpdateCause ::=
    ENUMERATED {
        cellReselection,
        periodicalCellUpdate,
        uplinkDataTransmission,
        utran-pagingResponse,
        re-enteredServiceArea,
        radiolinkFailure,
        rlc-unrecoverableError,
        spare1 }

ChipRateCapability ::=
    ENUMERATED {
        mcps3-84, mcps1-28 }

CipheringAlgorithm ::=
    ENUMERATED {
        uea0, uea1 }

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..9)

CN-PagedUE-Identity ::= CHOICE {
    imsi-GSM-MAP           IMSI-GSM-MAP,
    tmsi-GSM-MAP           TMSI-GSM-MAP,
    p-TMSI-GSM-MAP        P-TMSI-GSM-MAP,
    imsi-DS-41             IMSI-DS-41,
    tmsi-DS-41             TMSI-DS-41,
    spare3                 NULL,
    spare2                 NULL,
    spare1                 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 indicates need for compressed mode for 3.84Mcps TDD measurements
    tdd-Measurements        BOOLEAN           OPTIONAL,
    gsm-Measurements        GSM-Measurements  OPTIONAL,
    multiCarrierMeasurements  BOOLEAN         OPTIONAL
}

CompressedModeMeasCapability-LCR-r4 ::= SEQUENCE {
    tdd128-Measurements      BOOLEAN           OPTIONAL
}

CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    CompressedModeMeasCapabFDD

CompressedModeMeasCapabFDD ::= SEQUENCE {
    radioFrequencyBandFDD    RadioFrequencyBandFDD  OPTIONAL,
    dl-MeasurementsFDD       BOOLEAN,
    ul-MeasurementsFDD       BOOLEAN
}

CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
    CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::= SEQUENCE {
    radioFrequencyBandTDD    RadioFrequencyBandTDD,
    dl-MeasurementsTDD       BOOLEAN,
    ul-MeasurementsTDD       BOOLEAN
}

CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
    CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::= SEQUENCE {
    radioFrequencyBandGSM    RadioFrequencyBandGSM,
    dl-MeasurementsGSM       BOOLEAN,
    ul-MeasurementsGSM       BOOLEAN
}

CompressedModeMeasCapabMC ::= SEQUENCE {
    dl-MeasurementsMC        BOOLEAN,
    ul-MeasurementsMC        BOOLEAN
}

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 {
    maxNoDPCH-PDSCH-Codes    INTEGER (1..8),
    maxNoPhysChBitsReceived   MaxNoPhysChBitsReceived,
    supportForSF-512         BOOLEAN,

```

```

    supportOfPDSCH                BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception  SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityFDD-v380ext ::= SEQUENCE {
    supportOfDedicatedPilotsForChEstimation  SupportOfDedicatedPilotsForChEstimation  OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::= ENUMERATED { true }

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame                MaxTS-PerFrame,
    maxPhysChPerFrame              MaxPhysChPerFrame,
    minimumSF                      MinimumSF-DL,
    supportOfPDSCH                 BOOLEAN,
    maxPhysChPerTS                 MaxPhysChPerTS
}

DL-PhysChCapabilityTDD-LCR-r4 ::= SEQUENCE {
    maxTS-PerSubFrame              MaxTS-PerSubFrame-r4,
    maxPhysChPerSubFrame-r4        MaxPhysChPerSubFrame-r4,
    minimumSF                      MinimumSF-DL,
    supportOfPDSCH                 BOOLEAN,
    maxPhysChPerTS                 MaxPhysChPerTS,
    supportOf8PSK                  BOOLEAN
}

DL-TransChCapability ::= SEQUENCE {
    maxNoBitsReceived              MaxNoBits,
    maxConvCodeBitsReceived        MaxNoBits,
    turboDecodingSupport           TurboSupport,
    maxSimultaneousTransChs        MaxSimultaneousTransChsDL,
    maxSimultaneousCCTrCH-Count    MaxSimultaneousCCTrCH-Count,
    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

ESN-DS-41 ::= BIT STRING (SIZE (32))

EstablishmentCause ::= ENUMERATED {
    originatingConversationalCall,
    originatingStreamingCall,
    originatingInteractiveCall,
    originatingBackgroundCall,
    originatingSubscribedTrafficCall,
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    emergencyCall,
    interRAT-CellReselection,
    interRAT-CellChangeOrder,
    registration,
    detach,
    originatingHighPrioritySignalling,
    originatingLowPrioritySignalling,
    callRe-establishment,
    terminatingHighPrioritySignalling,
    terminatingLowPrioritySignalling,
    terminatingCauseUnknown,
    spare12,
    spare11,
    spare10,
    spare9,
    spare8,
    spare7,
    spare6,
    spare5,
    spare4,
}

```

```

_____ spare3,
_____ spare2,
_____ spare1 }

FailureCauseWithProtErr ::= CHOICE {
    configurationUnsupported          NULL,
    physicalChannelFailure            NULL,
    incompatibleSimultaneousReconfiguration
                                     NULL,
    compressedModeRuntimeError        TGPSI,
    protocolError                     ProtocolErrorInformation,
    cellUpdateOccurred               NULL,
    invalidConfiguration              NULL,
    configurationIncomplete            NULL,
    unsupportedMeasurement             NULL,
    spare71                        NULL,
    spare62                        NULL,
    spare53                        NULL,
    spare4                            NULL,
    spare35                        NULL,
    spare26                        NULL,
    spare17                        NULL
}

FailureCauseWithProtErrTrId ::= SEQUENCE {
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    failureCause                     FailureCauseWithProtErr
}

GSM-Measurements ::= SEQUENCE {
    gsm900                           BOOLEAN,
    dcs1800                           BOOLEAN,
    gsm1900                           BOOLEAN
}

-- If ICS-Version-r4 is included, the following IE shall be ignored.
ICS-Version ::= ENUMERATED {
    r99 }

ICS-Version-r4 ::= ENUMERATED {
    rel-4 }

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41                       IMSI-DS-41,
    esn-DS-41                         ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (1..maxASC)) OF
    NS-IP

InitialUE-Identity ::= CHOICE {
    imsi                              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
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode         MessageAuthenticationCode,
    rrc-MessageSequenceNumber         RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList     RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    uial }

IntegrityProtectionModeCommand ::= CHOICE {

```

```

startIntegrityProtection          SEQUENCE {
  integrityProtInitNumber          IntegrityProtInitNumber
},
modify                             SEQUENCE {
  dl-IntegrityProtActivationInfo    IntegrityProtActivationInfo
}
}

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))

MaxHcContextSpace ::= ENUMERATED {
  by512, by1024, by2048, by4096,
  by8192 }

MaxROHC-ContextSessions-r4 ::= ENUMERATED {
  s2, s4, s8, s12, s16, s24, s32, s48,
  s64, s128, s256, s512, s1024, s16384 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
  am3, am4, am5, am6,
  am8, am16, am30 }

-- 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 }

MaxNoBits ::= ENUMERATED {
  b640, b1280, b2560, b3840, b5120,
  b6400, b7680, b8960, b10240,
  b20480, b40960, b81920, b163840 }

MaxNoPhysChBitsReceived ::= ENUMERATED {
  b600, b1200, b2400, b3600,
  b4800, b7200, b9600, b14400,
  b19200, b28800, b38400, b48000,
  b57600, b67200, b76800 }

MaxNoSCCPCH-RL ::= ENUMERATED {
  r11 }

MaxNumberOfTF ::= ENUMERATED {
  tf32, tf64, tf128, tf256,
  tf512, tf1024 }

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
  tfc16, tfc32, tfc48, tfc64, tfc96,
  tfc128, tfc256, tfc512, tfc1024 }

MaxNumberOfTFC-InTFCS-UL ::= ENUMERATED {
  tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
  tfc96, tfc128, tfc256, tfc512, tfc1024 }

MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerSubFrame-r4 ::= INTEGER (1..96)

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 }

MaxTransportBlocksDL ::=           ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::=           ENUMERATED {
                                        tb2, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512 }

MaxTS-PerFrame ::=                 INTEGER (1..14)

MaxTS-PerSubFrame-r4 ::=           INTEGER (1..6)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=           SEQUENCE {
    downlinkCompressedMode           CompressedModeMeasCapability,
    uplinkCompressedMode             CompressedModeMeasCapability
}

MeasurementCapability-v370 ::=      SEQUENCE{
    compressedModeMeasCapabFDDList   CompressedModeMeasCapabFDDList,
    compressedModeMeasCapabTDDList   CompressedModeMeasCapabTDDList OPTIONAL,
    compressedModeMeasCapabGSMList   CompressedModeMeasCapabGSMList OPTIONAL,
    compressedModeMeasCapabMC        CompressedModeMeasCapabMC        OPTIONAL
}

MeasurementCapability-r4-ext ::=     SEQUENCE {
    downlinkCompressedMode-LCR        CompressedModeMeasCapability-LCR-r4,
    uplinkCompressedMode-LCR          CompressedModeMeasCapability-LCR-r4
}

MessageAuthenticationCode ::=      BIT STRING (SIZE (32))

MinimumSF-DL ::=                   ENUMERATED {
                                        sf1, sf16 }

MinimumSF-UL ::=                   ENUMERATED {
                                        sf1, sf2, sf4, sf8, sf16 }

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-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,
    terminatingHighPrioritySignalling,
    terminatingLowPrioritySignalling,
    terminatingCauseUnknown,
    spare
}

PagingRecord ::= CHOICE {
    cn-Identity SEQUENCE {
        pagingCause PagingCause,
        cn-DomainIdentity CN-DomainIdentity,
        cn-pagedUE-Identity CN-PagedUE-Identity
    },
    utran-Identity SEQUENCE {
        u-RNTI U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
            pagingCause PagingCause,
            cn-DomainIdentity CN-DomainIdentity,
            pagingRecordTypeID PagingRecordTypeID
        }
    }
} OPTIONAL

PagingRecordList ::= SEQUENCE (SIZE (1..maxPage1)) OF
    PagingRecord

PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    supportForRfc2507 CHOICE {
        notSupported NULL,
        supported MaxHcContextSpace
    }
}

PDCP-Capability-r4-ext ::= SEQUENCE {
    supportForRfc3095 CHOICE {
        notSupported NULL,
        supported SEQUENCE {
            maxROHC-ContextSessions MaxROHC-ContextSessions-r4 DEFAULT s16,
            reverseCompressionDepth INTEGER (0..65535) DEFAULT 0
        }
    }
}

PhysicalChannelCapability ::= SEQUENCE {
    fddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityFDD,
        uplinkPhysChCapability UL-PhysChCapabilityFDD
    }
} OPTIONAL,
-- The following describes the 3.84Mcps TDD physical channel capability

```

```

tddPhysChCapability          SEQUENCE {
  downlinkPhysChCapability  DL-PhysChCapabilityTDD,
  uplinkPhysChCapability    UL-PhysChCapabilityTDD
}
OPTIONAL

-- The following describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::= SEQUENCE {
  tdd128-PhysChCapability    SEQUENCE {
    downlinkPhysChCapability DL-PhysChCapabilityTDD-LCR-r4,
    uplinkPhysChCapability  UL-PhysChCapabilityTDD-LCR-r4
  }
}
OPTIONAL

PNBSCH-Allocation-r4 ::= SEQUENCE {
  numberOfRepetitionsPerSFNPeriod ENUMERATED {
    c2, c3, c4, c5, c6, c7, c8, c9, c10,
    c12, c14, c16, c18, c20, c24, c28, c32,
    c36, c40, c48, c56, c64, c72, c80 }
}

ProtocolErrorCause ::= ENUMERATED {
  asn1-ViolationOrEncodingError,
  messageTypeNonexistent,
  messageNotCompatibleWithReceiverState,
  ie-ValueNotComprehended,
  informationElementMissing,
  messageExtensionNotComprehended,
  spare21, spare12 }

ProtocolErrorIndicator ::= ENUMERATED {
  noError, errorOccurred }

ProtocolErrorIndicatorWithMoreInfo ::= CHOICE {
  noError          NULL,
  errorOccurred   SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    protocolErrorInformation ProtocolErrorInformation
  }
}

ProtocolErrorMoreInformation ::= SEQUENCE {
  diagnosticsType CHOICE {
    type1 CHOICE {
      asn1-ViolationOrEncodingError NULL,
      messageTypeNonexistent        NULL,
      messageNotCompatibleWithReceiverState
        IdentificationOfReceivedMessage,
      ie-ValueNotComprehended        IdentificationOfReceivedMessage,
      conditionalInformationElementError IdentificationOfReceivedMessage,
      messageExtensionNotComprehended IdentificationOfReceivedMessage,
      spare1                          NULL,
      spare2                          NULL
    },
    spare NULL
  }
}

RadioFrequencyBandFDD ::= ENUMERATED {
  fdd2100,
  fdd1900,
  spare61, spare52, spare43, spare34, spare25, spare16}

RadioFrequencyBandTDDList ::= ENUMERATED {
  a, b, c, ab, ac, bc, abc, spare }

RadioFrequencyBandTDD ::= ENUMERATED {a, b, c, spare}

RadioFrequencyBandGSM ::= ENUMERATED {
  gsm450,
  gsm480,
  gsm850,
  gsm900P,
  gsm900E,
  gsm1800,
  gsm1900,
  spare91, spare82, spare73, spare64, spare5,
}

```



```

|                                     spare46, spare37, spare28, spare19}
Rb-timer-indicator ::=                SEQUENCE {
    t314-expired                       BOOLEAN,
    t315-expired                       BOOLEAN }
Re-EstablishmentTimer ::=             ENUMERATED {
}                                       useT314, useT315
RedirectionInfo ::=                   CHOICE {
    frequencyInfo                      FrequencyInfo,
}                                       InterRATInfo
RejectionCause ::=                    ENUMERATED {
}                                       congestion,
}                                       unspecified }
ReleaseCause ::=                       ENUMERATED {
}                                       normalEvent,
}                                       unspecified,
}                                       pre-emptiveRelease,
}                                       congestion,
}                                       re-establishmentReject,
}                                       directedsignallingconnectionre-establishment,
}                                       userInactivity,
}                                       spare }
RF-Capability ::=                     SEQUENCE {
    fddRF-Capability                    SEQUENCE {
        ue-PowerClass                  UE-PowerClass,
        txRxFrequencySeparation        TxRxFrequencySeparation
    }                                    OPTIONAL,
    tddRF-Capability                    SEQUENCE {
        ue-PowerClass                  UE-PowerClass,
        radioFrequencyBandTDDList      RadioFrequencyBandTDDList,
        chipRateCapability              ChipRateCapability
    }                                    OPTIONAL
}
RF-Capability-r4-ext ::=               SEQUENCE {
    tddRF-Capability                    SEQUENCE {
        ue-PowerClass                  UE-PowerClass,
        radioFrequencyBandTDDList      RadioFrequencyBandTDDList,
        chipRateCapability              ChipRateCapability
    }                                    OPTIONAL
}
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-StateIndicator ::=                 ENUMERATED {
}                                       cell-DCH, cell-FACH, cell-PCH, ura-PCH }
RRC-TransactionIdentifier ::=           INTEGER (0..3)
S-RNTI ::=                             BIT STRING (SIZE (20))
S-RNTI-2 ::=                           BIT STRING (SIZE (10))
SecurityCapability ::=                  SEQUENCE {
    cipheringAlgorithmCap                BIT STRING {
        spare15(0),
        spare14(1),
        spare13(2),
        spare12(3),
        spare11(4),
}

```

```

        spare10(5),
        spare9(6),
        spare8(7),
        spare7(8),
        spare6(9),
        spare5(10),
        spare4(11),
        spare3(12),
        spare2(13),
        ueal(14),
        uea0(15)
    } (SIZE (16)),
integrityProtectionAlgorithmCap BIT STRING {
    spare15(0),
    spare14(1),
    spare13(2),
    spare12(3),
    spare11(4),
    spare10(5),
    spare9(6),
    spare8(7),
    spare7(8),
    spare6(9),
    spare5(10),
    spare4(11),
    spare3(12),
    spare2(13),
    uial(14),
    spare0(15)
} (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
}

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, spare
}

T-302 ::= ENUMERATED {
    ms100, ms200, ms400, ms600, ms800,
    ms1000, ms1200, ms1400, ms1600,
    ms1800, ms2000, ms3000, ms4000,

```

```

|                                     ms6000, ms8000, spare }
T-304 ::=                             ENUMERATED {
|                                     ms100, ms200, ms400,
|                                     ms1000, ms2000, spare31, spare2, spare13 }
T-305 ::=                             ENUMERATED {
|                                     noUpdate, m5, m10, m30,
|                                     m60, m120, m360, m720 }
T-307 ::=                             ENUMERATED {
|                                     s5, s10, s15, s20,
|                                     s30, s40, s50, spare }
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)
-- The value 0 for T-312 is not used in this version of the specification
T-313 ::=                             INTEGER (0..15)
T-314 ::=                             ENUMERATED {
|                                     s0, s2, s4, s6, s8,
|                                     s12, s16, s20 }
T-315 ::=                             ENUMERATED {
|                                     s0, s10, s30, s60, s180,
|                                     s600, s1200, s1800 }
T-316 ::=                             ENUMERATED {
|                                     s0, s10, s20, s30, s40,
|                                     s50, s-inf, spare }
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..172))
TotalRLC-AM-BufferSize ::=             ENUMERATED {
|                                     kb2, kb10, kb50, kb100,
|                                     kb150, kb500, kb1000, spare }
-- 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 }

```

```

U-RNTI ::=
    srnc-Identity
    s-RNTI
}

U-RNTI-Short ::=
    srnc-Identity
    s-RNTI-2
}

UE-ConnTimersAndConstants ::=          SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this release of the protocol
    t-301                                T-301                                DEFAULT ms2000,
    n-301                                N-301                                DEFAULT 2,
    t-302                                T-302                                DEFAULT ms4000,
    n-302                                N-302                                DEFAULT 3,
    t-304                                T-304                                DEFAULT ms2000,
    n-304                                N-304                                DEFAULT 2,
    t-305                                T-305                                DEFAULT m30,
    t-307                                T-307                                DEFAULT s30,
    t-308                                T-308                                DEFAULT ms160,
    t-309                                T-309                                DEFAULT 5,
    t-310                                T-310                                DEFAULT ms160,
    n-310                                N-310                                DEFAULT 4,
    t-311                                T-311                                DEFAULT ms2000,
    t-312                                T-312                                DEFAULT 1,
    n-312                                N-312                                DEFAULT s1,
    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,
    t-316                                T-316                                DEFAULT s30,
    t-317                                T-317                                DEFAULT s180
}

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
    multiModeCapability
}

UE-PowerClass ::=                      INTEGER (1..4)

UE-PowerClass-v370 ::=                 ENUMERATED {class1, class2, class3, class4,
    Spare41, spare32, spare23, spare14}

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,
    ue-positioning-Capability               UE-Positioning-Capability,
    measurementCapability                  MeasurementCapability          OPTIONAL
}

UE-RadioAccessCapabilityInfo ::=       SEQUENCE {
    ue-RadioAccessCapability               UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext       UE-RadioAccessCapability-v370ext
}

UE-RadioAccessCapability-v370ext ::=   SEQUENCE {
    ue-RadioAccessCapabBandFDDList        UE-RadioAccessCapabBandFDDList
}

UE-RadioAccessCapability-v380ext ::=   SEQUENCE {

```

```

    ue-PositioningCapabilityExt          UE-PositioningCapabilityExt
}

UE-PositioningCapabilityExt ::=          SEQUENCE {
    rx-tx-TimeDifferenceType2Capable    BOOLEAN
}

UE-RadioAccessCapabBandFDDList ::=      SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                         UE-RadioAccessCapabBandFDD

UE-RadioAccessCapabBandFDD ::=          SEQUENCE{
    radioFrequencyBandFDD              RadioFrequencyBandFDD,
    fddRF-Capability                   SEQUENCE {
        ue-PowerClass                  UE-PowerClass-v370,
        txRxFrequencySeparation        TxRxFrequencySeparation
    }
    measurementCapability               MeasurementCapability-v370 OPTIONAL,
}

UE-RadioAccessCapability-r4-ext ::=      SEQUENCE {
    pdcp-Capability-r4-ext             PDCP-Capability-r4-ext,
    ics-Version-r4                      ICS-Version-r4,
    rf-Capability                       RF-Capability-r4-ext,
    physicalChannelCapability-LCR        PhysicalChannelCapability-LCR-r4,
    measurementCapability-r4-ext         MeasurementCapability-r4-ext OPTIONAL
}

UL-PhysChCapabilityFDD ::=              SEQUENCE {
    maxNoDPDCH-BitsTransmitted          MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH                      BOOLEAN
}

UL-PhysChCapabilityTDD ::=              SEQUENCE {
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerTimeslot                MaxPhysChPerTimeslot,
    minimumSF                           MinimumSF-UL,
    supportOfPUSCH                      BOOLEAN
}

UL-PhysChCapabilityTDD-LCR-r4 ::=       SEQUENCE {
    maxTS-PerSubFrame                   MaxTS-PerSubFrame-r4,
    maxPhysChPerTimeslot                MaxPhysChPerTimeslot,
    minimumSF                           MinimumSF-UL,
    supportOfPUSCH                      BOOLEAN,
    supportOf8PSK                       BOOLEAN
}

UL-TransChCapability ::=                SEQUENCE {
    maxNoBitsTransmitted                 MaxNoBits,
    maxConvCodeBitsTransmitted           MaxNoBits,
    turboDecodingSupport                 TurboSupport,
    maxSimultaneousTransChs              MaxSimultaneousTransChsUL,
    modeSpecificInfo                     CHOICE {
        fdd                              NULL,
        tdd                              SEQUENCE {
            maxSimultaneousCCTrCH-Count  MaxSimultaneousCCTrCH-Count
        }
    },
    maxTransportedBlocks                 MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS                MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF                        MaxNumberOfTF
}

UE-Positioning-Capability ::=           SEQUENCE {
    standaloneLocMethodsSupported        BOOLEAN,
    ue-BasedOTDOA-Supported              BOOLEAN,
    networkAssistedGPS-Supported         NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames  BOOLEAN,
    supportForIPDL                       BOOLEAN
}

UE-SecurityInformation ::=              SEQUENCE {
    start-CS                             START-Value
}

URA-UpdateCause ::=                   ENUMERATED {
    changeOfURA,

```

```

        periodicURAUpdate,
        dummy,
        spare1 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..9)

WaitTime ::=
        INTEGER (0..15)

-- *****
--
--     RADIO BEARER INFORMATION ELEMENTS (10.3.4)
--
-- *****

AlgorithmSpecificInfo ::=
        CHOICE {
            rfc2507-Info          RFC2507-Info
        }

AlgorithmSpecificInfo-r4 ::=
        CHOICE {
            rfc2507-Info          RFC2507-Info,
            rfc3095-Info          RFC3095-Info-r4
        }

CID-InclusionInfo-r4 ::=
        ENUMERATED {
            pdcp-Header,
            rfc3095-PacketFormat }

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

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

DefaultConfigIdentity ::=
        INTEGER (0..9)

DefaultConfigMode ::=
        ENUMERATED {
            fdd,
            tdd }

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

DL-CounterSynchronisationInfo ::=
        SEQUENCE {
            rB-WithPDCP-InfoList  RB-WithPDCP-InfoList    OPTIONAL
        }

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
        }

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

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

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

```

```

    dsch                TransportChannelIdentity,
    dch-and-dsch        TransportChannelIdentityDCHandDSCH
}

ExpectReordering ::=
    ENUMERATED {
        reorderingNotExpected,
        reorderingExpected }

ExplicitDiscard ::=
    timerMRW
    timerDiscard
    maxMRW
}

HeaderCompressionInfo ::=
    algorithmSpecificInfo
}

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

HeaderCompressionInfo-r4 ::=
    algorithmSpecificInfo-r4
}

HeaderCompressionInfoList-r4 ::=
    SEQUENCE (SIZE (1..maxPDCPALgoType)) OF
        HeaderCompressionInfo-r4

LogicalChannelIdentity ::=
    INTEGER (1..15)

LosslessSRNS-RelocSupport ::=
    supported
    notSupported
}

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 ::=
    maxDAT
    timerMRW
    maxMRW
}

MaxMRW ::=
    ENUMERATED {
        mm1, mm4, mm6, mm8, mm12, mm16,
        mm24, mm32 }

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

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

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

PDCP-Info ::=
    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-Info-r4 ::=
    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-r4    OPTIONAL
}

```

```

PDCP-InfoReconfig ::= SEQUENCE {
    pdcp-Info          PDCP-Info,
    -- dummy is not used in this version of the protocol
    dummy              INTEGER (0..65535)
}

PDCP-InfoReconfig-r4 ::= SEQUENCE {
    pdcp-Info          PDCP-Info-r4,
    pdcp-SN-Info       PDCP-SN-Info
}

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

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

Poll-PDU ::= ENUMERATED {
    pdu1, pdu2, pdu4, pdu8, pdu16,
    pdu32, pdu64, pdu128 }

Poll-SDU ::= ENUMERATED {
    sdu1, sdu4, sdu16, sdu64 }

PollingInfo ::= SEQUENCE {
    timerPollProhibit   TimerPollProhibit           OPTIONAL,
    timerPoll           TimerPoll                   OPTIONAL,
    poll-PDU            Poll-PDU                    OPTIONAL,
    poll-SDU            Poll-SDU                    OPTIONAL,
    lastTransmissionPDU-Poll  BOOLEAN,
    lastRetransmissionPDU-Poll  BOOLEAN,
    pollWindow          PollWindow                  OPTIONAL,
    timerPollPeriodic   TimerPollPeriodic          OPTIONAL
}

PollWindow ::= ENUMERATED {
    pw50, pw60, pw70, pw80, pw85,
    pw90, pw95, pw99 }

PredefinedConfigIdentity ::= INTEGER (0..15)

PredefinedConfigValueTag ::= INTEGER (0..15)

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

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

PredefinedConfigStatusList ::= SEQUENCE (SIZE (maxPredefConfig)) OF
    PredefinedConfigStatusInfo

PredefinedConfigStatusInfo ::= CHOICE {
    storedWithValueTagSameAsPrevious  NULL,
    other                              CHOICE {
        notStored                     NULL,
        storedWithDifferentValueTag    PredefinedConfigValueTag
    }
}

RAB-Info ::= SEQUENCE {
    rab-Identity          RAB-Identity,
    cn-DomainIdentity     CN-DomainIdentity,
    nas-Synchronisation-Indicator  NAS-Synchronisation-Indicator  OPTIONAL,
    re-EstablishmentTimer Re-EstablishmentTimer
}

RAB-InformationList ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
    RAB-Info

```



```

RAB-InformationReconfigList ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
                                RAB-InformationReconfig

RAB-InformationReconfig ::= SEQUENCE {
    rab-Identity                RAB-Identity,
    cn-DomainIdentity           CN-DomainIdentity,
    nas-Synchronisation-Indicator NAS-Synchronisation-Indicator
}

RAB-Info-Post ::= SEQUENCE {
    rab-Identity                RAB-Identity,
    cn-DomainIdentity           CN-DomainIdentity,
    nas-Synchronisation-Indicator NAS-Synchronisation-Indicator OPTIONAL
}

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

RAB-InformationSetup-r4 ::= SEQUENCE {
    rab-Info                    RAB-Info,
    rb-InformationSetupList     RB-InformationSetupList-r4
}

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

RAB-InformationSetupList-r4 ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
                                RAB-InformationSetup-r4

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 (1..32)

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

```

```

RB-InformationReconfig-r4 ::= SEQUENCE {
    rb-Identity                RB-Identity,
    pdcp-Info                  PDCP-InfoReconfig-r4           OPTIONAL,
    rlc-Info                   RLC-Info                   OPTIONAL,
    rb-MappingInfo            RB-MappingInfo           OPTIONAL,
    rb-StopContinue           RB-StopContinue          OPTIONAL
}

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

RB-InformationReconfigList-r4 ::= SEQUENCE (SIZE (1..maxRB)) OF
    RB-InformationReconfig-r4

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

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

RB-InformationSetup-r4 ::= SEQUENCE {
    rb-Identity                RB-Identity,
    pdcp-Info                  PDCP-Info-r4                OPTIONAL,
    rlc-Info                   RLC-Info,
    rb-MappingInfo            RB-MappingInfo
}

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

RB-InformationSetupList-r4 ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
    RB-InformationSetup-r4

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

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

RB-StopContinue ::= ENUMERATED {
    stopRB, continueRB }

RB-WithPDCP-Info ::= SEQUENCE {
    rb-Identity                RB-Identity,
    pdcp-SN-Info              PDCP-SN-Info
}

RB-WithPDCP-InfoList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
    RB-WithPDCP-Info

ReceivingWindowSize ::= ENUMERATED {
    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
}

RFC3095-Info-r4 ::= SEQUENCE {
    cid-InclusionInfo          CID-InclusionInfo-r4,
    max-CID                  INTEGER (1..16383)             DEFAULT 15,
    rohcProfileList          ROHC-ProfileList-r4,
    mrru                     INTEGER (0..65535)            DEFAULT 0,

```

```

    rohcPacketSizeList          ROHC-PacketSizeList-r4,
    reverseDecompressionDepth    INTEGER (0..65535)                DEFAULT 0
}

RLC-Info ::=
    ul-RLC-Mode
    dl-RLC-Mode
}

RLC-InfoChoice ::=
    rlc-Info
    same-as-RB
}

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

RLC-SizeInfo ::=
    rlc-SizeIndex
}

RLC-SizeExplicitList ::=
    SEQUENCE (SIZE (1..maxTF)) OF
        RLC-SizeInfo

ROHC-Profile-r4 ::=
    INTEGER (1..3)

ROHC-ProfileList-r4 ::=
    SEQUENCE (SIZE (1..maxROHC-Profile-r4)) OF
        ROHC-Profile-r4

ROHC-PacketSize-r4 ::=
    INTEGER (2..1500)

ROHC-PacketSizeList-r4 ::=
    SEQUENCE (SIZE (1..maxROHC-PacketSizes-r4)) OF
        ROHC-PacketSize-r4

SRB-InformationSetup ::=
    rb-Identity
    -- The default value for the IE above is the smallest value not used yet.
    rlc-InfoChoice
    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 }

TimerMRW ::=
    ENUMERATED {
        te50, te60, te70, te80, te90, te100,
        te120, te140, te160, te180, te200,
        te300, te400, te500, te700, te900 }

TimerPoll ::=
    ENUMERATED {
        tp10, tp20, tp30, tp40, tp50,
        tp60, tp70, tp80, tp90, tp100,
        tp110, tp120, tp130, tp140, tp150,
        tp160, tp170, tp180, tp190, tp200,
        tp210, tp220, tp230, tp240, tp250,
        tp260, tp270, tp280, tp290, tp300,
        tp310, tp320, tp330, tp340, tp350,
        tp360, tp370, tp380, tp390, tp400,
        tp410, tp420, tp430, tp440, tp450,
        tp460, tp470, tp480, tp490, tp500,
        tp510, tp520, tp530, tp540, tp550,
        tp600, tp650, tp700, tp750, tp800,
        tp850, tp900, tp950, tp1000 }

```

```

TimerPollPeriodic ::=          ENUMERATED {
                                tper100, tper200, tper300, tper400,
                                tper500, tper750, tper1000, tper2000 }

TimerPollProhibit ::=         ENUMERATED {
                                tpp10, tpp20, tpp30, tpp40, tpp50,
                                tpp60, tpp70, tpp80, tpp90, tpp100,
                                tpp110, tpp120, tpp130, tpp140, tpp150,
                                tpp160, tpp170, tpp180, tpp190, tpp200,
                                tpp210, tpp220, tpp230, tpp240, tpp250,
                                tpp260, tpp270, tpp280, tpp290, tpp300,
                                tpp310, tpp320, tpp330, tpp340, tpp350,
                                tpp360, tpp370, tpp380, tpp390, tpp400,
                                tpp410, tpp420, tpp430, tpp440, tpp450,
                                tpp460, tpp470, tpp480, tpp490, tpp500,
                                tpp510, tpp520, tpp530, tpp540, tpp550,
                                tpp600, tpp650, tpp700, tpp750, tpp800,
                                tpp850, tpp900, tpp950, tpp1000 }

TimerRST ::=                  ENUMERATED {
                                tr50, tr100, tr150, tr200, tr250, tr300,
                                tr350, tr400, tr450, tr500, tr550,
                                tr600, tr700, tr800, tr900, tr1000 }

TimerStatusPeriodic ::=      ENUMERATED {
                                tsp100, tsp200, tsp300, tsp400, tsp500,
                                tsp750, tsp1000, tsp2000 }

TimerStatusProhibit ::=      ENUMERATED {
                                tsp10, tsp20, tsp30, tsp40, tsp50,
                                tsp60, tsp70, tsp80, tsp90, tsp100,
                                tsp110, tsp120, tsp130, tsp140, tsp150,
                                tsp160, tsp170, tsp180, tsp190, tsp200,
                                tsp210, tsp220, tsp230, tsp240, tsp250,
                                tsp260, tsp270, tsp280, tsp290, tsp300,
                                tsp310, tsp320, tsp330, tsp340, tsp350,
                                tsp360, tsp370, tsp380, tsp390, tsp400,
                                tsp410, tsp420, tsp430, tsp440, tsp450,
                                tsp460, tsp470, tsp480, tsp490, tsp500,
                                tsp510, tsp520, tsp530, tsp540, tsp550,
                                tsp600, tsp650, tsp700, tsp750, tsp800,
                                tsp850, tsp900, tsp950, tsp1000 }

TransmissionRLC-Discard ::=   CHOICE {
                                timerBasedExplicit
                                timerBasedNoExplicit
                                maxDAT-Retransmissions
                                noDiscard
                                MaxDAT
                                ExplicitDiscard,
                                NoExplicitDiscard,
                                MaxDAT-Retransmissions,
                                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
                                transmissionWindowSize
                                timerRST
                                max-RST
                                pollingInfo
                                TransmissionRLC-Discard,
                                TransmissionWindowSize,
                                TimerRST,
                                MaxRST,
                                PollingInfo
                                OPTIONAL
                                }

UL-CounterSynchronisationInfo ::= SEQUENCE {
                                rB-WithPDCP-InfoList
                                startList
                                RB-WithPDCP-InfoList
                                STARTList
                                OPTIONAL,
                                }

UL-LogicalChannelMapping ::= SEQUENCE {
                                -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
                                ul-TransportChannelType
                                logicalChannelIdentity
                                rlc-SizeList
                                allSizes
                                configured
                                explicitList
                                UL-TransportChannelType,
                                LogicalChannelIdentity
                                CHOICE {
                                    NULL,
                                    NULL,
                                    RLC-SizeExplicitList
                                }
                                OPTIONAL,
                                },
                                mac-LogicalChannelPriority
                                MAC-LogicalChannelPriority
                                }

```

```

}

UL-LogicalChannelMappingList ::= SEQUENCE {
  rlc-LogicalChannelMappingIndicator BOOLEAN, -- NOTE: This parameter shall be set to TRUE in
this release
  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 TransportChannelIdentity
}

-- *****
--
-- 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 (0..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
}
-- Actual value = IE value * 0.1
BLER-QualityValue ::= INTEGER (-63..0)

ChannelCodingType ::= CHOICE {
  noCoding NULL,
  convolutional CodingRate,
  turbo NULL
}

CodingRate ::= ENUMERATED {

```

```

half,
third }

CommonDynamicTF-Info ::= SEQUENCE {
  rlc-Size CHOICE {
    fdd SEQUENCE {
      octetModeRLC-SizeInfoType2 OctetModeRLC-SizeInfoType2
    },
    tdd SEQUENCE {
      commonTDD-Choice CHOICE {
        bitModeRLC-SizeInfo BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
      }
    }
  },
  numberOfTbSizeList SEQUENCE (SIZE (1..maxTF)) OF
    NumberOfTransportBlocks,
  logicalChannelList LogicalChannelList
}

CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
  commonTDD-Choice CHOICE {
    bitModeRLC-SizeInfo BitModeRLC-SizeInfo,
    octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
  },
  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
}

CommonTransChTFS-LCR ::= SEQUENCE {
  tti CHOICE {
    tti5 CommonDynamicTF-InfoList,
    tti10 CommonDynamicTF-InfoList,
    tti20 CommonDynamicTF-InfoList,
    tti40 CommonDynamicTF-InfoList,
    tti80 CommonDynamicTF-InfoList,
    dynamic CommonDynamicTF-InfoList-DynamicTTI
  },
  semistaticTF-Information SemistaticTF-Information
}

CPCH-SetID ::= INTEGER (1..maxCPCHsets)

CRC-Size ::= ENUMERATED {
  crc0, crc8, crc12, crc16, crc24 }

DedicatedDynamicTF-Info ::= SEQUENCE {
  rlc-Size CHOICE {
    bitMode BitModeRLC-SizeInfo,
    octetModeType1 OctetModeRLC-SizeInfoType1
  },
  numberOfTbSizeList SEQUENCE (SIZE (1..maxTF)) OF
    NumberOfTransportBlocks,
  logicalChannelList LogicalChannelList
}

DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
  rlc-Size CHOICE {
    bitMode BitModeRLC-SizeInfo,
    octetModeType1 OctetModeRLC-SizeInfoType1
  },
}

```

```

    numberOfTbSizeAndTTIList      NumberOfTbSizeAndTTIList,
    logicalChannelList             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
}

-- The maximum allowed size of this sequence is 16
DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
    DL-AddReconfTransChInformation2

-- The maximum allowed size of this sequence is 16
DL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) 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-TransportChannelType      DL-TrCH-Type,
    dl-transportChannelIdentity  TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit-config      TransportFormatSet,
        sameAsULTrCH        UL-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 {
    dl-TransportChannelType      DL-TrCH-Type,
    transportChannelIdentity     TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit-config      TransportFormatSet,
        sameAsULTrCH        UL-TransportChannelIdentity
    },
    qualityTarget                QualityTarget OPTIONAL
}

DL-CommonTransChInfo ::= SEQUENCE {
    sccpch-TFCS                  TFCS OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            dl-Parameters CHOICE {
                dl-DCH-TFCS      TFCS,
                sameAsUL         NULL
            } OPTIONAL,
            tdd SEQUENCE {
                individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList OPTIONAL
            }
        }
    }
}

-- NOTE: CHOICE modeSpecificInfo should be optional. A new version of this IE
-- should be defined to be used in later versions of messages using this IE

DL-CommonTransChInfo-r4 ::= SEQUENCE {
    sccpch-TFCS                  TFCS OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {

```

```

        dl-Parameters
          dl-DCH-TFCS
            tfcs
          },
          sameAsUL
        },
      },
      tdd
        individualDL-CCTrCH-InfoList
      }
    }
  }

DL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                               DL-TransportChannelIdentity

DL-TransportChannelIdentity ::= SEQUENCE {
  dl-TransportChannelType
  dl-TransportChannelIdentity
}

DL-TrCH-Type ::= ENUMERATED {dch, dsch}

DRAC-ClassIdentity ::= INTEGER (1..maxDRACclasses)

DRAC-StaticInformation ::= SEQUENCE {
  transmissionTimeValidity
  timeDurationBeforeRetry
  drac-ClassIdentity
}

DRAC-StaticInformationList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                               DRAC-StaticInformation

ExplicitTFCS-Configuration ::= CHOICE {
  complete
  addition
  removal
  replacement
  tfcsRemoval
  tfcsAdd
}

GainFactor ::= INTEGER (0..15)

GainFactorInformation ::= CHOICE {
  signalledGainFactors
  computedGainFactors
}

IndividualDL-CCTrCH-Info ::= SEQUENCE {
  dl-TFCS-Identity
  tfcs-SignallingMode
  explicit-config
  sameAsUL
}

IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                IndividualDL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::= SEQUENCE {
  ul-TFCS-Identity
  ul-TFCS
  tfc-Subset
}

IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                IndividualUL-CCTrCH-Info

LogicalChannelByRB ::= SEQUENCE {
  rb-Identity
  logChOfRb
}

LogicalChannelList ::= CHOICE {

```



```

        allSizes                NULL,
        configured              NULL,
        explicitList            SEQUENCE (SIZE (1..15)) OF
                                LogicalChannelByRB
    }

NumberOfTbSizeAndTTIList ::= SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
    numberOfTransportBlocks    NumberOfTransportBlocks,
    transmissionTimeInterval    TransmissionTimeInterval
}

MessType ::= ENUMERATED {
    transportFormatCombinationControl }

Non-allowedTFC-List ::= SEQUENCE (SIZE (1..maxTFC)) OF
    TFC-Value

NumberOfTransportBlocks ::= CHOICE {
    zero                NULL,
    one                 NULL,
    small               INTEGER (2..17),
    large               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 {
    ul-TransportChannelType    UL-TrCH-Type,
    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
    },
    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
}

TFC-Value ::=                      INTEGER (0..1023)

TFCI-Field2-Information ::=         CHOICE {
  tfci-Range                        TFCI-RangeList,
  explicit-config                    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                            TFCI-IdentityPlain
                                     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)
}

TFCS-ReconfAdd ::=                 SEQUENCE{
  ctfcSize                            CHOICE{

```

```

ctfc2Bit          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc2           INTEGER (0..3),
  powerOffsetInformation  OPTIONAL
},
ctfc4Bit          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc4           INTEGER (0..15),
  powerOffsetInformation  OPTIONAL
},
ctfc6Bit          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc6           INTEGER (0..63),
  powerOffsetInformation  OPTIONAL
},
ctfc8Bit          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc8           INTEGER (0..255),
  powerOffsetInformation  OPTIONAL
},
ctfc12Bit         SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
  ctfc12          INTEGER (0..4095),
  powerOffsetInformation  OPTIONAL
},
ctfc16Bit         SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc16          INTEGER(0..65535),
  powerOffsetInformation  OPTIONAL
},
ctfc24Bit         SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
  ctfc24          INTEGER(0..16777215),
  powerOffsetInformation  OPTIONAL
}
}
}

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 {
    model       NULL,
    mode2       SEQUENCE {
      --TrCH-Type is always DCH
      ul-controlledTrChList  UL-ControlledTrChList
    }
  }
}

TransmissionTimeInterval ::= ENUMERATED {
  tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::= INTEGER (1..256)

TransportChannelIdentity ::= INTEGER (1..32)

TransportChannelIdentityDCHandDSCH ::= SEQUENCE {
  dch-transport-ch-id  TransportChannelIdentity,
  dsch-transport-ch-id TransportChannelIdentity
}

TransportFormatSet ::= CHOICE {
  dedicatedTransChTFS  DedicatedTransChTFS,
  commonTransChTFS    CommonTransChTFS
}

TransportFormatSet-LCR ::= CHOICE {
  dedicatedTransChTFS  DedicatedTransChTFS,
  commonTransChTFS-LCR CommonTransChTFS-LCR
}

-- The maximum allowed size of this sequence is 16
UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
  UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {

```

```

    ul-TransportChannelType          UL-TrCH-Type,
    transportChannelIdentity         TransportChannelIdentity,
    transportFormatSet               TransportFormatSet
}

UL-CommonTransChInfo ::=          SEQUENCE {
-- TABULAR: this tfc-subset IE is applicable to FDD only, TDD specifies tfc-subset in individual
-- CCH Info.
    tfc-Subset                       TFC-Subset                       OPTIONAL,
    prach-TFCS                       TFCS                           OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                           SEQUENCE {
            ul-TFCS                     TFC                           OPTIONAL
        },
        tdd                           SEQUENCE {
            individualUL-CCH-InfoList    IndividualUL-CCH-InfoList    OPTIONAL
        }
    }
}

-- TrCH-Type is always DCH
UL-ControlledTrChList ::=          SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

UL-DeletedTransChInfoList ::=      SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-TransportChannelIdentity

UL-TransportChannelIdentity ::=    SEQUENCE {
    ul-TransportChannelType          UL-TrCH-Type,
    ul-TransportChannelIdentity      TransportChannelIdentity
}

UL-TrCH-Type ::= ENUMERATED {dch, usch}

-- *****
--
--     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-FDD ::=         SEQUENCE {
    availableSignatureStartIndex      INTEGER (0..15),
    availableSignatureEndIndex        INTEGER (0..15),

    assignedSubChannelNumber          BIT STRING {
        b3(0),
        b2(1),
        b1(2),
        b0(3)
    } (SIZE(4))
}

AccessServiceClass-TDD ::=         SEQUENCE {
    channelisationCodeIndices         BIT STRING {
        chCodeIndex7(0),
        chCodeIndex6(1),
        chCodeIndex5(2),
        chCodeIndex4(3),
        chCodeIndex3(4),
        chCodeIndex2(5),
        chCodeIndex1(6),
        chCodeIndex0(7)
    } (SIZE(8))                                OPTIONAL,

    subchannelSize                    CHOICE {
        size1                          NULL,
        size2                          SEQUENCE {
            subchannels                  ENUMERATED { subch0, subch1 } OPTIONAL
        },
        size4                          SEQUENCE {
            subchannels                  BIT STRING {

```

```

subCh3(0),
subCh2(1),
subCh1(2),
subCh0(3)
} (SIZE(4)) OPTIONAL
},
size8
subchannels
SEQUENCE {
  BIT STRING {
    subCh7(0),
    subCh6(1),
    subCh5(2),
    subCh4(3),
    subCh3(4),
    subCh2(5),
    subCh1(6),
    subCh0(7)
  } (SIZE(8)) OPTIONAL
}
}
}
}

AccessServiceClass-TDD-LCR-r4 ::= SEQUENCE {
  availableSYNC-UlCodesIndics
  BIT STRING {
    sulCodeIndex7(0),
    sulCodeIndex6(1),
    sulCodeIndex5(2),
    sulCodeIndex4(3),
    sulCodeIndex3(4),
    sulCodeIndex2(5),
    sulCodeIndex1(6),
    sulCodeIndex0(7)
  } (SIZE(8)) OPTIONAL,
  subchannelSize
  CHOICE {
    size1
    NULL,
    -- in size2, subch0 means bitstring '01' in the tabular, subchl means bitsring '10'.
    size2
    SEQUENCE {
      subchannels
      ENUMERATED { subch0, subchl } OPTIONAL
    },
    size4
    SEQUENCE {
      subchannels
      BIT STRING {
        subCh3(0),
        subCh2(1),
        subCh1(2),
        subCh0(3)
      } (SIZE(4)) OPTIONAL
    },
    size8
    SEQUENCE {
      subchannels
      BIT STRING {
        subCh7(0),
        subCh6(1),
        subCh5(2),
        subCh4(3),
        subCh3(4),
        subCh2(5),
        subCh1(6),
        subCh0(7)
      } (SIZE(8)) OPTIONAL
    }
  }
}

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

AICH-PowerOffset ::= INTEGER (-22..5)

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

AllocationPeriodInfo ::= SEQUENCE {
  allocationActivationTime
  INTEGER (0..255),
  allocationDuration
  INTEGER (1..256)
}
-- Actual value = IE value * 0.125

```

```

Alpha ::= INTEGER (0..8)

AP-AICH-ChannelisationCode ::= INTEGER (0..255)

AP-PreambleScramblingCode ::= INTEGER (0..79)

AP-Signature ::= INTEGER (0..15)

AP-Signature-VCAM ::= SEQUENCE {
    ap-Signature AP-Signature,
    availableAP-SubchannelList AvailableAP-SubchannelList OPTIONAL
}

AP-Subchannel ::= INTEGER (0..11)

ASCSetting-FDD ::= SEQUENCE {
    -- TABULAR: 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-FDD AccessServiceClass-FDD OPTIONAL
}

ASCSetting-TDD ::= 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 channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD AccessServiceClass-TDD OPTIONAL
}

ASCSetting-TDD-LCR-r4 ::= 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 SYNC_UL codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD-LCR AccessServiceClass-TDD-LCR-r4 OPTIONAL
}

AvailableAP-Signature-VCAMList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature-VCAM

AvailableAP-SignatureList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature

AvailableAP-SubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
    AP-Subchannel

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
    AvailableMinimumSF-VCAM

AvailableMinimumSF-VCAM ::= SEQUENCE {
    minimumSpreadingFactor MinimumSpreadingFactor,
    nf-Max NF-Max,
    maxAvailablePCPCH-Number MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList AvailableAP-Signature-VCAMList
}

AvailableSignatures ::= BIT STRING {
    signature15(0),
    signature14(1),
    signature13(2),
    signature12(3),
    signature11(4),
    signature10(5),
    signature9(6),
    signature8(7),
    signature7(8),
    signature6(9),
    signature5(10),
    signature4(11),
    signature3(12),
    signature2(13),
    signature1(14),
    signature0(15)
} (SIZE(16))

AvailableSubChannelNumbers ::= BIT STRING {
    subCh11(0),

```

```

        subCh10(1),
        subCh9(2),
        subCh8(3),
        subCh7(4),
        subCh6(5),
        subCh5(6),
        subCh4(7),
        subCh3(8),
        subCh2(9),
        subCh1(10),
        subCh0(11)
    } (SIZE(12))

BurstType ::= ENUMERATED {
    short1, long2 }

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity          OPTIONAL,
    ul-DPCH-PowerControlInfo
}

CCTrCH-PowerControlInfo-r4 ::= SEQUENCE {
    tfcs-Identity          OPTIONAL,
    ul-DPCH-PowerControlInfo-r4
}

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

CellAndChannelIdentity ::= SEQUENCE {
    burstType             BurstType,
    midambleShift         MidambleShiftLong,
    timeslot              TimeslotNumber,
    cellParametersID      CellParametersID
}

CellParametersID ::= INTEGER (0..127)

Cfntargetsfnframeoffset ::= INTEGER(0..255)

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

ChannelisationCode256 ::= INTEGER (0..255)

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

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList
}

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
}

ConstantValue ::=                                   INTEGER (-35..-10)

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

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

CPCH-SetInfo ::=                                    SEQUENCE {
  cpch-SetID                        CPCH-SetID,
  transportFormatSet                TransportFormatSet,
  tfcs                               TFCS,
  ap-PreambleScramblingCode         AP-PreambleScramblingCode,
  ap-AICH-ChannelisationCode        AP-AICH-ChannelisationCode,
  cd-PreambleScramblingCode         CD-PreambleScramblingCode,
  cd-CA-ICH-ChannelisationCode      CD-CA-ICH-ChannelisationCode,
  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 {
  pa-mode,
  pamsf-mode }

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
DefaultDPCH-OffsetValueFDD ::=                     INTEGER (0..599)

DefaultDPCH-OffsetValueTDD ::=                     INTEGER (0..7)

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

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

DL-CCTrCh ::=                                       SEQUENCE {
  tfcs-ID                            TFCS-IdentityPlain                DEFAULT 1,
  timeInfo                            TimeInfo,
  commonTimeslotInfo                 CommonTimeslotInfo                OPTIONAL,
  dl-CCTrCH-TimeslotsCodes           DownlinkTimeslotsCodes           OPTIONAL,
  ul-CCTrChTPCList                   UL-CCTrChTPCList                    OPTIONAL
}

```



```

DL-CCTrCh-r4 ::= SEQUENCE {
    tfcs-ID          TFCS-IdentityPlain          DEFAULT 1,
    timeInfo        TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo      OPTIONAL,
    tddOption       CHOICE {
        tdd384      SEQUENCE {
            dl-CCTrCH-TimeslotsCodes DownlinkTimeslotsCodes OPTIONAL
        },
        tdd128      SEQUENCE {
            dl-CCTrCH-TimeslotsCodes DownlinkTimeslotsCodes-LCR-r4 OPTIONAL
        }
    },
    ul-CCTrChTPCList UL-CCTrChTPCList      OPTIONAL
}

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

DL-CCTrChList-r4 ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    DL-CCTrCh-r4

DL-CCTrChTPCList ::= SEQUENCE (SIZE (0..maxCCTrCH)) OF
    TFCS-Identity

DL-ChannelisationCode ::= SEQUENCE {
    secondaryScramblingCode SecondaryScramblingCode      OPTIONAL,
    sf-AndCodeNumber        SF512-AndCodeNumber,
    scramblingCodeChange     ScramblingCodeChange          OPTIONAL
}

DL-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
    DL-ChannelisationCode

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

DL-CommonInformation-r4 ::= 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-r4      SSdT-Information-r4      OPTIONAL
        },
        tdd      SEQUENCE {
            tddOption              CHOICE {
                tdd384            NULL,
                tdd128            SEQUENCE {
                    tstd-Indicator BOOLEAN
                }
            },
            defaultDPCH-OffsetValue DefaultDPCH-OffsetValueTDD OPTIONAL
        }
    }
}

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

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommon      DL-DPCH-InfoCommonPredef  OPTIONAL
}

DL-CompressedModeMethod ::= ENUMERATED {

```

```

        puncturing, sf-2,
        higherLayerScheduling }

DL-DPCH-InfoCommon ::=
    cfnHandling
        maintain
        initialise
        cfnTargetsfnframeoffset
    },
    modeSpecificInfo
        fdd
            dl-DPCH-PowerControlInfo
            powerOffsetPilot-pdpdch
            dl-rate-matching-restriction
            spreadingFactorAndPilot
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            positionFixedOrFlexible
            tfci-Existence
        },
        tdd
            dl-DPCH-PowerControlInfo
    }
}

DL-DPCH-InfoCommonPost ::=
    dl-DPCH-PowerControlInfo
}

DL-DPCH-InfoCommonPredef ::=
    modeSpecificInfo
        fdd
            spreadingFactorAndPilot
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            positionFixedOrFlexible
            tfci-Existence
        },
        tdd
            commonTimeslotInfo
    }
}

DL-DPCH-InfoPerRL ::=
    fdd
        pCPICH-UsageForChannelEst
        dpch-FrameOffset
        secondaryCPICH-Info
        dl-ChannelisationCodeList
        tpc-CombinationIndex
        ssdt-CellIdentity
        closedLoopTimingAdjMode
    },
    tdd
        DL-CCTrChList
}

DL-DPCH-InfoPerRL-r4 ::=
    fdd
        pCPICH-UsageForChannelEst
        dpch-FrameOffset
        secondaryCPICH-Info
        dl-ChannelisationCodeList
        tpc-CombinationIndex
        ssdt-CellIdentity
        closedLoopTimingAdjMode
    },
    tdd
        DL-CCTrChList-r4
}

DL-DPCH-InfoPerRL-PostFDD ::=
    pCPICH-UsageForChannelEst
    dl-ChannelisationCode
    tpc-CombinationIndex
}

DL-DPCH-InfoPerRL-PostTDD ::=
    dl-DPCH-TimeslotsCodes
    DownlinkTimeslotsCodes

```

```

}

DL-DPCH-InfoPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
    dl-CCTrCH-TimeslotsCodes          DownlinkTimeslotsCodes-LCR-r4
}

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,
    sccpch-InfoForFACH                 SCCPCH-InfoForFACH          OPTIONAL
}

DL-InformationPerRL-r4 ::= 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-r4
    },
    dl-DPCH-InfoPerRL                 DL-DPCH-InfoPerRL-r4      OPTIONAL,
    secondaryCCPCH-Info                SecondaryCCPCH-Info-r4    OPTIONAL
}

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

DL-InformationPerRL-List-r4 ::= SEQUENCE (SIZE (1..maxRL)) OF
    DL-InformationPerRL-r4

DL-InformationPerRL-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-InformationPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
    primaryCCPCH-Info                 PrimaryCCPCH-InfoPostTDD-LCR-r4,
    dl-DPCH-InfoPerRL                 DL-DPCH-InfoPerRL-PostTDD-LCR-r4
}

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 {
            chCode16-SF16(0),
            chCode15-SF16(1),
            chCode14-SF16(2),
            chCode13-SF16(3),
            chCode12-SF16(4),
            chCode11-SF16(5),
            chCode10-SF16(6),
            chCode9-SF16(7),
            chCode8-SF16(8),
            chCode7-SF16(9),
            chCode6-SF16(10),
            chCode5-SF16(11),
            chCode4-SF16(12),
            chCode3-SF16(13),
            chCode2-SF16(14),
            chCode1-SF16(15)
        } (SIZE (16))
    }
}

DownlinkAdditionalTimeslots ::= SEQUENCE {
    parameters                  CHOICE {
        sameAsLast              SEQUENCE {
            timeslotNumber
        },
        newParameters            SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo,
            dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort
        }
    }
}

DownlinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
    parameters                  CHOICE {
        sameAsLast              SEQUENCE {
            timeslotNumber-LCR-r4
        },
        newParameters            SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
            dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort
        }
    }
}

DownlinkTimeslotsCodes ::= SEQUENCE {
    firstIndividualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
    moreTimeslots              CHOICE {
        noMore                  NULL,
        additionalTimeslots     CHOICE {
            consecutive         INTEGER (1..maxTS-1),
            timeslotList        SEQUENCE (SIZE (1..maxTS-1)) OF
                DownlinkAdditionalTimeslots
        }
    }
}

DownlinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
    firstIndividualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
    dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
    moreTimeslots              CHOICE {
        noMore                  NULL,
        additionalTimeslots     CHOICE {
            consecutive         INTEGER (1..maxTS-LCR-1),

```

```

        timeslotList
    }
}
DPC-Mode ::=
    ENUMERATED {
        singleTPC,
        tpcTripletInSoft }
-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::=
    INTEGER (-82..-3)
-- The actual value of DPCCH power offset is the value of this (2 + IE * 4).
DPCCH-PowerOffset2 ::=
    INTEGER (-28..-13)
DPCH-CompressedModeInfo ::=
    SEQUENCE {
        tgp-SequenceList
    }
DPCH-CompressedModeStatusInfo ::=
    SEQUENCE {
        tgps-Reconfiguration-CFN
        tgp-SequenceShortList
        SEQUENCE (SIZE (1..maxTGPS)) OF
            TGP-SequenceShort
    }
-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset ::=
    INTEGER (0..149)
DSCH-Mapping ::=
    SEQUENCE {
        maxTFCI-Field2Value
        spreadingFactor
        codeNumber
        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
        transportChannelIdentity
        ctch-Indicator
    }
FACH-PCH-InformationList ::=
    SEQUENCE (SIZE (1..maxFACHPCH)) OF
        FACH-PCH-Information
FPACH-Info-r4 ::=
    SEQUENCE {
        timeslot
        channelisationCode
        midambleShiftAndBurstType
        wi
    }
FrequencyInfo ::=
    SEQUENCE {
        modeSpecificInfo
        CHOICE {
            fdd
            tdd
            FrequencyInfoFDD,
            FrequencyInfoTDD }
    }

```

```

}

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

FrequencyInfoTDD ::= SEQUENCE {
    uarfcn-Nt          UARFCN
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber     TimeslotNumber,
    tfci-Existence     BOOLEAN,
    midambleShiftAndBurstType MidambleShiftAndBurstType
}

IndividualTimeslotInfo-LCR-r4 ::= SEQUENCE {
    timeslotNumber     TimeslotNumber-LCR-r4,
    tfci-Existence     BOOLEAN,
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    modulation         ENUMERATED { mod-QPSK, mod-8PSK },
    ss-TPC-Symbols     ENUMERATED { zero, one, sixteenOverSF }
}

IndividualTimeslotInfo-LCR-r4-ext ::= SEQUENCE {
-- timeslotNumber and tfci-Existence is taken from IndividualTimeslotInfo.
-- midambleShiftAndBurstType in IndividualTimeslotInfo shall be ignored.
    midambleShiftAndBurstType MidambleShiftAndBurstType-LCR-r4,
    modulation         ENUMERATED { mod-QPSK, mod-8PSK },
    ss-TPC-Symbols     ENUMERATED { zero, one, sixteenOverSF }
}

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

IndividualTS-Interference-LCR-r4 ::= SEQUENCE {
    timeslot           TimeslotNumber-LCR-r4,
    ul-TimeslotInterference UL-Interference
}

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

IndividualTS-InterferenceList-r4 ::= CHOICE {
    tdd384             SEQUENCE (SIZE (1..maxTS)) OF
                        IndividualTS-Interference,
    tdd128             SEQUENCE (SIZE (1..maxTS-LCR)) OF
                        IndividualTS-Interference-LCR-r4
}

ITP ::= ENUMERATED {
    mode0, mode1
}

NIdentifyAbort ::= INTEGER (1..128)

MaxAllowedUL-TX-Power ::= INTEGER (-50..33)

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

MaxPowerIncrease-r4 ::= INTEGER (0..3)

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

MidambleConfigurationBurstTypeLand3 ::= ENUMERATED {ms4, ms8, ms16}

MidambleConfigurationBurstType2 ::= ENUMERATED {ms3, ms6}

MidambleShiftAndBurstType ::= SEQUENCE {
    burstType          CHOICE {
        type1          SEQUENCE {
            midambleConfigurationBurstTypeLand3 MidambleConfigurationBurstTypeLand3,
            midambleAllocationMode              CHOICE {
                defaultMidamble          NULL,
                commonMidamble           NULL,
                ueSpecificMidamble       SEQUENCE {

```

```

        midambleShift                MidambleShiftLong
    }
}
},
type2
midambleConfigurationBurstType2    SEQUENCE {
midambleAllocationMode              MidambleConfigurationBurstType2,
    CHOICE {
        defaultMidamble              NULL,
        commonMidamble              NULL,
        ueSpecificMidamble          SEQUENCE {
            midambleShift            MidambleShiftShort
        }
    }
},
type3
midambleConfigurationBurstTypeLand3 SEQUENCE {
midambleAllocationMode              MidambleConfigurationBurstTypeLand3,
    CHOICE {
        defaultMidamble              NULL,
        ueSpecificMidamble          SEQUENCE {
            midambleShift            MidambleShiftLong
        }
    }
}
}
}
}

MidambleShiftAndBurstType-LCR-r4 ::= SEQUENCE {
midambleAllocationMode              CHOICE {
    defaultMidamble                  NULL,
    commonMidamble                  NULL,
    ueSpecificMidamble              SEQUENCE {
        midambleShift                INTEGER (0..15)
    }
},
midambleConfiguration              INTEGER (1..8)  -- Actual value = IE value * 2
}

MidambleShiftLong ::= INTEGER (0..15)

MidambleShiftShort ::= INTEGER (0..5)

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

MultiCodeInfo ::= INTEGER (1..16)

N-EOT ::= INTEGER (0..7)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

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

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

NB01 ::= INTEGER (0..50)

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

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

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

OpenLoopPowerControl-TDD ::= SEQUENCE {
    primaryCCPCH-TX-Power            PrimaryCCPCH-TX-Power,
-- The following IEs shall be ignored in 1.28Mcps TDD mode.
    alpha                            Alpha                OPTIONAL,
    prach-ConstantValue              ConstantValue,
    dpch-ConstantValue               ConstantValue,
    pusch-ConstantValue              ConstantValue        OPTIONAL
}

OpenLoopPowerControl-IPDL-TDD-r4 ::= SEQUENCE {
    ipdl-alpha                        Alpha,
    maxPowerIncrease                  MaxPowerIncrease-r4
}

```

```

}

PagingIndicatorLength ::=          ENUMERATED {
                                     pi4, pi8, pi16 }

PC-Preamble ::=                    INTEGER (0..7)

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

PCPCH-ChannelInfo ::=              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-PowerControlInfo is conditional on new-configuration branch below, if this
    -- selected the IE is OPTIONAL otherwise it should not be sent
    pdsch-AllocationPeriodInfo       AllocationPeriodInfo,
    tfcs-ID                           TFCS-IdentityPlain          DEFAULT 1,
    configuration                      CHOICE {
        old-Configuration             SEQUENCE {
            pdsch-Identity            PDSCH-Identity
        },
        new-Configuration             SEQUENCE {
            pdsch-Info                PDSCH-Info,
            pdsch-Identity            PDSCH-Identity            OPTIONAL
        }
    }
}

PDSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
    pdsch-PowerControlInfo           PDSCH-PowerControlInfo      OPTIONAL,
    -- pdsch-PowerControlInfo is conditional on new-configuration branch below, if this
    -- selected the IE is OPTIONAL otherwise it should not be sent
    pdsch-AllocationPeriodInfo       AllocationPeriodInfo,
    tfcs-ID                           TFCS-IdentityPlain          DEFAULT 1,
    configuration                      CHOICE {
        old-Configuration             SEQUENCE {
            pdsch-Identity            PDSCH-Identity
        },
        new-Configuration             SEQUENCE {
            pdsch-Info-r4            PDSCH-Info-r4,
            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,
    codeNumberStart                   CodeNumberDSCH,
    codeNumberStop                    CodeNumberDSCH
}

PDSCH-CodeMapList ::=             SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
    PDSCH-CodeMap

```



```

PDSCH-CodeMapping ::=
  dl-ScramblingCode
  signallingMethod
  codeRange
  tfci-Range
  explicit-config
  replace
}

SEQUENCE {
  SecondaryScramblingCode
  CHOICE {
    CodeRange,
    DSCH-MappingList,
    PDSCH-CodeInfoList,
    ReplacedPDSCH-CodeInfoList
  }
}

PDSCH-Identity ::=
  INTEGER (1..hiPDSCHidentities)

PDSCH-Info ::=
  tfcs-ID
  commonTimeslotInfo
  pdsch-TimeslotsCodes
}

SEQUENCE {
  TFCS-IdentityPlain
  CommonTimeslotInfo
  DownlinkTimeslotsCodes
}

PDSCH-Info-r4 ::=
  tfcs-ID
  commonTimeslotInfo
  tddOption
  tdd384
  pdsch-TimeslotsCodes
  },
  tdd128
  pdsch-TimeslotsCodes
}

SEQUENCE {
  TFCS-IdentityPlain
  CommonTimeslotInfo
  CHOICE {
    SEQUENCE {
      DownlinkTimeslotsCodes
    }
    SEQUENCE {
      DownlinkTimeslotsCodes-LCR-r4
    }
  }
}

PDSCH-Info-LCR-r4 ::=
  tfcs-ID
  commonTimeslotInfo
  pdsch-TimeslotsCodes
}

SEQUENCE {
  TFCS-IdentityPlain
  CommonTimeslotInfo
  DownlinkTimeslotsCodes-LCR-r4
}

PDSCH-PowerControlInfo ::=
  tpc-StepSizeTDD
  ul-CCTrChTPCList
}

SEQUENCE {
  TPC-StepSizeTDD
  UL-CCTrChTPCList
}

PDSCH-SHO-DCH-Info ::=
  dsch-RadioLinkIdentifier
  rl-IdentifierList
}

SEQUENCE {
  DSCH-RadioLinkIdentifier,
  RL-IdentifierList
}

PDSCH-SysInfo ::=
  pdsch-Identity
  pdsch-Info
  dsch-TFS
  dsch-TFCS
}

SEQUENCE {
  PDSCH-Identity,
  PDSCH-Info,
  TransportFormatSet
  TFCS
}

PDSCH-SysInfo-LCR-r4 ::=
  pdsch-Identity
  pdsch-Info
  dsch-TFS
  dsch-TFCS
}

SEQUENCE {
  PDSCH-Identity,
  PDSCH-Info-LCR-r4,
  TransportFormatSet
  TFCS
}

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

PDSCH-SysInfoList-LCR-r4 ::=
  SEQUENCE (SIZE (1..maxPDSCH)) OF
  PDSCH-SysInfo-LCR-r4

PDSCH-SysInfoList-SFN ::=
  pdsch-SysInfo
  sfm-TimeInfo
}

SEQUENCE (SIZE (1..maxPDSCH)) OF
  SEQUENCE {
    PDSCH-SysInfo,
    SFN-TimeInfo
  }

PDSCH-SysInfoList-SFN-LCR-r4 ::=
  pdsch-SysInfo
  sfm-TimeInfo
}

SEQUENCE (SIZE (1..maxPDSCH)) OF
  SEQUENCE {
    PDSCH-SysInfo-LCR-r4,
    SFN-TimeInfo
  }

```

```

}

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 }

PichChannelisationCodeList-LCR-r4    ::=          SEQUENCE (SIZE (1..2)) OF
    DL-TS-ChannelisationCode

PICH-Info ::=                         CHOICE {
    fdd                                 SEQUENCE {
        channelisationCode256          ChannelisationCode256,
        pi-CountPerFrame               PI-CountPerFrame,
        sttd-Indicator                 BOOLEAN
    },
    tdd                                 SEQUENCE {
        channelisationCode              TDD-PICH-CCode                OPTIONAL,
        timeslot                       TimeslotNumber              OPTIONAL,
        midambleShiftAndBurstType      MidambleShiftAndBurstType,
        repetitionPeriodLengthOffset   RepPerLengthOffset-PICH     OPTIONAL,
        pagingIndicatorLength          PagingIndicatorLength      DEFAULT pi4,
        n-GAP                          N-GAP                      DEFAULT f4,
        n-PCH                          N-PCH                      DEFAULT 2
    }
}

PICH-Info-LCR-r4 ::=                 SEQUENCE {
    timeslot                           TimeslotNumber-LCR-r4        OPTIONAL,
    pichChannelisationCodeList-LCR-r4  PichChannelisationCodeList-LCR-r4,
    midambleShiftAndBurstType          MidambleShiftAndBurstType-LCR-r4,
    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
}

PowerOffsetPilot-pdpdch ::=           INTEGER (0..24)

PowerRampStep ::=                     INTEGER (1..8)

PRACH-ChanCodes-LCR-r4 ::=            SEQUENCE (SIZE (1..4)) OF
    TDD-PRACH-CCode-LCR-r4

PRACH-Definition-LCR-r4 ::=           SEQUENCE {
    timeslot                           TimeslotNumber-PRACH-LCR-r4,
    prach-ChanCodes-LCR                PRACH-ChanCodes-LCR-r4,
    midambleShiftAndBurstType          MidambleShiftAndBurstType-LCR-r4,
    fpach-Info                         FPACH-Info-r4
}

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

PRACH-Partitioning ::=                CHOICE {

```

```

fdd                SEQUENCE (SIZE (1..maxASC)) OF
                   ASCSetting-FDD,
tdd                SEQUENCE (SIZE (1..maxASC)) OF
                   ASCSetting-TDD
}

PRACH-Partitioning-LCR-r4 ::= SEQUENCE (SIZE (1..maxASC)) OF
                              ASCSetting-TDD-LCR-r4

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,
      channelisationCodeList TDD-PRACH-CCodeList,
      prach-Midamble PRACH-Midamble
    }
  }
}

PRACH-RACH-Info-LCR-r4 ::= SEQUENCE {
  sync-UL-Info SYNC-UL-Info-r4,
  prach-DefinitionList SEQUENCE (SIZE (1..maxPRACH-FPACH)) OF
                        PRACH-Definition-LCR-r4
}

PRACH-SystemInformation ::= SEQUENCE {
  prach-RACH-Info PRACH-RACH-Info,
  transportChannelIdentity TransportChannelIdentity,
  rach-TransportFormatSet TransportFormatSet OPTIONAL,
  rach-TFCS TFCS OPTIONAL,
  prach-Partitioning PRACH-Partitioning OPTIONAL,
  persistenceScalingFactorList PersistenceScalingFactorList OPTIONAL,
  ac-To-ASC-MappingTable AC-To-ASC-MappingTable OPTIONAL,
  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-SystemInformation-LCR-r4 ::= SEQUENCE {
  prach-RACH-Info-LCR PRACH-RACH-Info-LCR-r4,
  rach-TransportFormatSet-LCR TransportFormatSet-LCR OPTIONAL,
  prach-Partitioning-LCR PRACH-Partitioning-LCR-r4 OPTIONAL
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                              PRACH-SystemInformation

PRACH-SystemInformationList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPRACH)) OF
                                       PRACH-SystemInformation-LCR-r4

PreambleRetransMax ::= INTEGER (1..64)

PreambleScramblingCodeWordNumber ::= INTEGER (0..15)

PreDefPhyChConfiguration ::= SEQUENCE {
  ul-DPCH-InfoPredef UL-DPCH-InfoPredef,
  dl-CommonInformationPredef DL-CommonInformationPredef OPTIONAL
}

```

```

PrimaryCCPCH-Info ::=
    CHOICE {
        fdd
            SEQUENCE {
                tx-DiversityIndicator
                    BOOLEAN
            },
        tdd
            SEQUENCE {
                -- syncCase should be absent for 1.28Mcps TDD mode
                syncCase
                    CHOICE {
                        syncCase1
                            SEQUENCE {
                                timeslot
                                    TimeslotNumber
                            },
                        syncCase2
                            SEQUENCE {
                                timeslotSync2
                                    TimeslotSync2
                            }
                    }
                cellParametersID
                    CellParametersID
                sctd-Indicator
                    BOOLEAN
            }
    }
    OPTIONAL,
    OPTIONAL,

```

```

PrimaryCCPCH-Info-r4 ::=
    CHOICE {
        fdd
            SEQUENCE {
                tx-DiversityIndicator
                    BOOLEAN
            },
        tdd
            SEQUENCE {
                tddOption
                    CHOICE {
                        tdd384
                            SEQUENCE {
                                syncCase
                                    CHOICE {
                                        syncCase1
                                            SEQUENCE {
                                                timeslot
                                                    TimeslotNumber
                                            },
                                        syncCase2
                                            SEQUENCE {
                                                timeslotSync2
                                                    TimeslotSync2
                                            }
                                    }
                                tdd128
                                    SEQUENCE {
                                        tstd-Indicator
                                            BOOLEAN
                                    }
                            }
                        },
                    }
                cellParametersID
                    CellParametersID
                blockSTTD-Indicator
                    BOOLEAN
            }
    }
    OPTIONAL
    OPTIONAL,

```

```

PrimaryCCPCH-Info-LCR-r4 ::=
    SEQUENCE {
        tstd-Indicator
            BOOLEAN,
        cellParametersID
            CellParametersID
        blockSTTD-Indicator
            BOOLEAN
    }
    OPTIONAL,

```

-- For 1.28Mcps TDD, the following IE includes elements for the PCCPCH Info additional to those in PrimaryCCPCH-Info

```

PrimaryCCPCH-Info-LCR-r4-ext ::=
    SEQUENCE {
        tstd-Indicator
            BOOLEAN
    }

```

```

PrimaryCCPCH-InfoPost ::=
    SEQUENCE {
        syncCase
            CHOICE {
                syncCase1
                    SEQUENCE {
                        timeslot
                            TimeslotNumber
                    },
                syncCase2
                    SEQUENCE {
                        timeslotSync2
                            TimeslotSync2
                    }
            }
        cellParametersID
            CellParametersID,
        sctd-Indicator
            BOOLEAN
    }

```

```

PrimaryCCPCH-InfoPostTDD-LCR-r4 ::= SEQUENCE {
    tstd-Indicator
        BOOLEAN,
    cellParametersID
        CellParametersID,
    blockSTTD-Indicator
        BOOLEAN
}

```

```

PrimaryCCPCH-TX-Power ::=
    INTEGER (6..43)

```

```

PrimaryCPICH-Info ::=
    SEQUENCE {

```

```

    primaryScramblingCode          PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::=          INTEGER (-10..50)

PrimaryScramblingCode ::=          INTEGER (0..511)

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

PUSCH-CapacityAllocationInfo ::=  SEQUENCE {
    pusch-Allocation                CHOICE {
        pusch-AllocationPending     NULL,
        pusch-AllocationAssignment  SEQUENCE {
            pusch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo    UL-TargetSIR                OPTIONAL,
            tfcs-ID                    TFCS-IdentityPlain          DEFAULT 1,
            configuration              CHOICE {
                old-Configuration     SEQUENCE {
                    pusch-Identity    PUSCH-Identity
                },
                new-Configuration     SEQUENCE {
                    pusch-Info         PUSCH-Info,
                    pusch-Identity     PUSCH-Identity    OPTIONAL
                }
            }
        }
    }
}

PUSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
    pusch-Allocation                CHOICE {
        pusch-AllocationPending     NULL,
        pusch-AllocationAssignment  SEQUENCE {
            pusch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo    PUSCH-PowerControlInfo-r4  OPTIONAL,
            tfcs-ID                    TFCS-IdentityPlain          OPTIONAL,
            configuration              CHOICE {
                old-Configuration     SEQUENCE {
                    pusch-Identity    PUSCH-Identity
                },
                new-Configuration     SEQUENCE {
                    pusch-Info-r4     PUSCH-Info-r4,
                    pusch-Identity     PUSCH-Identity    OPTIONAL
                }
            }
        }
    }
}

PUSCH-Identity ::=                 INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::=                     SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain          DEFAULT 1,
    commonTimeslotInfo                CommonTimeslotInfo          OPTIONAL,
    pusch-TimeslotsCodes              UplinkTimeslotsCodes          OPTIONAL
}

PUSCH-Info-r4 ::=                  SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain          DEFAULT 1,
    commonTimeslotInfo                CommonTimeslotInfo          OPTIONAL,
    tddOption                          CHOICE {
        tdd384                        SEQUENCE {
            pusch-TimeslotsCodes      UplinkTimeslotsCodes          OPTIONAL
        },
        tdd128                        SEQUENCE {
            pusch-TimeslotsCodes      UplinkTimeslotsCodes-LCR-r4  OPTIONAL
        }
    }
}

PUSCH-Info-LCR-r4 ::=              SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain          DEFAULT 1,
    commonTimeslotInfo                CommonTimeslotInfo          OPTIONAL,
    pusch-TimeslotsCodes              UplinkTimeslotsCodes-LCR-r4  OPTIONAL
}

```

```

}

PUSCH-PowerControlInfo-r4 ::= SEQUENCE {
  -- The IE ul-TargetSIR corresponds to PRX-PUSCHdes for 1.28Mcps TDD
  -- Actual value PRX-PUSCHdes = (value of IE "ul-TargetSIR" - 120)
  ul-TargetSIR          UL-TargetSIR,
  tddOption             CHOICE {
    tdd384              NULL,
    tdd128              SEQUENCE {
      tpc-StepSize     TPC-StepSizeTDD          OPTIONAL,
      dl-CCTrChTPCList DL-CCTrChTPCList          OPTIONAL
    }
  }
}

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

PUSCH-SysInfo-LCR-r4 ::= SEQUENCE {
  pusch-Identity        PUSCH-Identity,
  pusch-Info-LCR-r4    PUSCH-Info-LCR-r4,
  usch-TFS              TransportFormatSet      OPTIONAL,
  usch-TFCS            TFCS                    OPTIONAL
}

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

PUSCH-SysInfoList-LCR-r4 ::= SEQUENCE (SIZE (1..maxPUSCH)) OF
  PUSCH-SysInfo-LCR-r4

PUSCH-SysInfoList-SFN ::= SEQUENCE (SIZE (1..maxPUSCH)) OF
  SEQUENCE {
    pusch-SysInfo      PUSCH-SysInfo,
    sfm-TimeInfo       SFN-TimeInfo          OPTIONAL
  }

PUSCH-SysInfoList-SFN-LCR-r4 ::= SEQUENCE (SIZE (1..maxPUSCH)) OF
  SEQUENCE {
    pusch-SysInfo      PUSCH-SysInfo-LCR-r4,
    sfm-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 {
    dl-restrictedTrCh-Type                   DL-TrCH-Type,
    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)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RPP ::= ENUMERATED {
    mode0, mode1 }

S-Field ::= ENUMERATED {
    e1bit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..16)) OF
    SCCPCH-ChannelisationCode

```

```

SCCPCH-InfoForFACH ::=
    secondaryCCPCH-Info
    tfcs
    modeSpecificInfo
        fdd
            fach-PCH-InformationList
            sib-ReferenceListFACH
        },
        tdd
            fach-PCH-InformationList
    }
}

SCCPCH-SystemInformation ::=
    secondaryCCPCH-Info
    tfcs
    fach-PCH-InformationList
    pich-Info

SCCPCH-SystemInformation-LCR-r4-ext ::= SEQUENCE {
    secondaryCCPCH-LCR-Extensions
    -- pich-Info in the SCCPCH-SystemInformation IE shall be absent, and instead the following used.
    pich-Info
}

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

-- The following list includes elements additional to those in
-- SCCPCH-SystemInformationList for the 1.28Mcps TDD. The order of the IEs
-- indicates which SCCPCH-SystemInformation-LCR-r4-ext IE extends which
-- SCCPCH-SystemInformation IE.
SCCPCH-SystemInformationList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
    SCCPCH-SystemInformation-LCR-r4-ext

ScramblingCodeChange ::=
    ENUMERATED {
        codeChange, noCodeChange }

ScramblingCodeType ::=
    ENUMERATED {
        shortSC,
        longSC }

SecondaryCCPCH-Info ::=
    modeSpecificInfo
        fdd
            -- This IE is not used in this version of the specification and should be ignored.
            dummy1
            -- This IE is not used in this version of the specification. It should not
            -- be sent and if received it should be ignored.
            dummy2
            secondaryScramblingCode
            sttd-Indicator
            sf-AndCodeNumber
            pilotSymbolExistence
            tfci-Existence
            positionFixedOrFlexible
            timingOffset
        },
        tdd
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo
            individualTimeslotInfo
            channelisationCode
    }
}

SecondaryCCPCH-Info-r4 ::=
    modeSpecificInfo
        fdd
            PCPICH-UsageForChannelEst
            secondaryCPICH-Info
            secondaryScramblingCode
            sttd-Indicator
            sf-AndCodeNumber
            pilotSymbolExistence

```



```

        tfci-Existence                BOOLEAN,
        positionFixedOrFlexible       PositionFixedOrFlexible,
        timingOffset                  TimingOffset                DEFAULT 0
    },
    tdd                                SEQUENCE {
        -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
        commonTimeslotInfo            CommonTimeslotInfoSCCPCH,
        tddOption                     CHOICE {
            tdd384                    SEQUENCE {
                individualTimeslotInfo IndividualTimeslotInfo
            },
            tdd128                    SEQUENCE {
                individualTimeslotInfo IndividualTimeslotInfo-LCR-r4
            }
        },
        channelisationCode            SCCPCH-ChannelisationCodeList
    }
}

SecondaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
    individualTimeslotLCR-Ext        IndividualTimeslotInfo-LCR-r4-ext
}

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

SecondaryScramblingCode ::= INTEGER (1..15)

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::= CHOICE {
    sf4                                INTEGER (0..3),
    sf8                                INTEGER (0..7),
    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 }

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

SFN-TimeInfo ::= SEQUENCE {
    activationTimeSFN                INTEGER (0..4095),
    physChDuration                    DurationTimeInfo
}

```

```

}

SpecialBurstScheduling ::=                INTEGER (0..7)

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

SRB-delay ::=                            INTEGER (0..7)

SSDT-CellIdentity ::=                    ENUMERATED {
                                          ssdt-id-a, ssdt-id-b, ssdt-id-c,
                                          ssdt-id-d, ssdt-id-e, ssdt-id-f,
                                          ssdt-id-g, ssdt-id-h }

SSDT-Information ::=                     SEQUENCE {
  s-Field                                S-Field,
  codeWordSet                            CodeWordSet
}

SSDT-Information-r4 ::=                   SEQUENCE {
  s-Field                                S-Field,
  codeWordSet                            CodeWordSet,
  ssdt-UL                                SSDT-UL-r4                                OPTIONAL
}

-- The following information element is used to extend the
-- SSDT-Information IE from Release 4 onwards.
SSDT-UL-r4 ::=                           ENUMERATED {
                                          ul, ul-AndDL }

SynchronisationParameters-r4 ::=         SEQUENCE {
  sync-UL-CodesBitmap                    BIT STRING {
                                          code7(0),
                                          code6(1),
                                          code5(2),
                                          code4(3),
                                          code3(4),
                                          code2(5),
                                          code1(6),
                                          code0(7)
                                          } (SIZE (8))                                OPTIONAL,
  fpach-Info                             FPACH-Info-r4,
  sync-UL-Procedure                       SYNC-UL-Procedure-r4                                OPTIONAL
}

SYNC-UL-Procedure-r4 ::=                  SEQUENCE {
  max-SYNC-UL-Transmissions               ENUMERATED { tr1, tr2, tr4, tr8 },
  powerRampStep                           INTEGER (0..3)
}

SYNC-UL-Info-r4 ::=                       SEQUENCE {
  sync-UL-Codes-Bitmap                    BIT STRING {
                                          code7(0),
                                          code6(1),
                                          code5(2),
                                          code4(3),
                                          code3(4),
                                          code2(5),
                                          code1(6),
                                          code0(7)
                                          } (SIZE (8)),
  prxUpPCHdes                             INTEGER (0..62),
  -- Actual value = (IE value * 0.5) - 11
  powerRampStep                           INTEGER (0..3),
  max-SYNC-UL-Transmissions               ENUMERATED { tr1, tr2, tr4, tr8 } ,
  mmax                                    INTEGER(1..32)
}

TDD-FPACH-CCCode16-r4 ::=                ENUMERATED {
                                          cc16-1, cc16-2, cc16-3, cc16-4,
                                          cc16-5, cc16-6, cc16-7, cc16-8,
                                          cc16-9, cc16-10, cc16-11, cc16-12,
                                          cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PICH-CCCode ::=                       ENUMERATED {
                                          cc16-1, cc16-2, cc16-3, cc16-4,
                                          cc16-5, cc16-6, cc16-7, cc16-8,

```

```

cc16-9, cc16-10, cc16-11, cc16-12,
cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode8 ::= ENUMERATED {
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8 }

TDD-PRACH-CCode16 ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode-LCR-r4 ::= ENUMERATED {
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCodeList ::= CHOICE {
    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 }

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

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-CarrierRSSIMeasurement,
    gsm-initialBSICIdentification, gsmBSICReconfirmation,
    multi-carrier }

TGP-Sequence ::= SEQUENCE {
    tgpsi
        TGPSI,
    tgps-Status
        CHOICE {
            activate
                SEQUENCE {
                    tgcfm
                }
            deactivate
                NULL
        },
    tgps-ConfigurationParams
        TGPS-ConfigurationParams
} OPTIONAL

TGPS-Reconfiguration-CFN ::= INTEGER (0..255)

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

TGP-SequenceShort ::= SEQUENCE {
    tgpsi
        TGPSI,
    tgps-Status
        CHOICE {
            activate
                SEQUENCE {
                    tgcfm
                }
            deactivate
                NULL
        }
}

```

```

TGPL ::=                                INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=                                INTEGER (0..511)

TGPS-ConfigurationParams ::=            SEQUENCE {
    tgmpp                                TGMPP,
    tgprc                                TGPRC,
    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,
    nidentifyAbort                        NidentifyAbort                    OPTIONAL,
    treconfirmAbort                       TreconfirmAbort                    OPTIONAL
}

TGPSI ::=                                INTEGER (1..maxTGPS)

TGSN ::=                                INTEGER (0..14)

TimeInfo ::=                             SEQUENCE {
    activationTime                        ActivationTime                        OPTIONAL,
    durationTimeInfo                      DurationTimeInfo                      OPTIONAL
}

TimeslotList ::=                         SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotNumber

TimeslotList-r4 ::=                     CHOICE {
    tdd384                                SEQUENCE (SIZE (1..maxTS)) OF
        TimeslotNumber,
    tdd128                                SEQUENCE (SIZE (1..maxTS-LCR)) OF
        TimeslotNumber-LCR-r4
}

-- If TimeslotNumber is included for a 1.28Mcps TDD description, it shall take values from 0..6
TimeslotNumber ::=                      INTEGER (0..14)

TimeslotNumber-LCR-r4 ::=                INTEGER (0..6)

TimeslotNumber-PRACH-LCR-r4 ::=         INTEGER (1..6)

TimeslotSync2 ::=                       INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=                        INTEGER (0..149)

TPC-CombinationIndex ::=                INTEGER (0..5)

TPC-StepSizeFDD ::=                     INTEGER (0..1)

-- Actual value = IE value + 1
TPC-StepSizeTDD ::=                     INTEGER (1..3)

-- Actual value = IE value * 0.5 seconds
TreconfirmAbort ::=                     INTEGER (1..20)

TX-DiversityMode ::=                    ENUMERATED {
    noDiversity,
    sttd,
    closedLoopMode1,
    closedLoopMode2 }

UARFCN ::=                               INTEGER (0..16383)

UCSM-Info ::=                            SEQUENCE {

```

```

    minimumSpreadingFactor      MinimumSpreadingFactor,
    nf-Max                      NF-Max,
    channelReqParamsForUCSM     ChannelReqParamsForUCSM
}

UL-CCTrCH ::=
    tfcs-ID                      TFCS-IdentityPlain           DEFAULT 1,
    ul-TargetSIR                UL-TargetSIR,
    timeInfo                    TimeInfo,
    commonTimeslotInfo          CommonTimeslotInfo           OPTIONAL,
    ul-CCTrCH-TimeslotsCodes    UplinkTimeslotsCodes       OPTIONAL
}

UL-CCTrCH-r4 ::=
    tfcs-ID                      TFCS-IdentityPlain           DEFAULT 1,
    ul-TargetSIR                UL-TargetSIR,
    timeInfo                    TimeInfo,
    commonTimeslotInfo          CommonTimeslotInfo           OPTIONAL,
    tddOption                   CHOICE {
        tdd384                   SEQUENCE {
            ul-CCTrCH-TimeslotsCodes    UplinkTimeslotsCodes       OPTIONAL
        },
        tdd128                   SEQUENCE {
            ul-CCTrCH-TimeslotsCodes    UplinkTimeslotsCodes-LCR-r4 OPTIONAL
        }
    }
}

UL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
    UL-CCTrCH

UL-CCTrCHList-r4 ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
    UL-CCTrCH-r4

UL-CCTrChTPCList ::=
    SEQUENCE (SIZE (0..maxCCTrCH)) OF
    TFCS-Identity

UL-ChannelRequirement ::=
    CHOICE {
        ul-DPCH-Info            UL-DPCH-Info,
        cpch-SetInfo            CPCH-SetInfo
    }

UL-ChannelRequirement-r4 ::=
    CHOICE {
        ul-DPCH-Info            UL-DPCH-Info-r4,
        cpch-SetInfo            CPCH-SetInfo
    }

UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
    ul-DPCH-Info                UL-DPCH-Info,
    cpch-SetInfo                CPCH-SetInfo,
    cpch-SetID                  CPCH-SetID
}

UL-ChannelRequirementWithCPCH-SetID-r4 ::= CHOICE {
    ul-DPCH-Info                UL-DPCH-Info-r4,
    cpch-SetInfo                CPCH-SetInfo,
    cpch-SetID                  CPCH-SetID
}

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

UL-DL-Mode ::=
    CHOICE {
        ul                      UL-CompressedModeMethod,
        dl                      DL-CompressedModeMethod,
        ul-and-dl               SEQUENCE {
            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-Info-r4 ::= SEQUENCE {
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfo-r4  OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            scramblingCodeType      ScramblingCodeType,
            scramblingCode          UL-ScramblingCode,
            numberOfDPDCH           NumberOfDPDCH          DEFAULT 1,
            spreadingFactor        SpreadingFactor,
            tfci-Existence         BOOLEAN,
            numberOfFBI-Bits       NumberOfFBI-Bits          OPTIONAL,
            -- The IE above is conditional based on history
            puncturingLimit        PuncturingLimit
        },
        tdd                        SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvanceControl-r4  OPTIONAL,
            ul-CCTrCHList          UL-CCTrCHList-r4
        }
    }
}

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-InfoPostTDD-LCR-r4 ::= SEQUENCE {
    ul-DPCH-PowerControlInfo      UL-DPCH-PowerControlInfoPostTDD-LCR-r4,
    ul-TimingAdvance              UL-TimingAdvanceControl-LCR-r4          OPTIONAL,
    ul-CCTrCH-TimeslotsCodes      UplinkTimeslotsCodes-LCR-r4
}

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,
        sRB-delay                  SRB-delay,
        powerControlAlgorithm      PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                            SEQUENCE {

```

```

        ul-TargetSIR                UL-TargetSIR                OPTIONAL,
        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
            }
        }
    }
}

UL-DPCH-PowerControlInfo-r4 ::= CHOICE {
    fdd SEQUENCE {
        dpccch-PowerOffset  DPCCH-PowerOffset,
        pc-Preamble         PC-Preamble,
        powerControlAlgorithm PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd SEQUENCE {
        -- The IE ul-TargetSIR corresponds to PRX-PDPCHdes for 1.28Mcps TDD
        -- Actual value PRX-PDPCHdes = (value of IE "ul-TargetSIR" - 120)
        ul-TargetSIR                UL-TargetSIR                OPTIONAL,
        ul-OL-PC-Signalling          CHOICE {
            broadcast-UL-OL-PC-info  NULL,
            handoverGroup            SEQUENCE {
                tddOption            CHOICE {
                    tdd384          SEQUENCE {
                        individualTS-InterferenceList  IndividualTS-InterferenceList,
                        dpch-ConstantValue            ConstantValue
                    },
                    tdd128          SEQUENCE {
                        tpc-StepSize  TPC-StepSizeTDD
                    }
                }
            },
            primaryCCPCH-TX-Power    PrimaryCCPCH-TX-Power
        }
    }
}

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    dpccch-PowerOffset  DPCCH-PowerOffset2, -- smaller range to save bits
    pc-Preamble         PC-Preamble,
    SRB-delay           SRB-delay
}

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR                UL-TargetSIR,
    ul-TimeslotInterference      UL-Interference
}

UL-DPCH-PowerControlInfoPostTDD-LCR-r4 ::= SEQUENCE {
    ul-TargetSIR                UL-TargetSIR
}

UL-DPCH-PowerControlInfoPredef ::= CHOICE {
    fdd SEQUENCE {
        powerControlAlgorithm  PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd SEQUENCE {
        -- The following IE shall be ignored if in 1.28Mcps TDD mode.
        dpch-ConstantValue      ConstantValue
    }
}

UL-Interference ::= INTEGER (-110..-70)

UL-ScramblingCode ::= INTEGER (0..16777215)

UL-SynchronisationParameters-r4 ::= SEQUENCE {
    stepSize                INTEGER (1..8),
    frequency                INTEGER (1..8)
}

-- 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-TimingAdvanceControl-r4 ::= CHOICE {
    disabled NULL,
    enabled SEQUENCE {
        tddOption CHOICE {
            tdd384 SEQUENCE {
                ul-TimingAdvance UL-TimingAdvance OPTIONAL,
                activationTime ActivationTime OPTIONAL
            },
            tdd128 SEQUENCE {
                ul-SynchronisationParameters UL-SynchronisationParameters-r4 OPTIONAL,
                synchronisationParameters SynchronisationParameters-r4 OPTIONAL
            }
        }
    }
}

UL-TimingAdvanceControl-LCR-r4 ::= CHOICE {
    disabled NULL,
    enabled SEQUENCE {
        ul-SynchronisationParameters UL-SynchronisationParameters-r4 OPTIONAL,
        synchronisationParameters SynchronisationParameters-r4 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
        }
    }
}

UplinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
    parameters CHOICE {
        sameAsLast SEQUENCE {
            timeslotNumber TimeslotNumber
        },
        newParameters SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
            ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList
        }
    }
}

UplinkTimeslotsCodes ::= SEQUENCE {
    dynamicSFusage BOOLEAN,
    firstIndividualTimeslotInfo IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList,
    moreTimeslots CHOICE {

```



```

        noMore                NULL,
        additionalTimeslots   CHOICE {
            consecutive        SEQUENCE {
                numAdditionalTimeslots  INTEGER (1..maxTS-1)
            },
            timeslotList       SEQUENCE (SIZE (1..maxTS-1)) OF
                                UplinkAdditionalTimeslots
        }
    }
}

UplinkTimeslotsCodes-LCR-r4 ::= SEQUENCE {
    dynamicSFusage            BOOLEAN,
    firstIndividualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
    ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList,
    moreTimeslots             CHOICE {
        noMore                NULL,
        additionalTimeslots   CHOICE {
            consecutive        SEQUENCE {
                numAdditionalTimeslots  INTEGER (1..maxTS-LCR-1)
            },
            timeslotList       SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
                                UplinkAdditionalTimeslots-LCR-r4
        }
    }
}

Wi-LCR ::= INTEGER(1..4)

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

AcquisitionSatInfo ::= SEQUENCE {
    satID                SatID,
    -- Actual value = IE value * 2.5
    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

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasurementIdentity

AlmanacSatInfo ::= SEQUENCE {
    dataID                INTEGER (0..3),
    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, spare12, spare11,
spare10, spare9, spare8, spare7, spare6,
spare5, spare4, spare3, spare2, spare1 }
AzimuthAndElevation ::= SEQUENCE {
  -- Actual value = IE value * 11.25
  azimuth INTEGER (0..31),
  -- Actual value = IE value * 11.25
  elevation INTEGER (0..7)
}
BadSatList ::= SEQUENCE (SIZE (1..maxSat)) OF
  INTEGER (0..63)
Frequency-Band ::= ENUMERATED {
  dcs1800BandUsed, pcs1900BandUsed }
BCCH-ARFCN ::= INTEGER (0..1023)
BLER-MeasurementResults ::= 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 }
BSICReported ::= CHOICE {
  -- Value maxCellMeas is not allowed for verifiedBSIC
  verifiedBSIC INTEGER (0..maxCellMeas),
  nonVerifiedBSIC BCCH-ARFCN
}
BurstModeParameters ::= SEQUENCE {
  burstStart INTEGER (0..15),
  burstLength INTEGER (10..25),
  burstFreq INTEGER (1..16)
}
CellDCH-ReportCriteria ::= CHOICE {
  intraFreqReportingCriteria
  periodicalReportingCriteria
}
CellDCH-ReportCriteria-LCR-r4 ::= CHOICE {
  intraFreqReportingCriteria
  periodicalReportingCriteria
}
-- Actual value = IE value * 0.5
CellIndividualOffset ::= INTEGER (-20..20)
CellInfo ::= SEQUENCE {
  cellIndividualOffset CellIndividualOffset DEFAULT 0,
  referenceTimeDifferenceToCell
  modeSpecificInfo ReferenceTimeDifferenceToCell OPTIONAL,
  CHOICE {
    fdd SEQUENCE {
      primaryCPICH-Info PrimaryCPICH-Info OPTIONAL,
      primaryCPICH-TX-Power PrimaryCPICH-TX-Power OPTIONAL,
      readSFN-Indicator BOOLEAN,
      tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
      primaryCCPCH-Info PrimaryCCPCH-Info,
      primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power OPTIONAL,
      timeslotInfoList TimeslotInfoList OPTIONAL,
      readSFN-Indicator BOOLEAN
    }
  }
}

```

```

CellInfo-r4 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
      readSFN-Indicator
  }
}

CellInfoSI-RSCP ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
      readSFN-Indicator
  },
  cellSelectionReselectionInfo
}

CellInfoSI-RSCP-LCR-r4 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  primaryCCPCH-Info
  primaryCCPCH-TX-Power
  timeslotInfoList
  readSFN-Indicator
  cellSelectionReselectionInfo
}

CellInfoSI-ECN0 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
      readSFN-Indicator
  },
  cellSelectionReselectionInfo
}

CellInfoSI-ECN0-LCR-r4 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  primaryCCPCH-Info
  primaryCCPCH-TX-Power
  timeslotInfoList
  readSFN-Indicator
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset
  ReferenceTimeDifferenceToCell
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info
      PrimaryCPICH-TX-Power
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info-r4,
      PrimaryCCPCH-TX-Power
      TimeslotInfoList-r4
      BOOLEAN
    }
  }
}

SEQUENCE {
  CellIndividualOffset
  ReferenceTimeDifferenceToCell
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info
      PrimaryCPICH-TX-Power
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power
      TimeslotInfoList
      BOOLEAN
    }
  }
  CellSelectReselectInfoSIB-11-12-RSCP
}

SEQUENCE {
  CellIndividualOffset
  ReferenceTimeDifferenceToCell
  PrimaryCCPCH-Info-LCR-r4,
  PrimaryCCPCH-TX-Power
  TimeslotInfoList-LCR-r4
  BOOLEAN,
  CellSelectReselectInfoSIB-11-12-RSCP
}

SEQUENCE {
  CellIndividualOffset
  ReferenceTimeDifferenceToCell
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info
      PrimaryCPICH-TX-Power
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power
      TimeslotInfoList
      BOOLEAN
    }
  }
  CellSelectReselectInfoSIB-11-12-ECN0
}

SEQUENCE {
  CellIndividualOffset
  ReferenceTimeDifferenceToCell
  PrimaryCCPCH-Info-LCR-r4,
  PrimaryCCPCH-TX-Power
  TimeslotInfoList-LCR-r4
  BOOLEAN,
  CellSelectReselectInfoSIB-11-12-ECN0
}

```

```

}

CellInfoSI-HCS-RSCP ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
      readSFN-Indicator
  },
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell  OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info          OPTIONAL,
      PrimaryCPICH-TX-Power      OPTIONAL,
      BOOLEAN,
      BOOLEAN
    },
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power      OPTIONAL,
      TimeslotInfoList          OPTIONAL,
      BOOLEAN
    }
  }
  CellSelectReselectInfoSIB-11-12-HCS-RSCP  OPTIONAL
}

CellInfoSI-HCS-RSCP-LCR-r4 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  primaryCCPCH-Info
  primaryCCPCH-TX-Power
  timeslotInfoList
  readSFN-Indicator
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell  OPTIONAL,
  PrimaryCCPCH-Info-LCR-r4,
  PrimaryCCPCH-TX-Power          OPTIONAL,
  TimeslotInfoList-LCR-r4       OPTIONAL,
  BOOLEAN,
  CellSelectReselectInfoSIB-11-12-HCS-RSCP  OPTIONAL
}

CellInfoSI-HCS-ECN0 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
      readSFN-Indicator
  },
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell  OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info          OPTIONAL,
      PrimaryCPICH-TX-Power      OPTIONAL,
      BOOLEAN,
      BOOLEAN
    },
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power      OPTIONAL,
      TimeslotInfoList          OPTIONAL,
      BOOLEAN
    }
  }
  CellSelectReselectInfoSIB-11-12-HCS-ECN0  OPTIONAL
}

CellInfoSI-HCS-ECN0-LCR-r4 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  primaryCCPCH-Info
  primaryCCPCH-TX-Power
  timeslotInfoList
  readSFN-Indicator
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell  OPTIONAL,
  PrimaryCCPCH-Info-LCR-r4,
  PrimaryCCPCH-TX-Power          OPTIONAL,
  TimeslotInfoList-LCR-r4       OPTIONAL,
  BOOLEAN,
  CellSelectReselectInfoSIB-11-12-HCS-ECN0  OPTIONAL
}

CellMeasuredResults ::=
  cellIdentity
  sfm-SFM-ObsTimeDifference
  cellSynchronisationInfo
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      cpich-Ec-N0
      cpich-RSCP
      pathloss
    },
    tdd
      cellParametersID
      proposedTGSN
      primaryCCPCH-RSCP
      pathloss
}

SEQUENCE {
  CellIdentity                   OPTIONAL,
  SFM-SFM-ObsTimeDifference      OPTIONAL,
  CellSynchronisationInfo        OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info,
      CPICH-Ec-N0              OPTIONAL,
      CPICH-RSCP                OPTIONAL,
      Pathloss                  OPTIONAL
    },
    SEQUENCE {
      CellParametersID,
      TGSN                      OPTIONAL,
      PrimaryCCPCH-RSCP         OPTIONAL,
      Pathloss                  OPTIONAL
    }
  }
}

```

```

        timeslotISCP-List          TimeslotISCP-List          OPTIONAL
    }
}

CellMeasurementEventResults ::= CHOICE {
    fdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCPICH-Info,
    tdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCCPCH-Info
}

CellMeasurementEventResults-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    PrimaryCCPCH-Info-LCR-r4

CellReportingQuantities ::= SEQUENCE {
    sfm-SFN-OTD-Type          SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator          BOOLEAN,
    cellSynchronisationInfoReportingIndicator          BOOLEAN,
    modeSpecificInfo          CHOICE {
        fdd          SEQUENCE {
            cpich-Ec-N0-reportingIndicator          BOOLEAN,
            cpich-RSCP-reportingIndicator          BOOLEAN,
            pathloss-reportingIndicator          BOOLEAN
        },
        tdd          SEQUENCE {
            timeslotISCP-reportingIndicator          BOOLEAN,
            proposedTGSN-ReportingRequired          BOOLEAN,
            primaryCCPCH-RSCP-reportingIndicator          BOOLEAN,
            pathloss-reportingIndicator          BOOLEAN
        }
    }
}

CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-Offset1S-N          Q-OffsetS-N          DEFAULT 0,
    q-Offset2S-N          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-ECNO ::= 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,

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        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
        }
    }
}

CellsForInterFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterFreqCellID
CellsForInterRATMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterRATCellID
CellsForIntraFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    IntraFreqCellID

CellSynchronisationInfo ::= SEQUENCE {
    modeSpecificInfo          CHOICE {
        fdd                SEQUENCE {
            countC-SFN-Frame-difference    CountC-SFN-Frame-difference    OPTIONAL,
            tm                INTEGER(0..38399)
        },
        tdd                SEQUENCE {
            countC-SFN-Frame-difference    CountC-SFN-Frame-difference    OPTIONAL
        }
    }
}

CellToReport ::= SEQUENCE {
    bsicReported                BSICReported
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToReport

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,

```

w12, w16, w24, w32, w48, w64,  
w96, w128, w192 }

```
CountC-SFN-Frame-difference ::= SEQUENCE {
  countC-SFN-High      INTEGER(0..15),      -- Actual value = IE value * 256
  off                  INTEGER(0..255)
}
```

~~It is not allowed to send value 50 in this version of the specification~~

~~-- SPARE: CPICH-Ec-No, Max= 49~~

~~-- Values above Max are spare~~

~~CPICH-Ec-NO ::= INTEGER (0..5063)~~

~~-- SPARE: CPICH- RSCP, Max= 91~~

~~-- Values above Max are spare~~

~~CPICH-RSCP ::= INTEGER (0..91127)~~

DeltaPRC ::= INTEGER (-127..127)

-- Actual value = IE value \* 0.032

DeltaRRC ::= INTEGER (-7..7)

```
DGPS-CorrectionSatInfo ::= SEQUENCE {
  satID      SatID,
  iode       IODE,
  udre       UDRE,
  prc        PRC,
  rrc        RRC,
  deltaPRC2  DeltaPRC,
  deltaRRC2  DeltaRRC,
  deltaPRC3  DeltaPRC      OPTIONAL,
  deltaRRC3  DeltaRRC      OPTIONAL
}
```

```
DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
  DGPS-CorrectionSatInfo
```

```
DiffCorrectionStatus ::= ENUMERATED {
  udre-1-0, udre-0-75, udre-0-5, udre-0-3,
  udre-0-2, udre-0-1, noData, invalidData }
```

DL-TransportChannelBLER ::= INTEGER (0..63)

```
DopplerUncertainty ::= ENUMERATED {
  hz12-5, hz25, hz50, hz100, hz200,
  spare3, spare2, spare1 }
```

```
EllipsoidPoint ::= SEQUENCE {
  latitudeSign  ENUMERATED { north, south },
  latitude      INTEGER (0..8388607),
  longitude     INTEGER (-8388608..8388607)
}
```

```
EllipsoidPointAltitude ::= SEQUENCE {
  latitudeSign  ENUMERATED { north, south },
  latitude      INTEGER (0..8388607),
  longitude     INTEGER (-8388608..8388607),
  altitudeDirection  ENUMERATED {height, depth},
  altitude      INTEGER (0..32767)
}
```

```
EllipsoidPointAltitudeEllipsoide ::= SEQUENCE {
  latitudeSign  ENUMERATED { north, south },
  latitude      INTEGER (0..8388607),
  longitude     INTEGER (-8388608..8388607),
  altitudeDirection  ENUMERATED {height, depth},
  altitude      INTEGER (0..32767),
  uncertaintySemiMajor  INTEGER (0..127),
  uncertaintySemiMinor  INTEGER (0..127),
  orientationMajorAxis  INTEGER (0..89),
  uncertaintyAltitude   INTEGER (0..127),
  confidence            INTEGER (0..100)
}
```

```

EllipsoidPointUncertCircle ::= SEQUENCE {
    latitudeSign      ENUMERATED { north, south },
    latitude          INTEGER (0..8388607),
    longitude         INTEGER (-8388608..8388607),
    uncertaintyCode   INTEGER (0..127)
}

EllipsoidPointUncertEllipse ::= SEQUENCE {
    latitudeSign      ENUMERATED { north, south },
    latitude          INTEGER (0..8388607),
    longitude         INTEGER (-8388608..8388607),
    uncertaintySemiMajor  INTEGER (0..127),
    uncertaintySemiMinor  INTEGER (0..127),
    orientationMajorAxis  INTEGER (0..89),
    confidence         INTEGER (0..100)
}

EnvironmentCharacterisation ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined,
    spare }

Event1a ::= SEQUENCE {
    triggeringCondition      TriggeringCondition2,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList      OPTIONAL,
    w                       W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount         ReportingAmount,
    reportingInterval       ReportingInterval
}

Event1a-r4 ::= SEQUENCE {
    triggeringCondition      TriggeringCondition2,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-r4      OPTIONAL,
    w                       W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount         ReportingAmount,
    reportingInterval       ReportingInterval
}

Event1a-LCR-r4 ::= SEQUENCE {
    triggeringCondition      TriggeringCondition2,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-LCR-r4      OPTIONAL,
    w                       W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount         ReportingAmount,
    reportingInterval       ReportingInterval
}

Event1b ::= SEQUENCE {
    triggeringCondition      TriggeringCondition1,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList      OPTIONAL,
    w                       W
}

Event1b-r4 ::= SEQUENCE {
    triggeringCondition      TriggeringCondition1,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-r4      OPTIONAL,
    w                       W
}

Event1b-LCR-r4 ::= SEQUENCE {
    triggeringCondition      TriggeringCondition1,
    reportingRange          ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-LCR-r4      OPTIONAL,
    w                       W
}

Event1c ::= SEQUENCE {
    replacementActivationThreshold ReplacementActivationThreshold,
}

```



```

    reportingAmount          ReportingAmount,
    reportingInterval        ReportingInterval
}

Event1e ::=
    triggeringCondition      TriggeringCondition2,
    thresholdUsedFrequency   ThresholdUsedFrequency
}

Event1f ::=
    triggeringCondition      TriggeringCondition1,
    thresholdUsedFrequency   ThresholdUsedFrequency
}

Event2a ::=
    dummy                    Threshold,
    -- IE "dummy" shall not be sent and shall be ignored if received.
    -- IE "dummy" should be removed in later versions of the message including this IE
    usedFreqW                W,
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList    OPTIONAL
}

Event2b ::=
    usedFreqThreshold        Threshold,
    usedFreqW                W,
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList    OPTIONAL
}

Event2c ::=
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList    OPTIONAL
}

Event2d ::=
    usedFreqThreshold        Threshold,
    usedFreqW                W,
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL
}

Event2e ::=
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList    OPTIONAL
}

Event2f ::=
    usedFreqThreshold        Threshold,
    usedFreqW                W,
    hysteresis                HysteresisInterFreq,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL
}

Event3a ::=
    thresholdOwnSystem        Threshold,
    w                          W,
    thresholdOtherSystem      Threshold,
    hysteresis                Hysteresis,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL
}

Event3b ::=
    thresholdOtherSystem      Threshold,
    hysteresis                Hysteresis,
    timeToTrigger            TimeToTrigger,
    reportingCellStatus      ReportingCellStatus          OPTIONAL
}

```

```

}

Event3c ::=
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingCellStatus
SEQUENCE {
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
OPTIONAL
}

Event3d ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
SEQUENCE {
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
OPTIONAL
}

EventIDInterFreq ::=
ENUMERATED {
    e2a, e2b, e2c, e2d, e2e, e2f, spare2, spare1 }

EventIDInterRAT ::=
ENUMERATED {
    e3a, e3b, e3c, e3d }

EventIDIntraFreq ::=
ENUMERATED {
    e1a, e1b, e1c, e1d, e1e,
    e1f, e1g, e1h, e1i, spare7,
    spare6, spare5, spare4, spare3, spare2,
    spare1 }

EventResults ::=
    intraFreqEventResults
    interFreqEventResults
    interRATEventResults
    trafficVolumeEventResults
    qualityEventResults
    ue-InternalEventResults
    ue-positioning-MeasurementEventResults
    spare
CHOICE {
    IntraFreqEventResults,
    InterFreqEventResults,
    InterRATEventResults,
    TrafficVolumeEventResults,
    QualityEventResults,
    UE-InternalEventResults,
    UE-Positioning-MeasurementEventResults,
    NULL
}

ExtraDopplerInfo ::=
    -- Actual value = IE value * 0.023
    doppler1stOrder
    dopplerUncertainty
SEQUENCE {
    INTEGER (-42..21),
    DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::=
    fACH-meas-occasion-coeff
    inter-freq-FDD-meas-ind
    -- The following IE is for 3.84Mcps TDD. For 1.28Mcps TDD, the IE in
    -- FACH-MeasurementOccasionInfo-LCR-r4-ext is used.
    inter-freq-TDD-meas-ind
    inter-RAT-meas-ind
SEQUENCE {
    INTEGER (1..12)
    BOOLEAN,
    SEQUENCE (SIZE (1..maxOtherRAT)) OF
        RAT-Type
OPTIONAL
}

FACH-MeasurementOccasionInfo-LCR-r4-ext ::= SEQUENCE {
    inter-freq-TDD128-meas-ind
    BOOLEAN
}

FilterCoefficient ::=
ENUMERATED {
    fc0, fc1, fc2, fc3, fc4, fc5,
    fc6, fc7, fc8, fc9, fc11, fc13,
    fc15, fc17, fc19, spare1 }

-- Actual value = IE value * 0.0625
FinesSFN-SFN ::=
INTEGER (0..15)

ForbiddenAffectCell ::=
    fdd
    tdd
CHOICE {
    PrimaryCPICH-Info,
    PrimaryCCPCH-Info
}

ForbiddenAffectCell-r4 ::=
    fdd
    tdd
CHOICE {
    PrimaryCPICH-Info,
    PrimaryCCPCH-Info-r4
}

ForbiddenAffectCell-LCR-r4 ::=
SEQUENCE {

```

```

    tdd                PrimaryCCPCH-Info-LCR-r4
  }

ForbiddenAffectCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    ForbiddenAffectCell

ForbiddenAffectCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    ForbiddenAffectCell-r4

ForbiddenAffectCellList-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    ForbiddenAffectCell-LCR-r4

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP }

GPS-MeasurementParam ::= SEQUENCE {
    satelliteID        INTEGER (0..63),
    c-N0                INTEGER (0..63),
    doppler             INTEGER (-32768..32768),
    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

GSM-CarrierRSSI ::= BIT STRING (SIZE (6))

GSM-MeasuredResults ::= SEQUENCE {
    gsm-CarrierRSSI      GSM-CarrierRSSI           OPTIONAL,
    dummy                INTEGER (46..158173)       OPTIONAL,
    bsicReported         BSICReported,
    observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
}

GSM-MeasuredResultsList ::= SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
    GSM-MeasuredResults

GPS-TOW-1msec ::= INTEGER (0..604799999)

GPS-TOW-Assist ::= SEQUENCE {
    satID                SatID,
    tlm-Message          BIT STRING (SIZE (14)),
    tlm-Reserved         BIT STRING (SIZE (2)),
    alert                BOOLEAN,
    antiSpoof            BOOLEAN
}

GPS-TOW-AssistList ::= SEQUENCE (SIZE (1..maxSat)) OF
    GPS-TOW-Assist

HCS-CellReselectInformation-RSCP ::= SEQUENCE {
    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
}

InterFreqCell-LCR-r4 ::= SEQUENCE {
    frequencyInfo    FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults-LCR-r4
}

InterFreqCellID ::= INTEGER (0..maxCellMeas-1)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellList    OPTIONAL,
    cellsForInterFreqMeasList CellsForInterFreqMeasList OPTIONAL
}

InterFreqCellInfoList-r4 ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellList-r4    OPTIONAL
}

InterFreqCellInfoSI-List-RSCP ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-RSCP  OPTIONAL
}

InterFreqCellInfoSI-List-ECNO ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-ECNO  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-HCS-RSCP  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-ECNO ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-HCS-ECNO  OPTIONAL
}

InterFreqCellInfoSI-List-RSCP-LCR ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-RSCP-LCR-r4  OPTIONAL
}

InterFreqCellInfoSI-List-ECNO-LCR ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-ECNO-LCR-r4  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP-LCR ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-HCS-RSCP-LCR-r4  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-ECNO-LCR ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List-HCS-ECNO-LCR-r4  OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreq)) OF

```

```

InterFreqCell
InterFreqCellList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxFreq)) OF
InterFreqCell-LCR-r4
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
}
InterFreqEventResults-LCR-r4-ext ::= SEQUENCE {
eventID EventIDInterFreq,
interFreqCellList InterFreqCellList-LCR-r4-ext 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 {
interFreqCellInfoSI-List InterFreqCellInfoSI-List-RSCP OPTIONAL
}
InterFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
interFreqCellInfoSI-List InterFreqCellInfoSI-List-ECN0 OPTIONAL
}
InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP OPTIONAL
}
InterFreqMeasurementSysInfo-HCS-ECN0 ::= SEQUENCE {
interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-ECN0 OPTIONAL
}
InterFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
interFreqCellInfoSI-List InterFreqCellInfoSI-List-RSCP-LCR OPTIONAL
}

```

```

}

InterFreqMeasurementSysInfo-ECN0-LCR-r4 ::= SEQUENCE {
    interFreqCellInfoSI-List          InterFreqCellInfoSI-List-ECN0-LCR    OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 ::= SEQUENCE {
    interFreqCellInfoSI-List          InterFreqCellInfoSI-List-HCS-RSCP-LCR    OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::= SEQUENCE {
    interFreqCellInfoSI-List          InterFreqCellInfoSI-List-HCS-ECN0-LCR    OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria        IntraFreqReportingCriteria,
    interFreqReportingCriteria        InterFreqReportingCriteria,
    periodicalReportingCriteria       PeriodicalWithReportingCellStatus,
    noReporting                        ReportingCellStatusOpt
}

InterFreqReportCriteria-r4 ::= CHOICE {
    intraFreqReportingCriteria-r4     IntraFreqReportingCriteria-r4,
    interFreqReportingCriteria        InterFreqReportingCriteria,
    periodicalReportingCriteria       PeriodicalWithReportingCellStatus,
    noReporting                        ReportingCellStatusOpt
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList                InterFreqEventList                OPTIONAL
}

InterFreqReportingQuantity ::= SEQUENCE {
    ultra-Carrier-RSSI                BOOLEAN,
    frequencyQualityEstimate           BOOLEAN,
    nonFreqRelatedQuantities          CellReportingQuantities
}

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList              InterFreqCellInfoList,
    interFreqMeasQuantity              InterFreqMeasQuantity              OPTIONAL,
    interFreqReportingQuantity         InterFreqReportingQuantity         OPTIONAL,
    measurementValidity               MeasurementValidity               OPTIONAL,
    interFreqSetUpdate                UE-AutonomousUpdateMode           OPTIONAL,
    reportCriteria                    InterFreqReportCriteria
}

InterFrequencyMeasurement-r4 ::= SEQUENCE {
    interFreqCellInfoList              InterFreqCellInfoList-r4,
    interFreqMeasQuantity              InterFreqMeasQuantity              OPTIONAL,
    interFreqReportingQuantity         InterFreqReportingQuantity         OPTIONAL,
    measurementValidity               MeasurementValidity               OPTIONAL,
    interFreqSetUpdate                UE-AutonomousUpdateMode           OPTIONAL,
    reportCriteria                    InterFreqReportCriteria-r4
}

InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo             CHOICE {
        gsm                             SEQUENCE {
            bsic                         BSIC,
            frequency-band               Frequency-Band,
            bcch-ARFCN                  BCCH-ARFCN,
            ncMode                       NC-Mode                             OPTIONAL
        },
        is-2000                          NULL,
        spare2                            NULL,
        spare1                            NULL
    }
}

InterRATCellID ::= INTEGER (0..maxCellMeas-1)

InterRATCellInfoList ::= SEQUENCE {
    removedInterRATCellList           RemovedInterRATCellList,
    newInterRATCellList               NewInterRATCellList,
    -- NOTE: Future revisions of dedicated message(s) including IE newInterRATCellList
    -- should use a corrected version of this IE
    cellsForInterRATMeasList          CellsForInterRATMeasList           OPTIONAL
}

```

```

}

InterRATCellInfoList-B ::=          SEQUENCE {
    removedInterRATCellList         RemovedInterRATCellList,
    newInterRATCellList             NewInterRATCellList-B
    -- NOTE: IE newInterRATCellList should be optional.
    -- However, system information does not support message versions
    -- Hence, this can not be corrected
}

InterRATCellInfoList-r4 ::=        SEQUENCE {
    removedInterRATCellList         RemovedInterRATCellList,
    newInterRATCellList             NewInterRATCellList             OPTIONAL,
    cellsForInterRATMeasList        CellsForInterRATMeasList        OPTIONAL
}

InterRATCellIndividualOffset ::=   INTEGER (-50..50)

InterRATEvent ::=                  CHOICE {
    event3a                         Event3a,
    event3b                         Event3b,
    event3c                         Event3c,
    event3d                         Event3d
}

InterRATEventList ::=              SEQUENCE (SIZE (1..maxMeasEvent)) OF
    InterRATEvent

InterRATEventResults ::=           SEQUENCE {
    eventID                         EventIDInterRAT,
    cellToReportList                CellToReportList
}

InterRATInfo ::=                   ENUMERATED {
    gsm
}

InterRATMeasQuantity ::=           SEQUENCE {
    measQuantityUTRAN-QualityEstimate IntraFreqMeasQuantity        OPTIONAL,
    ratSpecificInfo                  CHOICE {
        gsm                           SEQUENCE {
            measurementQuantity        MeasurementQuantityGSM,
            filterCoefficient          FilterCoefficient          DEFAULT fc0,
            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
        }
    }
}

InterRATMeasuredResults ::=        CHOICE {
    gsm                              GSM-MeasuredResultsList,
    spare                             NULL
}

InterRATMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxOtherRAT-16)) OF
    InterRATMeasuredResults

InterRATMeasurement ::=            SEQUENCE {
    interRATCellInfoList             InterRATCellInfoList          OPTIONAL,
    interRATMeasQuantity             InterRATMeasQuantity          OPTIONAL,
    interRATReportingQuantity        InterRATReportingQuantity     OPTIONAL,
    reportCriteria                   InterRATReportCriteria
}

InterRATMeasurement-r4 ::=         SEQUENCE {
    interRATCellInfoList             InterRATCellInfoList-r4      OPTIONAL,
    interRATMeasQuantity             InterRATMeasQuantity          OPTIONAL,
    interRATReportingQuantity        InterRATReportingQuantity     OPTIONAL,
    reportCriteria                   InterRATReportCriteria
}

InterRATMeasurementSysInfo ::=     SEQUENCE {
    interRATCellInfoList             InterRATCellInfoList          OPTIONAL
}

```

```

InterRATMeasurementSysInfo-B ::= SEQUENCE {
    interRATCellInfoList          InterRATCellInfoList-B          OPTIONAL
}

InterRATReportCriteria ::= CHOICE {
    interRATReportingCriteria      InterRATReportingCriteria,
    periodicalReportingCriteria    PeriodicalWithReportingCellStatus,
    noReporting                    ReportingCellStatusOpt
}

InterRATReportingCriteria ::= SEQUENCE {
    interRATEventList              InterRATEventList              OPTIONAL
}

InterRATReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality          BOOLEAN,
    ratSpecificInfo                 CHOICE {
        gsm                          SEQUENCE {
            dummy                      BOOLEAN,
            observedTimeDifferenceGSM   BOOLEAN,
            gsm-Carrier-RSSI           BOOLEAN
        }
    }
}

IntraFreqCellID ::= INTEGER (0..maxCellMeas-1)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellList            OPTIONAL,
    cellsForIntraFreqMeasList       CellsForIntraFreqMeasList       OPTIONAL
}

IntraFreqCellInfoList-r4 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellList-r4        OPTIONAL
}

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
}

IntraFreqCellInfoSI-List-RSCP-LCR-r4 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List-RSCP-LCR-r4
}

IntraFreqCellInfoSI-List-ECN0-LCR-r4 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List-ECN0-LCR-r4
}

IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4
}

IntraFreqCellInfoSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList        OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4
}

```



```

IntraFreqEvent ::=
  e1a
  e1b
  e1c
  e1d
  e1e
  e1f
  e1g
  e1h
  e1i
}

CHOICE {
  Event1a,
  Event1b,
  Event1c,
  NULL,
  Event1e,
  Event1f,
  NULL,
  ThresholdUsedFrequency,
  ThresholdUsedFrequency
}

IntraFreqEvent-r4 ::=
  e1a
  e1b
  e1c
  e1d
  e1e
  e1f
  e1g
  e1h
  e1i
}

CHOICE {
  Event1a-r4,
  Event1b-r4,
  Event1c,
  NULL,
  Event1e,
  Event1f,
  NULL,
  ThresholdUsedFrequency,
  ThresholdUsedFrequency
}

IntraFreqEvent-LCR-r4 ::=
  e1a
  e1b
  e1c
  e1d
  e1e
  e1f
  e1g
  e1h
  e1i
}

CHOICE {
  Event1a-LCR-r4,
  Event1b-LCR-r4,
  Event1c,
  NULL,
  Event1e,
  Event1f,
  NULL,
  ThresholdUsedFrequency,
  ThresholdUsedFrequency
}

IntraFreqEventCriteria ::=
  event
  hysteresis
  timeToTrigger
  reportingCellStatus
}

SEQUENCE {
  IntraFreqEvent,
  Hysteresis,
  TimeToTrigger,
  ReportingCellStatus
} OPTIONAL

IntraFreqEventCriteria-r4 ::=
  event
  hysteresis
  timeToTrigger
  reportingCellStatus
}

SEQUENCE {
  IntraFreqEvent-r4,
  Hysteresis,
  TimeToTrigger,
  ReportingCellStatus
} OPTIONAL

IntraFreqEventCriteria-LCR-r4 ::=
  event
  hysteresis
  timeToTrigger
  reportingCellStatus
}

SEQUENCE {
  IntraFreqEvent-LCR-r4,
  Hysteresis,
  TimeToTrigger,
  ReportingCellStatus
} OPTIONAL

IntraFreqEventCriteriaList ::=
  SEQUENCE (SIZE (1..maxMeasEvent)) OF
  IntraFreqEventCriteria

IntraFreqEventCriteriaList-r4 ::=
  SEQUENCE (SIZE (1..maxMeasEvent)) OF
  IntraFreqEventCriteria-r4

IntraFreqEventCriteriaList-LCR-r4 ::=
  SEQUENCE (SIZE (1..maxMeasEvent)) OF
  IntraFreqEventCriteria-LCR-r4

IntraFreqEventResults ::=
  eventID
  cellMeasurementEventResults
}

SEQUENCE {
  EventIDIntraFreq,
  CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=
  filterCoefficient
  modeSpecificInfo
  fdd
  intraFreqMeasQuantity-FDD
},

SEQUENCE {
  FilterCoefficient
  CHOICE {
    SEQUENCE {
      IntraFreqMeasQuantity-FDD
    }
  }
} DEFAULT fc0,

```

```

    tdd
        SEQUENCE {
            intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
        }
    }
}

IntraFreqMeasQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }
-- If used in InterRATMeasQuantity only cpich-Ec-N0 and cpich-RSCP is
-- allowed.
-- If used in InterFreqMeasQuantity ultra-CarrierRSSI is not allowed.
IntraFreqMeasQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
    ultra-CarrierRSSI }
-- If used in InterFreqMeasQuantity ultra-CarrierRSSI is not allowed.
IntraFreqMeasQuantity-TDDList ::= SEQUENCE (SIZE (1..4)) OF
    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-RSCP OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity 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 MeasurementIdentity 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 MeasurementIdentity DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-HCS-ECN0 OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH OPTIONAL
}

IntraFreqMeasurementSysInfo-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-RSCP-LCR-r4 OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH-LCR-r4 OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-ECN0-LCR-r4 OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH-LCR-r4 OPTIONAL
}

```

```

}

IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID      MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List     IntraFreqCellInfoSI-List-HCS-RSCP-LCR-r4  OPTIONAL,
    intraFreqMeasQuantity        IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH       MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH       ReportingInfoForCellDCH-LCR-r4    OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID      MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List     IntraFreqCellInfoSI-List-HCS-ECN0-LCR-r4  OPTIONAL,
    intraFreqMeasQuantity        IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH       MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH       ReportingInfoForCellDCH-LCR-r4    OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria    IntraFreqReportingCriteria,
    periodicalReportingCriteria    PeriodicalWithReportingCellStatus,
    noReporting                    ReportingCellStatusOpt
}

IntraFreqReportCriteria-r4 ::= CHOICE {
    intraFreqReportingCriteria    IntraFreqReportingCriteria-r4,
    periodicalReportingCriteria    PeriodicalWithReportingCellStatus,
    noReporting                    ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList             IntraFreqEventCriteriaList    OPTIONAL
}

IntraFreqReportingCriteria-r4 ::= SEQUENCE {
    eventCriteriaList             IntraFreqEventCriteriaList-r4  OPTIONAL
}

IntraFreqReportingCriteria-LCR-r4 ::= SEQUENCE {
    eventCriteriaList             IntraFreqEventCriteriaList-LCR-r4  OPTIONAL
}

IntraFreqReportingQuantity ::= 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	OPTIONAL
}		
IntraFrequencyMeasurement-r4 ::=	SEQUENCE {	
intraFreqCellInfoList	IntraFreqCellInfoList-r4	OPTIONAL,
intraFreqMeasQuantity	IntraFreqMeasQuantity	OPTIONAL,
intraFreqReportingQuantity	IntraFreqReportingQuantity	OPTIONAL,
measurementValidity	MeasurementValidity	OPTIONAL,
reportCriteria	IntraFreqReportCriteria-r4	OPTIONAL
}		
IODE ::=	INTEGER (0..255)	
IP-Length ::=	ENUMERATED {	
	ipl15, ipl10 }	
IP-PCCPCH-r4 ::=	BOOLEAN	
IP-Spacing ::=	ENUMERATED {	
	e5, e7, e10, e15, e20,	
	e30, e40, e50 }	
IP-Spacing-TDD ::=	ENUMERATED {	
	e30, e40, e50, e70, e100}	
IS-2000SpecificMeasInfo ::=	ENUMERATED {	
	frequency, timeslot, colourcode,	
	outputpower, pn-Offset }	
MaxNumberOfReportingCellsType1 ::=	ENUMERATED {	
	e1, e2, e3, e4, e5, e6}	
MaxNumberOfReportingCellsType2 ::=	ENUMERATED {	
	e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}	
MaxNumberOfReportingCellsType3 ::=	ENUMERATED {	
	viactCellsPlus1,	
	viactCellsPlus2,	
	viactCellsPlus3,	
	viactCellsPlus4,	
	viactCellsPlus5,	
	viactCellsPlus6 }	
MaxReportedCellsOnRACH ::=	ENUMERATED {	
	noReport,	
	currentCell,	
	currentAnd-1-BestNeighbour,	
	currentAnd-2-BestNeighbour,	
	currentAnd-3-BestNeighbour,	
	currentAnd-4-BestNeighbour,	
	currentAnd-5-BestNeighbour,	
	currentAnd-6-BestNeighbour }	
MeasuredResults ::=	CHOICE {	
intraFreqMeasuredResultsList	IntraFreqMeasuredResultsList,	
interFreqMeasuredResultsList	InterFreqMeasuredResultsList,	
interRATMeasuredResultsList	InterRATMeasuredResultsList,	
trafficVolumeMeasuredResultsList	TrafficVolumeMeasuredResultsList,	
qualityMeasuredResults	QualityMeasuredResults,	
ue-InternalMeasuredResults	UE-InternalMeasuredResults,	
ue-positioning-MeasuredResults	UE-Positioning-MeasuredResults,	
spare	NULL	
}		
MeasuredResults-v390ext ::=	SEQUENCE {	
ue-positioning-MeasuredResults-v390ext	UE-Positioning-MeasuredResults-v390ext	
}		
MeasuredResults-LCR-r4 ::=	CHOICE {	
intraFreqMeasuredResultsList	IntraFreqMeasuredResultsList,	
interFreqMeasuredResultsList	InterFreqMeasuredResultsList,	
interRATMeasuredResultsList	InterRATMeasuredResultsList,	
trafficVolumeMeasuredResultsList	TrafficVolumeMeasuredResultsList,	
qualityMeasuredResults	QualityMeasuredResults,	
ue-InternalMeasuredResults	UE-InternalMeasuredResults-LCR-r4,	
ue-positioning-MeasuredResults	UE-Positioning-MeasuredResults,	
spare	NULL	

```

}

MeasuredResultsList ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                        MeasuredResults

MeasuredResultsList-LCR-r4-ext ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                   MeasuredResults-LCR-r4

MeasuredResultsOnRACH ::= SEQUENCE {
  currentCell          SEQUENCE {
    modeSpecificInfo   CHOICE {
      fdd               SEQUENCE {
        measurementQuantity CHOICE {
          cpich-Ec-N0    CPICH-Ec-N0,
          cpich-RSCP     CPICH-RSCP,
          pathloss       Pathloss,
          spare          NULL,
        }
      },
      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
}

MeasurementCommand-r4 ::= CHOICE {
  setup                MeasurementType-r4,
  modify               SEQUENCE {
    measurementType    MeasurementType-r4 OPTIONAL
  },
  release              NULL
}

MeasurementControlSysInfo ::= SEQUENCE {
  use-of-HCS          CHOICE {
    hcs-not-used      SEQUENCE {
      cellSelectQualityMeasure CHOICE {
        cpich-RSCP      SEQUENCE {
          intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-RSCP
        } OPTIONAL,
        interFreqMeasurementSysInfo   InterFreqMeasurementSysInfo-RSCP OPTIONAL
      },
      cpich-Ec-N0      SEQUENCE {
        intraFreqMeasurementSysInfo   IntraFreqMeasurementSysInfo-ECN0
      } OPTIONAL,
        interFreqMeasurementSysInfo   InterFreqMeasurementSysInfo-ECN0 OPTIONAL
      }
    },
    interRATMeasurementSysInfo        InterRATMeasurementSysInfo-B OPTIONAL
  },
  hcs-used                            SEQUENCE {
    cellSelectQualityMeasure          CHOICE {
      cpich-RSCP                      SEQUENCE {
        intraFreqMeasurementSysInfo   IntraFreqMeasurementSysInfo-HCS-RSCP
      } OPTIONAL,
        interFreqMeasurementSysInfo   InterFreqMeasurementSysInfo-HCS-RSCP
      } OPTIONAL
    },
    cpich-Ec-N0                      SEQUENCE {
      intraFreqMeasurementSysInfo     IntraFreqMeasurementSysInfo-HCS-ECN0
    } OPTIONAL,
    interFreqMeasurementSysInfo       InterFreqMeasurementSysInfo-HCS-ECN0
  } OPTIONAL
  },
  interRATMeasurementSysInfo          InterRATMeasurementSysInfo OPTIONAL
},
}

```

```

    trafficVolumeMeasSysInfo          TrafficVolumeMeasSysInfo          OPTIONAL,
    ue-InternalMeasurementSysInfo      UE-InternalMeasurementSysInfo      OPTIONAL
}

MeasurementControlSysInfo-LCR-r4-ext ::= SEQUENCE {
-- The following CHOICE shall have the same value as the use-of-HCS in MeasurementControlSysInfo
  use-of-HCS                           CHOICE {
    hcs-not-used                         SEQUENCE {
-- The following CHOICE shall have the same value as the cellSelectQualityMeasure in
-- MeasurementControlSysInfo
      cellSelectQualityMeasure          CHOICE {
        cpich-RSCP                      SEQUENCE {
          intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo-RSCP-LCR-r4 OPTIONAL,
          interFreqMeasurementSysInfo  InterFreqMeasurementSysInfo-RSCP-LCR-r4 OPTIONAL
        },
        cpich-Ec-N0                    SEQUENCE {
          intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo-ECN0-LCR-r4 OPTIONAL,
          interFreqMeasurementSysInfo  InterFreqMeasurementSysInfo-ECN0-LCR-r4 OPTIONAL
        }
      }
    },
    hcs-used                             SEQUENCE {
-- The following CHOICE shall have the same value as the cellSelectQualityMeasure in
-- MeasurementControlSysInfo
      cellSelectQualityMeasure          CHOICE {
        cpich-RSCP                      SEQUENCE {
OPTIONAL,
          intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo-HCS-RSCP-LCR-r4
OPTIONAL,
          interFreqMeasurementSysInfo  InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 OPTIONAL
        },
        cpich-Ec-N0                    SEQUENCE {
OPTIONAL,
          intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4
OPTIONAL,
          interFreqMeasurementSysInfo  InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 OPTIONAL
        }
      }
    }
  }
}

MeasurementIdentity ::= INTEGER (1..16)

MeasurementQuantityGSM ::= ENUMERATED {
  gsm-CarrierRSSI,
  dummy }

MeasurementReportingMode ::= SEQUENCE {
  measurementReportTransferMode      TransferMode,
  periodicalOrEventTrigger           PeriodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
  intraFrequencyMeasurement           IntraFrequencyMeasurement,
  interFrequencyMeasurement           InterFrequencyMeasurement,
  interRATMeasurement                InterRATMeasurement,
  ue-positioning-Measurement          UE-Positioning-Measurement,
  trafficVolumeMeasurement            TrafficVolumeMeasurement,
  qualityMeasurement                  QualityMeasurement,
  ue-InternalMeasurement              UE-InternalMeasurement
}

MeasurementType-r4 ::= CHOICE {
  intraFrequencyMeasurement-r4        IntraFrequencyMeasurement-r4,
  interFrequencyMeasurement-r4        InterFrequencyMeasurement-r4,
  interRATMeasurement-r4              InterRATMeasurement-r4,
  up-Measurement                      UE-Positioning-Measurement-r4,
  trafficVolumeMeasurement-r4         TrafficVolumeMeasurement-r4,
  qualityMeasurement-r4                QualityMeasurement-r4,
  ue-InternalMeasurement-r4           UE-InternalMeasurement-r4
}

MeasurementValidity ::= SEQUENCE {
  ue-State                            ENUMERATED {
    cell-DCH, all-But-Cell-DCH, all-States }
}

MonitoredCellRACH-List ::= SEQUENCE (SIZE (1..87)) OF

```

```

                                MonitoredCellRACH-Result
MonitoredCellRACH-Result ::=
  sfN-SFN-ObsTimeDifference      SEQUENCE {
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      primaryCPICH-Info          PrimaryCPICH-Info,
      measurementQuantity       CHOICE {
        cpich-Ec-NO             CPICH-Ec-NO,
        cpich-RSCP              CPICH-RSCP,
        pathloss                 Pathloss,
        spare                     NULL
      }
    }
  },
  tdd                            SEQUENCE {
    cellParametersID            CellParametersID,
    primaryCCPCH-RSCP          PrimaryCCPCH-RSCP
  }
}
                                OPTIONAL

MultipathIndicator ::=
  enumerated {
    nm,
    low,
    medium,
    high
  }

N-CR-T-CRMaxHyst ::=
  n-CR                          SEQUENCE {
  t-CRMaxHyst                    INTEGER (1..16)
}
                                DEFAULT 8,

NavigationModelSatInfo ::=
  satID                          SEQUENCE {
  satelliteStatus                SatID,
  ephemerisParameter            SatelliteStatus,
}
                                EphemerisParameter OPTIONAL

NavigationModelSatInfoList ::=
  SEQUENCE (SIZE (1..maxSat)) OF
  NavigationModelSatInfo

EphemerisParameter ::=
  codeOnL2                       SEQUENCE {
  uraIndex                       BIT STRING (SIZE (2)),
  satHealth                       BIT STRING (SIZE (4)),
  iodc                             BIT STRING (SIZE (6)),
  l2Pflag                          BIT STRING (SIZE (10)),
  sflRevd                          BIT STRING (SIZE (1)),
  subFrameReserved                SubFrameReserved,
  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))
}

NC-Mode ::=
  BIT STRING (SIZE (3))

Neighbour ::=
  modeSpecificInfo              SEQUENCE {
    fdd                          CHOICE {
      neighbourIdentity          SEQUENCE {
        primaryCPICH-Info
      }
    }
}
                                OPTIONAL,

```

```

        ue-RX-TX-TimeDifferenceType2Info    UE-RX-TX-TimeDifferenceType2Info    OPTIONAL
    },
    tdd                                     SEQUENCE {
        neighbourAndChannelIdentity        CellAndChannelIdentity                OPTIONAL
    }
},
neighbourQuality                          NeighbourQuality,
sfn-SFN-ObsTimeDifference2                SFN-SFN-ObsTimeDifference2}

Neighbour-v390ext ::=
    modeSpecificInfo                       CHOICE {
        fdd                                 SEQUENCE {
            frequencyInfo                   FrequencyInfo
        },
        tdd                                 NULL
    }
}

NeighbourList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbour

NeighbourList-v390ext ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbour-v390ext
-- The order of the cells in IE NeighbourList-v390ext shall be the
-- same as the order in IE NeighbourList

NeighbourQuality ::=
    ue-Positioning-OTDOA-Quality           UE-Positioning-OTDOA-Quality
}

NewInterFreqCell ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 OPTIONAL
}

NewInterFreqCell-r4 ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfo-r4
}

NewInterFreqCellList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCell

NewInterFreqCellList-r4 ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCell-r4

NewInterFreqCellSI-RSCP ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfoSI-RSCP
}

NewInterFreqCellSI-ECN0 ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfoSI-ECN0
}

NewInterFreqCellSI-HCS-RSCP ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfoSI-HCS-RSCP
}

NewInterFreqCellSI-HCS-ECN0 ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfoSI-HCS-ECN0
}

NewInterFreqCellSI-RSCP-LCR-r4 ::=
    interFreqCellID                        OPTIONAL,
    frequencyInfo                           OPTIONAL,
    cellInfo                                 CellInfoSI-RSCP-LCR-r4
}

```



```

NewInterFreqCellSI-ECNO-LCR-r4 ::=
    interFreqCellID
    frequencyInfo
    cellInfo
}
SEQUENCE {
    InterFreqCellID
    FrequencyInfo
    CellInfoSI-ECNO-LCR-r4
}
OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-HCS-RSCP-LCR-r4 ::=
    interFreqCellID
    frequencyInfo
    cellInfo
}
SEQUENCE {
    InterFreqCellID
    FrequencyInfo
    CellInfoSI-HCS-RSCP-LCR-r4
}
OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-HCS-ECNO-LCR-r4 ::=
    interFreqCellID
    frequencyInfo
    cellInfo
}
SEQUENCE {
    InterFreqCellID
    FrequencyInfo
    CellInfoSI-HCS-ECNO-LCR-r4
}
OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-List-ECNO ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-ECNO

NewInterFreqCellSI-List-HCS-RSCP ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECNO ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-ECNO

NewInterFreqCellSI-List-RSCP ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-RSCP

NewInterFreqCellSI-List-ECNO-LCR-r4 ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-ECNO-LCR-r4

NewInterFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-RSCP-LCR-r4

NewInterFreqCellSI-List-HCS-ECNO-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-ECNO-LCR-r4

NewInterFreqCellSI-List-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-RSCP-LCR-r4

NewInterRATCell ::=
    interRATCellID
    technologySpecificInfo
    gsm
        cellSelectionReselectionInfo
        interRATCellIndividualOffset
        bsic
        frequency-band
        bcch-ARFCN
        dummy
    },
    is-2000
        is-2000SpecificMeasInfo
    },
    none
    -- ASN.1 inconsistency: NewInterRATCellList should be optional within
    -- InterRATCellInfoList. The UE shall consider IE NewInterRATCell with
    -- technologySpecificInfo set to "none" as valid and handle the
    -- message as if the IE NewInterRATCell was absent
    spare1
}
SEQUENCE {
    InterRATCellID
    CHOICE {
        SEQUENCE {
            CellSelectReselectInfoSIB-11-12
            InterRATCellIndividualOffset,
            BSIC,
            Frequency-Band,
            BCCH-ARFCN,
            NULL
        }
        SEQUENCE {
            IS-2000SpecificMeasInfo
        }
        NULL,
        NULL
    }
}
OPTIONAL,
OPTIONAL,

NewInterRATCell-B ::=
    interRATCellID
    technologySpecificInfo
    gsm
        cellSelectionReselectionInfo
        interRATCellIndividualOffset
        bsic
        frequency-band
        bcch-ARFCN
        dummy
    },
    is-2000
        is-2000SpecificMeasInfo
}
SEQUENCE {
    InterRATCellID
    CHOICE {
        SEQUENCE {
            CellSelectReselectInfoSIB-11-12
            InterRATCellIndividualOffset,
            BSIC,
            Frequency-Band,
            BCCH-ARFCN,
            NULL
        }
        SEQUENCE {
            IS-2000SpecificMeasInfo
        }
    }
}
OPTIONAL,
OPTIONAL,

```

```

    },
    none
    NULL,
    -- ASN.1 inconsistency: NewInterRATCellList-B should be optional within
    -- InterRATCellInfoList-B. The UE shall consider IE NewInterRATCell-B with
    -- technologySpecificInfo set to "none" as valid and handle the
    -- message as if the IE NewInterRATCell-B was absent
    spare1
    NULL
  }
}

NewInterRATCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterRATCell

NewInterRATCellList-B ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterRATCell-B

NewIntraFreqCell ::= SEQUENCE {
  intraFreqCellID
  CellInfo
} OPTIONAL,

NewIntraFreqCell-r4 ::= SEQUENCE {
  intraFreqCellID
  CellInfo-r4
} OPTIONAL,

NewIntraFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewIntraFreqCell

NewIntraFreqCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewIntraFreqCell-r4

NewIntraFreqCellSI-RSCP ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-RSCP
} OPTIONAL,

NewIntraFreqCellSI-ECN0 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-ECN0
} OPTIONAL,

NewIntraFreqCellSI-HCS-RSCP ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-HCS-RSCP
} OPTIONAL,

NewIntraFreqCellSI-HCS-ECN0 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-HCS-ECN0
} OPTIONAL,

NewIntraFreqCellSI-RSCP-LCR-r4 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-RSCP-LCR-r4
} OPTIONAL,

NewIntraFreqCellSI-ECN0-LCR-r4 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-ECN0-LCR-r4
} OPTIONAL,

NewIntraFreqCellSI-HCS-RSCP-LCR-r4 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-HCS-RSCP-LCR-r4
} OPTIONAL,

NewIntraFreqCellSI-HCS-ECN0-LCR-r4 ::= SEQUENCE {
  intraFreqCellID
  CellInfoSI-HCS-ECN0-LCR-r4
} OPTIONAL,

NewIntraFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewIntraFreqCellSI-HCS-RSCP

```

```

NewIntraFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-HCS-ECN0

NewIntraFreqCellSI-List-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-RSCP-LCR-r4

NewIntraFreqCellSI-List-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-ECN0-LCR-r4

NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-HCS-RSCP-LCR-r4

NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCellSI-HCS-ECN0-LCR-r4

NonUsedFreqParameter ::= SEQUENCE {
    nonUsedFreqThreshold Threshold,
    -- IE "nonUsedFreqThreshold" is not needed in case of event 2a
    -- In case of event 2a UTRAN should include value 0 within IE "nonUsedFreqThreshold"
    -- In case of event 2a, the UE shall be ignore IE "nonUsedFreqThreshold"
    -- In later versions of the message including this IE, a special version of
    -- IE "NonUsedFreqParameterList" may be defined for event 2a, namely a
    -- version not including IE "nonUsedFreqThreshold"
    nonUsedFreqW W
}

NonUsedFreqParameterList ::= SEQUENCE (SIZE (1..maxFreq)) OF
NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::= INTEGER (0..4095)

OTDOA-SearchWindowSize ::= ENUMERATED {
    c20, c40, c80, c160, c320,
    c640, c1280, moreThan1280 }

-- SPARE: Pathloss, Max= 158
-- Values above Max are spare
Pathloss ::= INTEGER (46..158173)

PenaltyTime-RSCP ::= CHOICE {
    notUsed NULL,
    pt10 TemporaryOffset1,
    pt20 TemporaryOffset1,
    pt30 TemporaryOffset1,
    pt40 TemporaryOffset1,
    pt50 TemporaryOffset1,
    pt60 TemporaryOffset1
}

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
}

```

```

PLMNIdentitiesOfNeighbourCells ::= SEQUENCE {
    plmnsOfIntraFreqCellsList      PLMNsOfIntraFreqCellsList      OPTIONAL,
    plmnsOfInterFreqCellsList      PLMNsOfInterFreqCellsList      OPTIONAL,
    plmnsOfInterRATCellsList       PLMNsOfInterRATCellsList       OPTIONAL
}

PLMNsOfInterFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity              PLMN-Identity              OPTIONAL
    }

PLMNsOfIntraFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity              PLMN-Identity              OPTIONAL
    }

PLMNsOfInterRATCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity              PLMN-Identity              OPTIONAL
    }

PositionEstimate ::= CHOICE {
    ellipsoidPoint                EllipsoidPoint,
    ellipsoidPointUncertCircle     EllipsoidPointUncertCircle,
    ellipsoidPointUncertEllipse    EllipsoidPointUncertEllipse,
    ellipsoidPointAltitude         EllipsoidPointAltitude,
    ellipsoidPointAltitudeEllipso EllipsoidPointAltitudeEllipsoide
}

PositioningMethod ::= ENUMERATED {
    otdoa,
    gps,
    otdoaOrGPS, cellID }

-- Actual value = IE value * 0.32
PRC ::= INTEGER (-2047..2047)

-- SPARE: PrimaryCCPCH-RSCP, Max= 91
-- Values above Max are spare
PrimaryCCPCH-RSCP ::= INTEGER (0..91127)

Q-HCS ::= INTEGER (0..99)

Q-OffsetS-N ::= INTEGER (-50..50)

Q-QualMin ::= INTEGER (-24..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,
    modeSpecificInfo              CHOICE {
        fdd                        NULL,
        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,
        tdd                       SEQUENCE {
            sir-TFCS-List         SIR-TFCS-List           OPTIONAL
        }
    }
}

RAT-Type ::= ENUMERATED {
    gsm, is2000 }

ReferenceCellPosition ::= CHOICE {
    ellipsoidPoint                EllipsoidPoint,
    ellipsoidPointWithAltitude    EllipsoidPointAltitude
}

-- As defined in 23.032
ReferenceLocation ::= SEQUENCE {
    ellipsoidPointAltitudeEllipsoide    EllipsoidPointAltitudeEllipsoide
}

ReferenceSFN ::= INTEGER (0..4095)

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
}

RemovedInterRATCellList ::= CHOICE {
    removeAllInterRATCells        NULL,
    removeSomeInterRATCells       SEQUENCE (SIZE (1..maxCellMeas)) OF
        InterRATCellID,
    removeNoInterRATCells        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,
withinMonitoredAndOrVirtualActiveSetNonUsedFreq
MaxNumberOfReportingCellsType1,
allVirtualActSetplusMonitoredSetNonUsedFreq
MaxNumberOfReportingCellsType3,
withinActSetOrVirtualActSet-InterRATcells
MaxNumberOfReportingCellsType2,
withinActSetAndOrMonitoredUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreq
MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::= SEQUENCE {
    reportingCellStatus ReportingCellStatus OPTIONAL
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity IntraFreqReportingQuantity,
    measurementReportingMode MeasurementReportingMode,
    reportCriteria CellDCH-ReportCriteria
}

ReportingInfoForCellDCH-LCR-r4 ::= SEQUENCE {
    intraFreqReportingQuantity IntraFreqReportingQuantity,
    measurementReportingMode MeasurementReportingMode,
    reportCriteria CellDCH-ReportCriteria-LCR-r4
}

ReportingInterval ::= ENUMERATED {
    noPeriodicalreporting, ri0-25,
    ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::= ENUMERATED {
    ril0, ril0-25, ril0-5, ril1,
    ril2, ril3, ril4, ril6, ril8,
    ril12, ril16, ril20, ril24,
    ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::= INTEGER (0..29)

RL-AdditionInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList RL-AdditionInfoList OPTIONAL,
    rL-RemovalInformationList RL-RemovalInformationList OPTIONAL
}

RLC-BuffersPayload ::= ENUMERATED {
    p10, p14, p18, p116, p132,
    p164, p1128,
    p1256, p1512, p11024,
    p12k, p14k,
    p18k, p116k, p132k,
    p164k, p1128k,
    p1256k, p1512k, p11024k,
    spare12, spare11, spare10, spare9, spare8,
    spare7, spare6, spare5, spare4, spare3,
    spare2, spare1 }

-- Actual value = IE value * 0.032
RRC ::= INTEGER (-127..127)

SatData ::= SEQUENCE{
    satID SatID,
    iode IODE
}

```

```

SatDataList ::=
    SEQUENCE (SIZE (0..maxSat)) OF
        SatData

SatelliteStatus ::=
    ENUMERATED {
        ns-NN-U,
        es-SN,
        es-NN-U,
        rev2,
        rev }

SatID ::=
    INTEGER (0..63)

SFN-SFN-Drift ::=
    ENUMERATED {
        sfnsfndrift0, sfnsfndrift1, sfnsfndrift2,
        sfnsfndrift3, sfnsfndrift4, sfnsfndrift5,
        sfnsfndrift8, sfnsfndrift10, sfnsfndrift15,
        sfnsfndrift25, sfnsfndrift35, sfnsfndrift50,
        sfnsfndrift65, sfnsfndrift80, sfnsfndrift100,
        sfnsfndrift-1, sfnsfndrift-2, sfnsfndrift-3,
        sfnsfndrift-4, sfnsfndrift-5, sfnsfndrift-8,
        sfnsfndrift-10, sfnsfndrift-15, sfnsfndrift-25,
        sfnsfndrift-35, sfnsfndrift-50, sfnsfndrift-65,
        sfnsfndrift-80, sfnsfndrift-100}

SFN-SFN-ObsTimeDifference ::=
    CHOICE {
        type1
            SFN-SFN-ObsTimeDifference1,
        type2
            SFN-SFN-ObsTimeDifference2
    }

-- SPARE: SFN-SFN-ObsTimeDifference1, Max= 9830399
-- Values above Max are spare
SFN-SFN-ObsTimeDifference1 ::=
    INTEGER (0..983039916777215)

-- SPARE: SFN-SFN-ObsTimeDifference2, Max= 40961
-- Values above Max are spare
SFN-SFN-ObsTimeDifference2 ::=
    INTEGER (0..4096165535)

SFN-SFN-OTD-Type ::=
    ENUMERATED {
        noReport,
        type1,
        type2 }

SFN-SFN-RelTimeDifference1 ::=
    SEQUENCE {
        sfn-Offset
            INTEGER (0 .. 4095),
        sfn-sfn-Reltimedifference
            INTEGER (0.. 38399)
    }

SFN-TOW-Uncertainty ::=
    ENUMERATED {
        lessThan10,
        moreThan10 }

SIR ::=
    INTEGER (0..63)

SIR-MeasurementList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        SIR-MeasurementResults

SIR-MeasurementResults ::=
    SEQUENCE {
        tfcs-ID
            TFCS-IdentityPlain,
        sir-TimeslotList
            SIR-TimeslotList
    }

SIR-TFCS ::=
    TFCS-IdentityPlain

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-ADVinfo ::=
    t-ADV
    sfm
}

T-CRMax ::=
    notUsed
    t30
    t60
    t120
    t180
    t240
}

T-CRMaxHyst ::=
    notUsed, t10, t20, t30,
    t40, t50, t60, t70 }

TemporaryOffset1 ::=
    to3, to6, to9, to12, to15,
    to18, to21, infinite }

TemporaryOffset2 ::=
    to2, to3, to4, to6, to8,
    to10, to12, infinite }

TemporaryOffsetList ::=
    temporaryOffset1
    temporaryOffset2
}

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.
TimeInterval ::=
    INTEGER (1..13)

TimeslotInfo ::=
    timeslotNumber
    burstType
}

TimeslotInfo-LCR-r4 ::=
    timeslotNumber
}

TimeslotInfoList ::=
    SEQUENCE (SIZE (1..maxTS)) OF
        TimeslotInfo

TimeslotInfoList-LCR-r4 ::=
    SEQUENCE (SIZE (1..maxTS-LCR)) OF
        TimeslotInfo-LCR-r4

TimeslotInfoList-r4 ::=
    CHOICE {
        tdd384
            SEQUENCE (SIZE (1..maxTS)) OF
                TimeslotInfo,
        tdd128
            SEQUENCE (SIZE (1..maxTS-LCR)) OF
                TimeslotInfo-LCR-r4
    }
}

```



```

-- SPARE: TimeslotISCP, Max= 91
-- Values above Max are spare
TimeslotISCP ::= INTEGER (0..91127)

-- The following list shall not include more than 6 elements in 1.28Mcps TDD mode.
TimeslotISCP-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotISCP

TimeslotListWithISCP ::= SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotWithISCP

TimeslotWithISCP ::= SEQUENCE {
    timeslot TimeslotNumber,
    timeslotISCP TimeslotISCP
}

TimeToTrigger ::= ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, ttt320, 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 UL-TrCH-Identity,
    trafficVolumeEventIdentity TrafficVolumeEventType
}

TrafficVolumeEventType ::= ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasQuantity ::= CHOICE {
    rlc-BufferPayload NULL,
    averageRLC-BufferPayload TimeInterval,
    varianceOfRLC-BufferPayload TimeInterval
}

TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID MeasurementIdentity DEFAULT 4,
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity TrafficVolumeMeasQuantity OPTIONAL,
    trafficVolumeReportingQuantity TrafficVolumeReportingQuantity OPTIONAL,
    dummy TrafficVolumeReportingCriteria OPTIONAL,
    -- Above IE is not used in this version of protocol
    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
                                         UL-TrCH-Identity

TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                       NULL
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria
}

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList               TransChCriteriaList                OPTIONAL
--NOTE: IE "transChCriteriaList" should be mandatory in later versions of this message
}

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              UL-TrCH-Identity                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,
-- in 1.28 Mcps TDD ue-RX-TX-TimeDifferenceThreshold corresponds to TADV Threshold

```

```

    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_
    spare                               NULL
}

UE-InternalMeasQuantity ::=          SEQUENCE {
    measurementQuantity                UE-MeasurementQuantity,
    filterCoefficient                  FilterCoefficient                DEFAULT fc0
}

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-InternalMeasuredResults-LCR-r4 ::= SEQUENCE {
    ue-TransmittedPowerTDD-List        UE-TransmittedPowerTDD-List    OPTIONAL,
    t-ADVinfo                          T-ADVinfo                       OPTIONAL
}

UE-InternalMeasurement ::=           SEQUENCE {
    ue-InternalMeasQuantity             UE-InternalMeasQuantity         OPTIONAL,
    ue-InternalReportingQuantity        UE-InternalReportingQuantity    OPTIONAL,
    reportCriteria                       UE-InternalReportCriteria
}

UE-InternalMeasurement-r4 ::=        SEQUENCE {
    ue-InternalMeasQuantity             UE-InternalMeasQuantity         OPTIONAL,
    ue-InternalReportingQuantity        UE-InternalReportingQuantity-r4 OPTIONAL,
    reportCriteria                       UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::=    SEQUENCE {
    ue-InternalMeasurementID            MeasurementIdentity              DEFAULT 5,
    ue-InternalMeasQuantity             UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::=        CHOICE {
    ue-InternalReportingCriteria        UE-InternalReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                          NULL
}

```

```

UE-InternalReportingCriteria ::= SEQUENCE {
    ue-InternalEventParamList    UE-InternalEventParamList    OPTIONAL
}

UE-InternalReportingQuantity ::= SEQUENCE {
    ue-TransmittedPower          BOOLEAN,
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            ue-RX-TX-TimeDifference    BOOLEAN
        },
        tdd                      SEQUENCE {
            appliedTA                BOOLEAN
        }
    }
}

UE-InternalReportingQuantity-r4 ::= SEQUENCE {
    ue-TransmittedPower          BOOLEAN,
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            ue-RX-TX-TimeDifference    BOOLEAN
        },
        tdd                      SEQUENCE {
            tddOption              CHOICE {
                tdd384             SEQUENCE {
                    appliedTA        BOOLEAN
                },
                tdd128             SEQUENCE {
                    t-ADVinfo        BOOLEAN
                }
            }
        }
    }
}

-- TABULAR: For 3.84 Mcps TDD only the first two values are used.
-- for 1.28 Mcps TDD ue-RX-TX-TimeDifference corresponds to TADV in the tabular
UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info           PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1 UE-RX-TX-TimeDifferenceType1
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxRL)) OF
    UE-RX-TX-ReportEntry

-- SPARE: UE-RX-TX-TimeDifferenceType1, Max= 1280
-- Values above Max are spare
UE-RX-TX-TimeDifferenceType1 ::= INTEGER (768..12801791)

-- Actual value = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)

UE-RX-TX-TimeDifferenceType2Info ::= SEQUENCE {
    ue-RX-TX-TimeDifferenceType2    UE-RX-TX-TimeDifferenceType2,
    neighbourQuality                NeighbourQuality
}

--in 1.28 Mcps TDD actual value for TADV Threshold = (UE-RX-TX-TimeDifferenceThreshold - 768) * 0.125
UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

UE-TransmittedPower ::= INTEGER (0..104)

UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    UE-TransmittedPower

UL-TrCH-Identity ::= CHOICE{
    dch                TransportChannelIdentity,
    -- Default transport channel in the UL is either RACH or CPCH, but not both.
    rachorcpch         NULL,
    usch               TransportChannelIdentity
}

```

```

UE-Positioning-Accuracy ::=                               BIT STRING (SIZE (7))

UE-Positioning-CipherParameters ::=                     SEQUENCE {
  cipheringKeyFlag          BIT STRING (SIZE (1)),
  cipheringSerialNumber     INTEGER (0..65535)
}

UE-Positioning-Error ::=                               SEQUENCE {
  errorReason               UE-Positioning-ErrorCause,
  ue-positioning-GPS-additionalAssistanceDataRequest  UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
}

UE-Positioning-ErrorCause ::=                          ENUMERATED {
  notEnoughOTDOA-Cells,
  notEnoughGPS-Satellites,
  assistanceDataMissing,
  methodNotSupported,
  undefinedError,
  requestDeniedByUser,
  notProcessedAndTimeout ,
  referenceCellNotServingCell }

UE-Positioning-EventParam ::=                          SEQUENCE {
  reportingAmount           ReportingAmount,
  reportFirstFix            BOOLEAN,
  measurementInterval       UE-Positioning-MeasurementInterval,
  eventSpecificInfo         UE-Positioning-EventSpecificInfo
}

UE-Positioning-EventParamList ::=                      SEQUENCE (SIZE (1..maxMeasEvent)) OF
UE-Positioning-EventParam

UE-Positioning-EventSpecificInfo ::=                   CHOICE {
  e7a                       ThresholdPositionChange,
  e7b                       ThresholdSFN-SFN-Change,
  e7c                       ThresholdSFN-GPS-TOW
}

UE-Positioning-GPS-AcquisitionAssistance ::=          SEQUENCE {
  gps-ReferenceTime         INTEGER (0..604799999),
  utran-GPSReferenceTime    UTRAN-GPSReferenceTime          OPTIONAL,
  satelliteInformationList  AcquisitionSatInfoList
}

UE-Positioning-GPS-AdditionalAssistanceDataRequest ::= SEQUENCE {
  almanacRequest            BOOLEAN,
  utcModelRequest           BOOLEAN,
  ionosphericModelRequest  BOOLEAN,
  navigationModelRequest   BOOLEAN,
  dgpsCorrectionsRequest   BOOLEAN,
  referenceLocationRequest  BOOLEAN,
  referenceTimeRequest      BOOLEAN,
  acquisitionAssistanceRequest  BOOLEAN,
  realTimeIntegrityRequest  BOOLEAN,
  navModelAddDataRequest   UE-Positioning-GPS-NavModelAddDataReq  OPTIONAL
}

UE-Positioning-GPS-Almanac ::=                        SEQUENCE {
  wn-a                      BIT STRING (SIZE (8)),
  almanacSatInfoList       AlmanacSatInfoList,
  sv-GlobalHealth          BIT STRING (SIZE (364))          OPTIONAL
}

UE-Positioning-GPS-AssistanceData ::=                 SEQUENCE {
  ue-positioning-GPS-ReferenceTime  UE-Positioning-GPS-ReferenceTime
OPTIONAL,
  ue-positioning-GPS-ReferenceLocation  ReferenceLocation          OPTIONAL,
  ue-positioning-GPS-DGPS-Corrections  UE-Positioning-GPS-DGPS-Corrections
OPTIONAL,
  ue-positioning-GPS-NavigationModel   UE-Positioning-GPS-NavigationModel
OPTIONAL,
  ue-positioning-GPS-IonosphericModel  UE-Positioning-GPS-IonosphericModel
OPTIONAL,
  ue-positioning-GPS-UTC-Model         UE-Positioning-GPS-UTC-Model
OPTIONAL,

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    ue-positioning-GPS-Almanac                UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance  UE-Positioning-GPS-AcquisitionAssistance
    OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity     BadSatList                                OPTIONAL,
    ue-positioning-GPS-referenceCellInfo     UE-Positioning-GPS-ReferenceCellInfo
    OPTIONAL
}

UE-Positioning-GPS-DGPS-Corrections ::= SEQUENCE {
    gps-TOW                INTEGER (0..604799),
    statusHealth           DiffCorrectionStatus,
    dgps-CorrectionSatInfoList  DGPS-CorrectionSatInfoList
}

UE-Positioning-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))
}

UE-Positioning-GPS-MeasurementResults ::= SEQUENCE {
    referenceTime        CHOICE {
        utran-GPSReferenceTimeResult  UTRAN-GPSReferenceTimeResult,
        gps-ReferenceTimeOnly         INTEGER (0..604799999)
    },
    gps-MeasurementParamList  GPS-MeasurementParamList
}

UE-Positioning-GPS-NavigationModel ::= SEQUENCE {
    navigationModelSatInfoList  NavigationModelSatInfoList
}

UE-Positioning-GPS-NavModelAddDataReq ::= SEQUENCE {
    gps-Week                INTEGER (0..1023),
    gps-Toe                INTEGER (0..167255),
    gps-Toe                INTEGER (0..167255),
    gps-Toe                INTEGER (0..167255),
    gps-Toe                INTEGER (0..167255),
    tToeLimit              INTEGER (0..1015),
    satDataList            SatDataList
}

UE-Positioning-GPS-ReferenceCellInfo ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            referenceIdentity  PrimaryCPICH-Info
        },
        tdd                SEQUENCE {
            referenceIdentity  CellParametersID
        }
    }
}

UE-Positioning-GPS-ReferenceTime ::= SEQUENCE {
    gps-Week                INTEGER (0..1023),
    gps-tow-lmsec           GPS-TOW-lmsec,    utran-GPSReferenceTime  UTRAN-
GPSReferenceTime        OPTIONAL,
    sfn-tow-Uncertainty    SFN-TOW-Uncertainty    OPTIONAL,
    utran-GPS-DriftRate    UTRAN-GPS-DriftRate    OPTIONAL,
    gps-TOW-AssistList     GPS-TOW-AssistList    OPTIONAL
}

UE-Positioning-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))
}

```

```

}

UE-Positioning-IPDL-Parameters ::=          SEQUENCE {
  ip-Spacing          IP-Spacing,
  ip-Length          IP-Length,
  ip-Offset          INTEGER (0..9),
  seed              INTEGER (0..63),
  burstModeParameters BurstModeParameters OPTIONAL
}

UE-Positioning-IPDL-Parameters-r4 ::=      SEQUENCE {
  modeSpecificInfo   CHOICE {
    fdd              SEQUENCE {
      ip-Spacing    IP-Spacing,
      ip-Length     IP-Length,
      ip-Offset     INTEGER (0..9),
      seed          INTEGER (0..63)
    },
    tdd              SEQUENCE {
      ip-Spacing-TDD IP-Spacing-TDD,
      ip-slot        INTEGER (0..14),
      ip-Start       INTEGER (0..4095),
      ip-PCCPCG      IP-PCCPCH-r4 OPTIONAL
    }
  },
  burstModeParameters BurstModeParameters
}

UE-Positioning-IPDL-Parameters-TDD-r4-ext ::= SEQUENCE {
  ip-Spacing          IP-Spacing-TDD,
  ip-slot            INTEGER (0..14),
  ip-Start           INTEGER (0..4095),
  ip-PCCPCG          IP-PCCPCH-r4 OPTIONAL,
  burstModeParameters BurstModeParameters
}

UE-Positioning-MeasuredResults ::=         SEQUENCE {
  ue-positioning-OTDOA-Measurement        UE-Positioning-OTDOA-Measurement
  OPTIONAL,
  ue-positioning-PositionEstimateInfo     UE-Positioning-PositionEstimateInfo
  OPTIONAL,
  ue-positioning-GPS-MeasurementResults   UE-Positioning-GPS-MeasurementResults
  OPTIONAL,
  ue-positioning-Error                    UE-Positioning-Error
  OPTIONAL
}

UE-Positioning-MeasuredResults-v390ext ::= SEQUENCE {
  ue-Positioning-OTDOA-Measurement-v390ext UE-Positioning-OTDOA-Measurement-v390ext
}

UE-Positioning-Measurement ::=            SEQUENCE {
  ue-positioning-ReportingQuantity        UE-Positioning-ReportingQuantity,
  reportCriteria                          UE-Positioning-ReportCriteria,
  ue-positioning-OTDOA-AssistanceData     UE-Positioning-OTDOA-AssistanceData
  OPTIONAL,
  ue-positioning-GPS-AssistanceData       UE-Positioning-GPS-AssistanceData
  OPTIONAL
}

UE-Positioning-Measurement-v390ext ::=    SEQUENCE {
  ue-positioning-ReportingQuantity-v390ext UE-Positioning-ReportingQuantity-v390ext
  OPTIONAL,
  measurementValidity                      MeasurementValidity OPTIONAL,
  ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB
  OPTIONAL
}

UE-Positioning-Measurement-r4 ::=        SEQUENCE {
  ue-positioning-ReportingQuantity        UE-Positioning-ReportingQuantity,
  reportCriteria                          UE-Positioning-ReportCriteria,
  ue-positioning-OTDOA-AssistanceData     UE-Positioning-OTDOA-AssistanceData-r4
  OPTIONAL,
  ue-positioning-GPS-AssistanceData       UE-Positioning-GPS-AssistanceData
  OPTIONAL
}

UE-Positioning-MeasurementEventResults ::= CHOICE {

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event7a          UE-Positioning-PositionEstimateInfo,
event7b          UE-Positioning-OTDOA-Measurement,
event7c          UE-Positioning-GPS-MeasurementResults,
spare            NULL
}

UE-Positioning-MeasurementInterval ::=          ENUMERATED {
e5, e15, e60, e300,
e900, e1800, e3600, e7200 }

UE-Positioning-MethodType ::=                  ENUMERATED {
ue-Assisted,
ue-Based,
ue-BasedPreferred,
ue-AssistedPreferred }

UE-Positioning-OTDOA-AssistanceData ::=        SEQUENCE {
ue-positioning-OTDOA-ReferenceCellInfo        UE-Positioning-OTDOA-ReferenceCellInfo
OPTIONAL,
ue-positioning-OTDOA-NeighbourCellList        UE-Positioning-OTDOA-NeighbourCellList
OPTIONAL
}

UE-Positioning-OTDOA-AssistanceData-r4 ::=     SEQUENCE {
ue-positioning-OTDOA-ReferenceCellInfo        UE-Positioning-OTDOA-ReferenceCellInfo-r4
OPTIONAL,
ue-positioning-OTDOA-NeighbourCellList        UE-Positioning-OTDOA-NeighbourCellList-r4
OPTIONAL
}

UE-Positioning-OTDOA-AssistanceData-r4ext ::= SEQUENCE {
-- In case of TDD these IPDL parameters shall be used for the reference cell instead of
-- IPDL Parameters in IE UE-Positioning-OTDOA-ReferenceCellInfo
ue-Positioning-IPDL-Parameters-TDD-r4-ext     UE-Positioning-IPDL-Parameters-TDD-r4-ext
OPTIONAL,
-- These IPDL parameters shall be used for the neighbour cells in case of TDD instead of
-- IPDL Parameters in IE UE-Positioning-OTDOA-NeighbourCellInfoList. The cells shall be
-- listed in the same order as in IE UE-Positioning-OTDOA-NeighbourCellInfoList
ue-Positioning-IPDL-Parameters-TDDList-r4-ext UE-Positioning-IPDL-Parameters-TDDList-r4-ext
OPTIONAL
}

UE-Positioning-OTDOA-AssistanceData-UEB ::=    SEQUENCE {
ue-positioning-OTDOA-ReferenceCellInfo-UEB    UE-Positioning-OTDOA-ReferenceCellInfo-UEB
OPTIONAL,
ue-positioning-OTDOA-NeighbourCellList-UEB    UE-Positioning-OTDOA-NeighbourCellList-
UEB
OPTIONAL
}

UE-Positioning-IPDL-Parameters-TDDList-r4-ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
UE-Positioning-IPDL-Parameters-TDD-r4-ext

UE-Positioning-OTDOA-Measurement ::=           SEQUENCE {
sfn                                             INTEGER (0..4095),
modeSpecificInfo                               CHOICE {
fdd                                             SEQUENCE {
referenceCellIdentity                          PrimaryCPICH-Info,
ue-RX-TX-TimeDifferenceType2Info              UE-RX-TX-TimeDifferenceType2Info
},
tdd                                             SEQUENCE {
referenceCellIdentity                          CellParametersID
}
},
neighbourList                                 NeighbourList
OPTIONAL
}

UE-Positioning-OTDOA-Measurement-v390ext ::=   SEQUENCE {
neighbourList-v390ext                          NeighbourList-v390ext
}

UE-Positioning-OTDOA-NeighbourCellInfo ::=     SEQUENCE {
modeSpecificInfo                               CHOICE {
fdd                                             SEQUENCE {
primaryCPICH-Info                             PrimaryCPICH-Info
},
tdd                                             SEQUENCE {
cellAndChannelIdentity                        CellAndChannelIdentity
}
}
}

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    },
    frequencyInfo                FrequencyInfo                OPTIONAL,
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters
    OPTIONAL,
    sfn-SFN-RelTimeDifference     SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                SFN-SFN-Drift                OPTIONAL,
    searchWindowSize             OTDOA-SearchWindowSize,
    positioningMode              CHOICE{
        ueBased                  SEQUENCE {},
        ueAssisted               SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellInfo-r4 ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd                SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd                SEQUENCE{
            cellAndChannelIdentity CellAndChannelIdentity
        }
    },
    frequencyInfo                FrequencyInfo                OPTIONAL,
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters-r4
    OPTIONAL,
    sfn-SFN-RelTimeDifference     SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                INTEGER (0..30),
    searchWindowSize             OTDOA-SearchWindowSize,
    positioningMode              CHOICE{
        ueBased              SEQUENCE {
            relativeNorth    INTEGER (-20000..20000)    OPTIONAL,
            relativeEast     INTEGER (-20000..20000)    OPTIONAL,
            relativeAltitude INTEGER (-4000..4000)        OPTIONAL,
            fineSFN-SFN      FineSFN-SFN              OPTIONAL,
            -- actual value = (IE value * 0.0625) + 876
            roundTripTime    INTEGER (0.. 32766)        OPTIONAL
        },
        ueAssisted           SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellInfo-UEB ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd                SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd                SEQUENCE{
            cellAndChannelIdentity CellAndChannelIdentity
        }
    },
    frequencyInfo                FrequencyInfo                OPTIONAL,
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters    OPTIONAL,
    sfn-SFN-RelTimeDifference     SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                SFN-SFN-Drift                OPTIONAL,
    searchWindowSize             OTDOA-SearchWindowSize,
    relativeNorth                INTEGER (-20000..20000)    OPTIONAL,
    relativeEast                  INTEGER (-20000..20000)    OPTIONAL,
    relativeAltitude              INTEGER (-4000..4000)        OPTIONAL,
    fineSFN-SFN                  FineSFN-SFN              OPTIONAL,
    -- actual value = (IE value * 0.0625) + 876
    roundTripTime                INTEGER (0..32766)        OPTIONAL
}

UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    UE-Positioning-OTDOA-NeighbourCellInfo

UE-Positioning-OTDOA-NeighbourCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    UE-Positioning-OTDOA-NeighbourCellInfo-r4

UE-Positioning-OTDOA-NeighbourCellList-UEB ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    UE-Positioning-OTDOA-NeighbourCellInfo-UEB

UE-Positioning-OTDOA-Quality ::= SEQUENCE {
    stdResolution                BIT STRING (SIZE (2)),
    numberOfOTDOA-Measurements  BIT STRING (SIZE (3)),
    stdOfOTDOA-Measurements     BIT STRING (SIZE (5))
}

```

```

UE-Positioning-OTDOA-ReferenceCellInfo ::= SEQUENCE {
  sfn INTEGER (0..4095)
  OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      primaryCPICH-Info PrimaryCPICH-Info
    },
    tdd SEQUENCE {
      cellAndChannelIdentity CellAndChannelIdentity
    }
  },
  frequencyInfo FrequencyInfo OPTIONAL,
  positioningMode CHOICE {
    ueBased SEQUENCE {},
    ueAssisted SEQUENCE {}
  },
  ue-positioning-IPDL-Paremters UE-Positioning-IPDL-Parameters OPTIONAL
}

UE-Positioning-OTDOA-ReferenceCellInfo-r4 ::= SEQUENCE {
  sfn INTEGER (0..4095)
  OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      primaryCPICH-Info PrimaryCPICH-Info
    },
    tdd SEQUENCE {
      cellAndChannelIdentity CellAndChannelIdentity
    }
  },
  frequencyInfo FrequencyInfo OPTIONAL,
  positioningMode CHOICE {
    ueBased SEQUENCE {
      cellPosition ReferenceCellPosition OPTIONAL,
      -- actual value = (IE value * 0.0625) + 876
      roundTripTime INTEGER (0..32766) OPTIONAL
    },
    ueAssisted SEQUENCE {}
  },
  ue-positioning-IPDL-Paremters UE-Positioning-IPDL-Parameters-r4 OPTIONAL
}

UE-Positioning-OTDOA-ReferenceCellInfo-UEB ::= SEQUENCE {
  sfn INTEGER (0..4095) OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      primaryCPICH-Info PrimaryCPICH-Info
    },
    tdd SEQUENCE {
      cellAndChannelIdentity CellAndChannelIdentity
    }
  },
  frequencyInfo FrequencyInfo OPTIONAL,
  cellPosition ReferenceCellPosition OPTIONAL,
  -- actual value = (IE value * 0.0625) + 876
  roundTripTime INTEGER (0..32766) OPTIONAL,
  ue-positioning-IPDL-Paremters UE-Positioning-IPDL-Parameters OPTIONAL
}

UE-Positioning-PositionEstimateInfo ::= SEQUENCE {
  referenceTime CHOICE {
    utran-GPSReferenceTimeResult UTRAN-GPSReferenceTimeResult,
    gps-ReferenceTimeOnly INTEGER (0..60479999),
    cell-Timing SEQUENCE {
      sfn INTEGER (0..4095),
      modeSpecificInfo CHOICE {
        fdd SEQUENCE {
          primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd SEQUENCE {
          cellAndChannelIdentity CellAndChannelIdentity
        }
      }
    }
  },
  positionEstimate PositionEstimate
}

```

```

UE-Positioning-ReportCriteria ::=
    ue-positioning-ReportingCriteria
    periodicalReportingCriteria
    noReporting
    CHOICE {
        UE-Positioning-EventParamList,
        PeriodicalReportingCriteria,
        NULL
    }

UE-Positioning-ReportingQuantity ::=
    methodType
    positioningMethod
    dummy1
    accuracy
    gps-TimingOfCellWanted
    dummy2
    additionalAssistanceDataReq
    environmentCharacterisation
    SEQUENCE {
        UE-Positioning-MethodType,
        PositioningMethod,
        UE-Positioning-ResponseTime,
        UE-Positioning-Accuracy OPTIONAL,
        BOOLEAN,
        BOOLEAN,
        BOOLEAN,
        EnvironmentCharacterisation OPTIONAL
    }
-- This IE is not used in this version of the specification and should be ignored.
-- IE "dummy1" should be removed in later versions of the message including this IE
-- This IE is not used in this version of the specification and should be ignored.
-- IE "dummy2" should be removed in later versions of the message including this IE

UE-Positioning-ReportingQuantity-v390ext ::=
    vertical-Accuracy
    UE-Positioning-Accuracy
    SEQUENCE {

UE-Positioning-ResponseTime ::=
    s1, s2, s4, s8, s16,
    s32, s64, s128 }
    ENUMERATED {

-- SPARE: UTRA-CarrierRSSI, Max= 76
-- Values above Max are spare
UTRA-CarrierRSSI ::=
    INTEGER (0..76127)

UTRAN-GPS-DriftRate ::=
    utran-GPSDrift0, utran-GPSDrift1, utran-GPSDrift2,
    utran-GPSDrift5, utran-GPSDrift10, utran-GPSDrift15,
    utran-GPSDrift25, utran-GPSDrift50, utran-GPSDrift-1,
    utran-GPSDrift-2, utran-GPSDrift-5, utran-GPSDrift-10,
    utran-GPSDrift-15, utran-GPSDrift-25, utran-GPSDrift-50}
    ENUMERATED {

UTRAN-GPSReferenceTime ::=
    utran-GPSTimingOfCell
    modeSpecificInfo
    fdd
        referenceIdentity
    },
    tdd
        referenceIdentity
    }
    sfm
    OPTIONAL,
    INTEGER (0..4095)
    SEQUENCE {
        INTEGER(0..2322431999999),
        CHOICE {
            SEQUENCE {
                PrimaryCPICH-Info
            },
            SEQUENCE {
                CellParametersID
            }
        }
    }

UTRAN-GPSReferenceTimeResult ::=
    ue-GPSTimingOfCell
    modeSpecificInfo
    fdd
        referenceIdentity
    },
    tdd
        referenceIdentity
    },
    sfm
    INTEGER(0..3715891199999970368744177663),
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info
        },
        SEQUENCE {
            CellParametersID
        }
    },
    INTEGER (0..4095)
    SEQUENCE {

VarianceOfRLC-BufferPayload ::=
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k, spare2, spare1 }
    ENUMERATED {

-- Actual value = IE value * 0.1
W ::=
    INTEGER (0..20)

-- *****
--

```

```

--      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

CDMA2000-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
        FrequencyInfoCDMA2000

CellValueTag ::=
    INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimeFactor ::=
    INTEGER (1..8)

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

GSM-Classmark2 ::=
    OCTET STRING (SIZE (5))

GSM-Classmark3 ::=
    OCTET STRING (SIZE (1..32))

GSM-MessageList ::=
    SEQUENCE (SIZE (1..maxInterSysMessages)) OF
        BIT STRING (SIZE (1..512))

GsmSecurityCapability ::=
    BIT STRING {
        a5-7(0),
        a5-6(1),
        a5-5(2),
        a5-4(3),
        a5-3(4),
        a5-2(5),
        a5-1(6)
    }
    (SIZE (7))

IdentificationOfReceivedMessage ::=
    SEQUENCE {
        rrc-TransactionIdentifier
            RRC-TransactionIdentifier,
        receivedMessageType
            ReceivedMessageType
    }

```

```

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable      NULL,
    physicalChannelFailure        NULL,
    protocolError                 ProtocolErrorInformation,
    unspecified                    NULL,
    spare4                        NULL,
    spare31                     NULL,
    spare22                     NULL,
    spare13                     NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm                            SEQUENCE {
        gsm-Classmark2            GSM-Classmark2,
        gsm-Classmark3            GSM-Classmark3
    },
    cdma2000                       SEQUENCE {
        cdma2000-MessageList      CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
InterRAT-UE-RadioAccessCapability

InterRAT-UE-SecurityCapability ::= CHOICE {
    gsm                            SEQUENCE {
        gsmSecurityCapability      GsmSecurityCapability
    }
}

InterRAT-UE-SecurityCapList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
InterRAT-UE-SecurityCapability

InterRAT-HO-FailureCause ::= CHOICE {
    configurationUnacceptable      NULL,
    physicalChannelFailure        NULL,
    protocolError                 ProtocolErrorInformation,
    interRAT-ProtocolError        NULL,
    unspecified                    NULL,
    spare11                       NULL,
    spare10                       NULL,
    spare9                        NULL,
    spare8                        NULL,
    spare7                        NULL,
    spare6                        NULL,
    spare5                        NULL,
    spare41                     NULL,
    spare32                     NULL,
    spare23                     NULL,
    spare14                     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
}

ProtocolErrorInformation ::= SEQUENCE {
    diagnosticsType              CHOICE {
        type1                     SEQUENCE {
            protocolErrorCause    ProtocolErrorCause
        }
    }
}

```

```

    },
    spare
  }
}

ReceivedMessageType ::=
    ENUMERATED {
        activeSetUpdate,
        cellChangeOrderFromUTRAN,
        cellUpdateConfirm,
        counterCheck,
        downlinkDirectTransfer,
        interRATHandoverCommand,
        measurementControl,
        pagingType2,
        physicalChannelReconfiguration,
        physicalSharedChannelAllocation,
        radioBearerReconfiguration,
        radioBearerRelease,
        radioBearerSetup,
        rrcConnectionRelease,
        rrcConnectionReject,
        rrcConnectionSetup,
        securityModeCommand,
        signallingConnectionRelease,
        transportChannelReconfiguration,
        transportFormatCombinationControl,
        ueCapabilityEnquiry,
        ueCapabilityInformationConfirm,
        uplinkPhysicalChannelControl,
        uraUpdateConfirm,
        utranMobilityInformation,
        assistanceDataDelivery,
        spare51, spare42, spare3, spare24,
        spare15
    }

Rplmn-Information ::=
    SEQUENCE {
        gsm-BA-Range-List          GSM-BA-Range-List          OPTIONAL,
        fdd-UMTS-Frequency-List    FDD-UMTS-Frequency-List
        OPTIONAL,
        tdd-UMTS-Frequency-List    TDD-UMTS-Frequency-List
        OPTIONAL,
        cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-Frequency-
List    OPTIONAL
    }

Rplmn-Information-r4 ::=
    SEQUENCE {
        gsm-BA-Range-List          GSM-BA-Range-List          OPTIONAL,
        fdd-UMTS-Frequency-List    FDD-UMTS-Frequency-List    OPTIONAL,
        tdd384-UMTS-Frequency-List  TDD-UMTS-Frequency-List    OPTIONAL,
        tdd128-UMTS-Frequency-List  TDD-UMTS-Frequency-List    OPTIONAL,
        cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-Frequency-List    OPTIONAL
    }

SchedulingInformation ::=
    SEQUENCE {
        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
        }
    }

SchedulingInformationSIB ::=
    SEQUENCE {
        sib-Type
    }

```

```

    scheduling                SchedulingInformation
}

SchedulingInformationSIBSb ::= SEQUENCE {
    sibSb-Type
    scheduling
}

SegCount ::= INTEGER (1..16)

SegmentIndex ::= INTEGER (1..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))

SIBOccurIdentity ::= INTEGER (0..15)

SIBOccurrenceIdentityAndValueTag ::= SEQUENCE {
    sibOccurIdentity          SIBOccurIdentity,
    sibOccurValueTag         SIBOccurValueTag
}

SIBOccurValueTag ::= INTEGER (0..15)

SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIB

SIBSb-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIBSb

SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSIB-FACH)) OF
    SchedulingInformationSIB

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,
    systemInformationBlockType15-4,
    systemInformationBlockType18,
    schedulingBlock1,
    schedulingBlock2,
    systemInformationBlockType15-5,
    spare1, spare2 }

SIB-TypeAndTag ::= CHOICE {
    sysInfoType1          PLMN-ValueTag,
    sysInfoType2          CellValueTag,
    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,
sysInfoType15-1	CellValueTag,
sysInfoType15-2	SIBOccurrenceIdentityAndValueTag,
sysInfoType15-3	SIBOccurrenceIdentityAndValueTag,
sysInfoType15-4	CellValueTag,
sysInfoType18	CellValueTag,
sysInfoType15-5	CellValueTag,
spare5	NULL,
spare4	NULL,
spare3	NULL,
spare2	NULL,
spare1	NULL

SIBSb-TypeAndTag ::=	CHOICE {
sysInfoType1	PLMN-ValueTag,
sysInfoType2	CellValueTag,
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,
sysInfoType15-1	CellValueTag,
sysInfoType15-2	SIBOccurrenceIdentityAndValueTag,
sysInfoType15-3	SIBOccurrenceIdentityAndValueTag,
sysInfoType15-4	CellValueTag,
sysInfoType18	CellValueTag,
sysInfoType15-5	CellValueTag,
spare2	NULL,
spare1	NULL

SibOFF ::=	ENUMERATED {
	so2, so4, so6, so8, so10,
	so12, so14, so16, so18,
	so20, so22, so24, so26,
	so28, so30, so32 }

SibOFF-List ::=	SEQUENCE (SIZE (1..15)) OF
	SibOFF

SysInfoType1 ::=	SEQUENCE {
-- Core network IEs	
cn-CommonGSM-MAP-NAS-SysInfo	NAS-SystemInformationGSM-MAP,
cn-DomainSysInfoList	CN-DomainSysInfoList,
-- User equipment IEs	
ue-ConnTimersAndConstants	UE-ConnTimersAndConstants
	OPTIONAL,



```

        ue-IdleTimersAndConstants      UE-IdleTimersAndConstants      OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
    }

SysInfoType2 ::=                      SEQUENCE {
-- UTRAN mobility IEs
    ura-IdentityList                  URA-IdentityList,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
    }

SysInfoType3 ::=                      SEQUENCE {
    sib4indicator                      BOOLEAN,
-- UTRAN mobility IEs
    cellIdentity                      CellIdentity,
    cellSelectReselectInfo            CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction             CellAccessRestriction,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {
            sysInfoType3-r3-r4-ext     SysInfoType3-r3-r4-ext-IEs,
            nonCriticalExtensions      SEQUENCE {}                      OPTIONAL
        }
    }

SysInfoType3-r3-r4-ext-IEs ::= SEQUENCE {
    mapping-LCR                        Mapping-LCR-r4                      OPTIONAL
}

SysInfoType4 ::=                      SEQUENCE {
-- UTRAN mobility IEs
    cellIdentity                      CellIdentity,
    cellSelectReselectInfo            CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction             CellAccessRestriction,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {
            sysInfoType4-r3-r4-ext     SysInfoType4-r3-r4-ext-IEs,
            nonCriticalExtensions      SEQUENCE {}                      OPTIONAL
        }
    }

SysInfoType4-r3-r4-ext-IEs ::= SEQUENCE {
    mapping-LCR                        Mapping-LCR-r4                      OPTIONAL
}

SysInfoType5 ::=                      SEQUENCE {
    sib6indicator                      BOOLEAN,
-- Physical channel IEs
    pich-PowerOffset                  PICH-PowerOffset,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            aich-PowerOffset            AICH-PowerOffset
        },
        tdd                            SEQUENCE {
-- If PDSCH/PUSCH is configured for 1.28Mcps TDD, the following IEs should be absent
-- and the info included in the tdd128SpecificInfo instead.
            pusch-SysInfoList-SFN      PUSCH-SysInfoList-SFN          OPTIONAL,
            pdsch-SysInfoList-SFN      PDSCH-SysInfoList-SFN        OPTIONAL,
            openLoopPowerControl-TDD    OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info                PrimaryCCPCH-Info                OPTIONAL,
    prach-SystemInformationList       PRACH-SystemInformationList,
    sCCPCH-SystemInformationList      SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information         CBS-DRX-Level1Information        OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {
            sysInfoType5-r3-r4-ext     SysInfoType5-r3-r4-ext-IEs,
-- Extension mechanism for non- rel-4 information
            nonCriticalExtensions      SEQUENCE {}                      OPTIONAL
        }
    }

SysInfoType5-r3-r4-ext-IEs ::= SEQUENCE {
    pNBSCH-Allocation-r4              PNBSCH-Allocation-r4            OPTIONAL,
-- In case of TDD, the following IE is included instead of the

```

```

-- IE up-IPDL-Parameter in up-OTDOA-AssistanceData.
openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4 OPTIONAL,
-- If SysInfoType5 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included in
-- PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
-- IE rach-TransportFormatSet shall be absent and the corresponding IE in the following
-- PRACH-SystemInformationList-LCR-r4 shall be used
prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
tdl28SpecificInfo SEQUENCE {
  pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
  pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
  pCCPCH-LCR-Extensions PrimaryCCPCH-Info-LCR-r4-ext OPTIONAL,
  sCCPCH-LCR-ExtensionsList SCCPCH-SystemInformationList-LCR-r4-ext
}
}
}

SysInfoType6 ::= SEQUENCE {
  -- Physical channel IEs
  pich-PowerOffset PICH-PowerOffset,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      aich-PowerOffset AICH-PowerOffset,
      dummy CSICH-PowerOffset OPTIONAL
      -- This parameter dummy is not to be sent in the current version of the specification.
    },
    tdd SEQUENCE {
      -- If PDSCH/PUSCH is configured for 1.28Mcps TDD, the following IEs should be absent
      -- and the info included in the tdl28SpecificInfo instead.
      pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN OPTIONAL,
      pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN OPTIONAL,
      openLoopPowerControl-TDD OpenLoopPowerControl-TDD
    },
    primaryCCPCH-Info PrimaryCCPCH-Info OPTIONAL,
    prach-SystemInformationList PRACH-SystemInformationList OPTIONAL,
    sCCPCH-SystemInformationList SCCPCH-SystemInformationList OPTIONAL,
    cbs-DRX-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-r3-r4-ext SysInfoType6-r3-r4-ext-IEs,
      -- Extension mechanism for non- rel-4 information
      nonCriticalExtensions SEQUENCE {}
    }
  }
}

SysInfoType6-r3-r4-ext-IEs ::= SEQUENCE {
  -- This IE is present only if IPDLs are applied for TDD
  openLoopPowerControl-IPDL-TDD OpenLoopPowerControl-IPDL-TDD-r4 OPTIONAL,
  -- If SysInfoType6 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-RACH-Info included in
  -- PRACH-SystemInformationList shall be ignored, the IE PRACH-Partitioning and the
  -- IE rach-TransportFormatSet shall be absent and the corresponding IEs in the following
  -- PRACH-SystemInformationList-LCR-r4 shall be used
  prach-SystemInformationList-LCR-r4 PRACH-SystemInformationList-LCR-r4 OPTIONAL,
  tdl28SpecificInfo SEQUENCE {
    pusch-SysInfoList-SFN PUSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
    pdsch-SysInfoList-SFN PDSCH-SysInfoList-SFN-LCR-r4 OPTIONAL,
    pCCPCH-LCR-Extensions PrimaryCCPCH-Info-LCR-r4-ext OPTIONAL,
    sCCPCH-LCR-ExtensionsList SCCPCH-SystemInformationList-LCR-r4-ext OPTIONAL
  }
}

SysInfoType7 ::= SEQUENCE {
  -- Physical channel IEs
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      ul-Interference UL-Interference
    },
    tdd NULL
  },
  prach-Information-SIB5-List DynamicPersistenceLevelList,
  prach-Information-SIB6-List DynamicPersistenceLevelList OPTIONAL,
  expirationTimeFactor ExpirationTimeFactor OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}
}

SysInfoType8 ::= SEQUENCE {

```

```

-- User equipment IEs
cpch-Parameters                CPCH-Parameters,
-- Physical channel IEs
cpch-SetInfoList              CPCH-SetInfoList,
csich-PowerOffset             CSICH-PowerOffset,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}

SysInfoType9 ::=                SEQUENCE {
-- Physical channel IEs
cpch-PersistenceLevelsList    CPCH-PersistenceLevelsList,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}

SysInfoType10 ::=               SEQUENCE {
-- User equipment IEs
drac-SysInfoList              DRAC-SysInfoList,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}

SysInfoType11 ::=               SEQUENCE {
sib12indicator                BOOLEAN,
-- Measurement IEs
fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo    OPTIONAL,
measurementControlSysInfo     MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {
sysInfoType11-r3-r4-ext      SysInfoType11-r3-r4-ext-IEs,
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}
}

SysInfoType11-r3-r4-ext-IEs ::= SEQUENCE {
fach-MeasurementOccasionInfo-LCR-Ext  FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
measurementControlSysInfo-LCR         MeasurementControlSysInfo-LCR-r4-ext
}

SysInfoType12 ::=               SEQUENCE {
-- Measurement IEs
fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo    OPTIONAL,
measurementControlSysInfo     MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {
sysInfoType12-r3-r4-ext      SysInfoType12-r3-r4-ext-IEs,
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}
}

SysInfoType12-r3-r4-ext-IEs ::= SEQUENCE {
fach-MeasurementOccasionInfo-LCR-Ext  FACH-MeasurementOccasionInfo-LCR-r4-ext OPTIONAL,
measurementControlSysInfo-LCR         MeasurementControlSysInfo-LCR-r4-ext
}

SysInfoType13 ::=               SEQUENCE {
-- 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-r3-r4-ext      SysInfoType13-r3-r4-ext-IEs,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}
}

SysInfoType13-r3-r4-ext-IEs ::= SEQUENCE {
capabilityUpdateRequirement-r4Ext     CapabilityUpdateRequirement-r4-ext OPTIONAL
}

SysInfoType13-1 ::=             SEQUENCE {
-- ANSI-41 IEs
ansi-41-RAND-Information      ANSI-41-RAND-Information,
-- Extension mechanism for non- release99 information

```

```

    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType13-2 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType13-3 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType13-4 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType14 ::=                SEQUENCE {
-- Physical channel IEs
  individualTS-InterferenceList  IndividualTS-InterferenceList,
  expirationTimeFactor           ExpirationTimeFactor          OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType15 ::=                SEQUENCE {
-- Measurement IEs

  ue-positioning-GPS-CipherParameters UE-Positioning-CipherParameters  OPTIONAL,
  ue-positioning-GPS-ReferenceLocation ReferenceLocation,
  ue-positioning-GPS-ReferenceTime    UE-Positioning-GPS-ReferenceTime,

  ue-positioning-GPS-Real-timeIntegrity BadSatList          OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {
  sysInfoType15-r3-r4-ext        SysInfoType15-r3-r4-ext-IEs,
-- Extension mechanism for non- release4 information
  nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}
}

SysInfoType15-r3-r4-ext-IEs ::= SEQUENCE {
  up-Ipdl-Parameters-TDD          UE-Positioning-IPDL-Parameters-TDD-r4-ext  OPTIONAL
}

SysInfoType15-1 ::=                SEQUENCE {
-- DGPS corrections
  ue-positioning-GPS-DGPS-Corrections UE-Positioning-GPS-DGPS-Corrections,

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

SysInfoType15-2 ::=                SEQUENCE {
-- Ephemeris and clock corrections
  transmissionTOW                 INTEGER (0..604799),
  satID                           SatID,
  ephemerisParameter              EphemerisParameter,

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

SysInfoType15-3 ::=                SEQUENCE {
-- Almanac and other data
  transmissionTOW                 INTEGER (0.. 604799),
  ue-positioning-GPS-Almanac      UE-Positioning-GPS-Almanac
OPTIONAL,
  ue-positioning-GPS-IonosphericModel UE-Positioning-GPS-IonosphericModel
OPTIONAL,

```

```

        ue-positioning-GPS-UTC-Model                UE-Positioning-GPS-UTC-Model
OPTIONAL,
        satMask                                BIT STRING (SIZE (1..32))    OPTIONAL,
        lsbTOW                                BIT STRING (SIZE (8))        OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}

SysInfoType15-4 ::=                               SEQUENCE {
-- Measurement IEs
        ue-positioning-OTDOA-CipherParameters    UE-Positioning-CipherParameters    OPTIONAL,
        ue-positioning-OTDOA-AssistanceData      UE-Positioning-OTDOA-AssistanceData,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {
                sysInfoType15-4-r4ext          SysInfoType15-4-r4ext              OPTIONAL,
                nonCriticalExtensions          SEQUENCE {}
        }
        }
        OPTIONAL

SysInfoType15-4-r4ext ::= SEQUENCE {
        ue-Positioning-OTDOA-AssistanceData-r4ext    UE-Positioning-OTDOA-AssistanceData-r4ext    OPTIONAL
}

SysInfoType15-5 ::=                               SEQUENCE {
-- Measurement IEs
        ue-positioning-OTDOA-AssistanceData-UEB    UE-Positioning-OTDOA-AssistanceData-UEB,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}

SysInfoType16 ::=                               SEQUENCE {
-- Radio bearer IEs
        preDefinedRadioConfiguration            PreDefRadioConfiguration,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}

SysInfoType17 ::=                               SEQUENCE {
-- Physical channel IEs
-- If PDSCH/PUSCH is configured for 1.28Mcps TDD, the following IEs should be absent
-- and the info included in the tddl28SpecificInfo instead.
        pusch-SysInfoList                    PUSCH-SysInfoList                OPTIONAL,
        pdsch-SysInfoList                    PDSCH-SysInfoList                OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {
                sysInfoType17-r3-r4-ext        SysInfoType17-r3-r4-ext-IEs,
                nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
        }
        }
        OPTIONAL

SysInfoType17-r3-r4-ext-IEs ::= SEQUENCE {
        tddl28SpecificInfo                    SEQUENCE {
                pusch-SysInfoList            PUSCH-SysInfoList-LCR-r4        OPTIONAL,
                pdsch-SysInfoList            PDSCH-SysInfoList-LCR-r4        OPTIONAL
        }
        }
        OPTIONAL

SysInfoType18 ::=                               SEQUENCE {
        idleModePLMNIdentities                PLMNIdentitiesOfNeighbourCells    OPTIONAL,
        connectedModePLMNIdentities            PLMNIdentitiesOfNeighbourCells    OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}

SysInfoTypeSB1 ::=                               SEQUENCE {
-- Other IEs
        sib-ReferenceList                    SIB-ReferenceList,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}

SysInfoTypeSB2 ::=                               SEQUENCE {
-- Other IEs
        sib-ReferenceList                    SIB-ReferenceList,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions                SEQUENCE {}                    OPTIONAL
}
TDD-UMTS-Frequency-List ::=                     SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF

```

## FrequencyInfoTDD

```

-- *****
--
--      ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- *****

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::= ANSI-41-NAS-Parameter
ANSI-41-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
maxDPDCH-UL             INTEGER ::= 6
maxDRACclasses          INTEGER ::= 8
maxFACHPCH              INTEGER ::= 8
maxFreq                 INTEGER ::= 8
maxFreqBandsFDD         INTEGER ::= 8
maxFreqBandsTDD         INTEGER ::= 4
maxFreqBandsGSM         INTEGER ::= 16
maxInterSysMessages    INTEGER ::= 4
maxLoCHperRLC           INTEGER ::= 2
maxMeasEvent            INTEGER ::= 8
maxMeasIntervals        INTEGER ::= 3
maxMeasParEvent         INTEGER ::= 2
maxNumCDMA2000Freqs     INTEGER ::= 8
maxNumGSMFreqRanges    INTEGER ::= 32
maxNumFDDFreqs          INTEGER ::= 8
maxNumTDDFreqs          INTEGER ::= 8
maxNoOfMeas             INTEGER ::= 16
maxOtherRAT             INTEGER ::= 15
maxOtherRAT-16          INTEGER ::= 16
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
maxPRACH-FPACH          INTEGER ::= 8
maxPredefConfig         INTEGER ::= 16

```

```

maxPUSCH                INTEGER ::= 8
maxRABsetup              INTEGER ::= 16
maxRAT                   INTEGER ::= 16
maxRB                    INTEGER ::= 32
maxRBallRABs            INTEGER ::= 27
maxRBMuxOptions         INTEGER ::= 8
maxRBperRAB             INTEGER ::= 8
maxReportedGSMCells     INTEGER ::= 68
maxRL                    INTEGER ::= 8
maxRL-1                  INTEGER ::= 7
maxROHC-PacketSizes-r4  INTEGER ::= 16
maxROHC-Profile-r4      INTEGER ::= 8
maxSat                   INTEGER ::= 16
maxSCCPCH               INTEGER ::= 16
maxSIB                   INTEGER ::= 32
maxSIB-FACH             INTEGER ::= 8
maxSIBperMsg            INTEGER ::= 16
maxSRBsetup             INTEGER ::= 8
maxSystemCapability     INTEGER ::= 16
maxTF                    INTEGER ::= 32
maxTF-CPCH              INTEGER ::= 16
maxTFC                  INTEGER ::= 1024
maxTFCI-2-Combs         INTEGER ::= 512
maxTGPS                  INTEGER ::= 6
maxTrCH                  INTEGER ::= 32
-- maxTrCHpreconf should be 16 but has been set to 32 for compatibility
maxTrCHpreconf          INTEGER ::= 32
maxTS                    INTEGER ::= 14
maxTS-1                  INTEGER ::= 13
maxTS-LCR                INTEGER ::= 6
maxTS-LCR-1             INTEGER ::= 5
maxURA                  INTEGER ::= 8

```

END

## 11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DRX-CycleLengthCoefficient,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    DL-PhysChCapabilityFDD-v380ext,
    FailureCauseWithProtErr,
    RRC-MessageSequenceNumber,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    SRB-InformationSetupList,
-- Transport Channel IEs :

```

```

    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    MeasurementType-r4,
    AdditionalMeasurementID-List,
    PositionEstimate,
    UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements

    maxCNdomains,
    maxNoOfMeas,

    maxRB,
    maxSRBsetup
FROM Constant-definitions
;

-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped

-- *****
--
-- RRC information, to target RNC
--
-- *****
-- RRC Information to target RNC sent either from source RNC or from another RAT

ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo          InterRATHandoverInfoWithInterRATCapabilities-r3,
    srncRelocation                SRNC-RelocationInfo-r3,
    extension                      NULL
}

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

Target-RNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup              RadioBearerSetup,
    radioBearerReconfiguration    RadioBearerReconfiguration,
    radioBearerRelease            RadioBearerRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    rrc-FailureInfo              RRC-FailureInfo-r3-IEs,
    extension                      NULL
}

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- *****
--
-- Handover to UTRAN information
--
-- *****

InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
    r3                             SEQUENCE {
        interRATHandoverInfo-r3    InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        v390NonCriticalExtensions  SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
            InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
            -- Reserved for future non critical extension

```



```

        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

InterRATHandoverInfoWithInterRATCapabilities-r3-IEs ::= SEQUENCE {
    -- The order of the IEs may not reflect the tabular format
    -- but has been chosen to simplify the handling of the information in the BSC
    -- Other IEs
    ue-RATSpecificCapability           InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
    interRATHandoverInfo               OCTET STRING (SIZE (0..255))
    -- Octet string is used to obtain 8 bit length field prior to actual information
    -- This makes it possible for BSS to transparently handle information received via
    -- GSM air interface even when it includes non critical extensions
    -- The octet string shall include the InterRATHandoverInfo information
    -- The BSS can re-use the 04.18 length field received from the MS
}

InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
    failureCauseWithProtErr           FailureCauseWithProtErr             OPTIONAL
}

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo-r3 ::= CHOICE {
    r3                                 SEQUENCE {
        sRNC-RelocationInfo-r3        SRNC-RelocationInfo-r3-IEs,
        v380NonCriticalExtensions     SEQUENCE {
            sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
            -- Reserved for future non critical extension
            v390NonCriticalExtensions  SEQUENCE {
                sRNC-RelocationInfo-v390ext SRNC-RelocationInfo-v390ext-IEs,
                -- Reserved for future non critical extension
                nonCriticalExtensions    SEQUENCE {} OPTIONAL
            }
        } OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

SRNC-RelocationInfo-r3-IEs ::= SEQUENCE {
    -- Non-RRC IEs
    stateOfRRC                        StateOfRRC,
    stateOfRRC-Procedure               StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
    cipheringStatus                    CipheringStatus,
    calculationTimeForCiphering        CalculationTimeForCiphering      OPTIONAL,
    cipheringInfoPerRB-List            CipheringInfoPerRB-List        OPTIONAL,
    count-C-List                       COUNT-C-List                    OPTIONAL,
    integrityProtectionStatus          IntegrityProtectionStatus,
    srb-SpecificIntegrityProtInfoList  SRB-SpecificIntegrityProtInfoList,
    implementationSpecificParams       ImplementationSpecificParams    OPTIONAL,
    -- User equipment IEs
    u-RNTI                             U-RNTI,
    c-RNTI                             C-RNTI                          OPTIONAL,
    ue-RadioAccessCapability           UE-RadioAccessCapability,
    ue-Positioning-LastKnownPos        UE-Positioning-LastKnownPos     OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability           InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                       URA-Identity                    OPTIONAL,
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo      NAS-SystemInformationGSM-MAP,
    cn-DomainInformationList           CN-DomainInformationList        OPTIONAL,
    -- Measurement IEs
    ongoingMeasRepList                OngoingMeasRepList             OPTIONAL,
    -- Radio bearer IEs
    predefinedConfigStatusList         PredefinedConfigStatusList,
    srb-InformationList                SRB-InformationSetupList,
    rab-InformationList                RAB-InformationSetupList        OPTIONAL,
    -- Transport channel IEs

```

```

    ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
    ul-TransChInfoList            UL-AddReconfTransChInfoList    OPTIONAL,
    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,
    nonCriticalExtensions          SEQUENCE {
-- In case of TDD only this IE is present otherwise this IE is absent
        up-IpdL-Parameters-TDD    UE-Positioning-IPDL-Parameters-TDD-r4-ext  OPTIONAL,
-- Extension mechanism for non- release4 information
        nonCriticalExtensions      SEQUENCE {}
    }
}

SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
-- Ciphering related information IEs
    cn-DomainIdentity             CN-DomainIdentity,
    cipheringStatusList           CipheringStatusList
}

SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
    cn-DomainInformationList-v390ext  CN-DomainInformationList-v390ext  OPTIONAL,
    ue-RadioAccessCapability-v370ext  UE-RadioAccessCapability-v370ext  OPTIONAL,
    ue-RadioAccessCapability-v380ext  UE-RadioAccessCapability-v380ext  OPTIONAL,
    dl-PhysChCapabilityFDD-v380ext    DL-PhysChCapabilityFDD-v380ext,
    failureCauseWithProtErr          FailureCauseWithProtErr           OPTIONAL
}

CipheringStatusList ::=          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                CipheringStatusCNdomain

CipheringStatusCNdomain ::=      SEQUENCE {
    cn-DomainIdentity             CN-DomainIdentity,
    cipheringStatus               CipheringStatus
}

SRNC-RelocationInfo-r4 ::=      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,
    ue-Positioning-LastKnownPos    UE-Positioning-LastKnownPos       OPTIONAL,
-- Other IEs
    ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                   URA-Identity                       OPTIONAL,
-- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
    cn-DomainInformationList        CN-DomainInformationList           OPTIONAL,
-- Measurement IEs
    ongoingMeasRepList             OngoingMeasRepList-r4             OPTIONAL,
-- Radio bearer IEs
    predefinedConfigStatusList      PredefinedConfigStatusList,
    srb-InformationList             SRB-InformationSetupList,
    rab-InformationList             RAB-InformationSetupList          OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
    ul-TransChInfoList            UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            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,
    nonCriticalExtensions                   SEQUENCE {
    -- In case of TDD only this IE is present otherwise this IE is absent
    up-IpdL-Parameters-TDD                 UE-Positioning-IPDL-Parameters-TDD-r4-ext OPTIONAL,
    -- Extension mechanism for non- release4 information
    nonCriticalExtensions                   SEQUENCE {}                      OPTIONAL
    }
}

-- IE definitions

CalculationTimeForCiphering ::=          SEQUENCE {
    cell-Id                                CellIdentity,
    sfn                                    INTEGER (0..4095)
}

CipheringInfoPerRB ::=                   SEQUENCE {
    dl-HFN                                 BIT STRING (SIZE (20..25)),
    ul-HFN                                 BIT STRING (SIZE (20..25))
}

-- TABULAR: Multiplicity value numberOfRadioBearers has been replaced
-- with maxRB.
CipheringInfoPerRB-List ::=              SEQUENCE (SIZE (1..maxRB)) OF
    CipheringInfoPerRB

CipheringStatus ::=                       ENUMERATED {
    started, notStarted }

CN-DomainInformation-v390ext ::=          SEQUENCE {
    cn-DRX-CycleLengthCoeff               CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList-v390ext ::=      SEQUENCE (SIZE (1..maxCNdomains)) OF
    CN-DomainInformation-v390ext

COUNT-C-List ::=                         SEQUENCE (SIZE (1..maxCNdomains)) OF
    COUNT-CSingle

COUNT-CSingle ::=                       SEQUENCE {
    cn-DomainIdentity                     CN-DomainIdentity,
    count-C                               BIT STRING (SIZE (32))
}

ImplementationSpecificParams ::=          BIT STRING (SIZE (1..512))

IntegrityProtectionStatus ::=             ENUMERATED {
    started, notStarted }

MeasurementCommandWithType ::=            CHOICE {
    setup                                 MeasurementType,
    modify                                NULL,
    release                                NULL
}

MeasurementCommandWithType-r4 ::=         CHOICE {
    setup                                 MeasurementType-r4,
    modify                                NULL,
    release                                NULL
}

OngoingMeasRep ::=                       SEQUENCE {
    measurementIdentity                   MeasurementIdentity,
    measurementCommandWithType             MeasurementCommandWithType,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in the IE above.
    measurementReportingMode              MeasurementReportingMode           OPTIONAL,
    additionalMeasurementID-List           AdditionalMeasurementID-List       OPTIONAL
}

OngoingMeasRep-r4 ::=                     SEQUENCE {

```

```

measurementIdentity      MeasurementIdentity,
measurementCommandWithType MeasurementCommandWithType-r4,
-- 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

OngoingMeasRepList-r4 ::= SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                           OngoingMeasRep-r4

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

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo

StateOfRRC ::= ENUMERATED {
    cell-DCH, cell-FACH,
    cell-PCH, ura-PCH }

StateOfRRC-Procedure ::= ENUMERATED {
    awaitNoRRC-Message,
    awaitRRC-ConnectionRe-establishmentComplete,
    awaitRB-SetupComplete,
    awaitRB-ReconfigurationComplete,
    awaitTransportCH-ReconfigurationComplete,
    awaitPhysicalCH-ReconfigurationComplete,
    awaitActiveSetUpdateComplete,
    awaitHandoverComplete,
    sendCellUpdateConfirm,
    sendUraUpdateConfirm,
    sendRrcConnectionReestablishment,
    otherStates
}

UE-Positioning-LastKnownPos ::= SEQUENCE {
    sfn          INTEGER (0..4095),
    cell-id      CellIdentity,
    positionEstimate PositionEstimate
}

END

```

## CHANGE REQUEST

⌘ **25.331 CR 1288** ⌘ rev **r1** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Spare values in ASN.1		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 22-02-2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)
			REL-5 (Release 5)

**Reason for change:** ⌘ The changes included in this CR are proposed for the following reasons:

- The generic error handling upon receiving an IE with a value outside the valid range defined for this IE did not facilitate use of standard ASN.1 tools
- The generic error handling did not clarify what to do upon receiving errors in nested IEs and or in lists

**Summary of change:** ⌘ The original revision of this CR introduces the following changes:

- The current generic error handling specifies that a UE shall treat an IE with an undefined value in a same manner as a spare. This behaviour was intended to facilitate extensibility of IEs. Part of the approach was that spares would be introduced only to extend the encoded size of an IE. However, most ASN.1 tools will consider receiving a message including an IE with a value outside the defined value range, as an error at message level; a message with an invalid transfer syntax. The envisaged error behaviour should be kept for IEs for which extensibility is desired. This is done by introducing spares in the value ranges of the IE. This means that from an ASN.1 point of view the IE has a normal value; the application will have to apply the generic error handling.
- For all IEs with undefined code points an assesment has been done whether or not extensibility is needed. If so, spares are introduced. In general, the intention was to not to modify the existing behaviour
- The generic error handling has been modified to clarify that there is no ASN.1 transfer syntax error at IE level. Furthermore additional clarification is provided concerning the handling of IEs nested in another IE
- Finally, chapter 10 is updated to reflect the new principle that the ASN.1 should include the exact number of spares reserved for future extension

Revision 1 of this CR included the following modifications:

- The new spares were also introduced in the tabular format, while the specification of the existing spares was aligned

**Impact analysis:**

Impacted functionality: Support of future extension. This basically affects all messages and hence a lot of functionality may be affected

Correction type: Clarification of a function where the specification is ambiguous and incomplete. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise

Interoperability:

- Isolated impact: the impact is not noted until extensions are introduced. Although the overall functionality is not changed, for some IEs extension options are lost. However, these options were removed because the extensions were difficult/ impossible to use. Thus, since there is only a difference in behaviour for extension cases that will now not be used anymore, the CR is backwards compatible

**Consequences if not approved:**

- ⌘ UE behaviour upon receiving spare values and undefined code points is not specified unambiguously which may result in ignoring and or rejection of (system information) messages. This may result in severe interoperability problems between R99 UEs and UTRANs corresponding to a later release of the specification

**Clauses affected:**

- ⌘ 9.4, 9.6, 9.7, 9.9 (new), 10.1.1.1.1, 10.2.5, 10.2.48, 10.3.1.5, 10.3.1.10, 10.3.1.12, 10.3.3.3, 10.3.3.11, 10.3.3.13, 10.3.3.15, 10.3.3.21a, 10.3.3.22, 10.3.3.23, 10.3.3.26, 10.3.3.32, 10.3.3.33a, 10.3.3.33b, 10.3.3.34, 10.3.3.42a, 10.3.3.43, 10.3.3.46, 10.3.7.3, 10.3.7.7, 10.3.7.14, 10.3.7.15, 10.3.7.26, 10.3.7.34, 10.3.7.44, 10.3.7.45, 10.3.7.54, 10.3.7.63, 10.3.7.65, 10.3.7.67, 10.3.7.83, 10.3.7.88, 10.3.7.88a, 10.3.7.93, 10.3.7.101, 10.3.7.109, 10.3.7.111, 10.3.8.5, 10.3.8.6, 10.3.8.12, 10.3.8.21, 10.3.8.22, 11.1, 11.2, 11.3, 11.4

**Other specs affected:**

- ⌘  Other core specifications ⌘ 25.331 v4.3.0, CR 1289  
 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](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://ftp.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

---

## 9 Handling of unknown, unforeseen and erroneous protocol data

### 9.1 General

This subclause specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this subclause shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

For system information received on the BCCH, the error handling procedures are applied on the BCCH message SYSTEM INFORMATION, the re-assembled system information segments as well as the system information blocks (including the master information block and the scheduling blocks), with specific error handling as specified below.

When the UE receives an RRC message, it shall set the variable `PROTOCOL_ERROR_REJECT` to `FALSE` and then perform the checks in the order as defined below.

The procedures specified in clause 8 are applied only for the messages passing the checks as defined below, except when procedure specific handling is used to recover from the error.

The error cases specified in the following include the handling upon reception of spare values. This behaviour also applies in case the actual value of the IE results from mapping the originally sent IE value. Moreover, in certain error cases, as specified in the following, default values apply. In this case, the default values specified within the ASN.1, the tabular and the procedure specifications apply.

### 9.2 ASN.1 violation or encoding error

If the UE receives an RRC message on the DCCH for which the encoded message does not result in any valid abstract syntax value [49] (or "encoding error"), it shall perform the following. The UE shall:

- set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";
- when RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message sent via a radio access technology other than UTRAN, for which the encoded message does not result in any valid abstract syntax, the UE shall:

- set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
- set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "ASN.1 violation or encoding error";
- perform procedure specific error handling according to clause 8.

If a reassembled set of system information segments received in messages on the BCCH does not result in any valid abstract syntax value, the UE shall:

- ignore the reassembled set of system information segments;
- treat the rest of each message containing the ignored system information segments as if those segments were not present.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH for which the encoded message does not result in any valid abstract syntax value, it shall ignore the message.

### 9.3 Unknown or unforeseen message type

If a UE receives an RRC message on the DCCH with a message type not defined for the DCCH it shall:

- set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Message type non-existent or not implemented";
- when the RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH with a message type not defined for the logical channel type the message was received on, it shall ignore the message.

#### 9.3a Unsolicited received message

If the UE receives any of the following messages:

- an RRC CONNECTION SETUP message addressed to the UE on the CCCH; or
- an RRC CONNECTION REJECT message addressed to the UE on the CCCH; or
- a UE CAPABILITY INFORMATION CONFIRM message on the DCCH; or
- a CELL UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH; or
- a URA UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH

and no procedure is ongoing according to clause 8 which expects the message to be received:

the UE shall:

- ignore the received message.

#### 9.3b Unexpected critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

- set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
- set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Message extension not comprehended";
- if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable `TRANSACTIONS`:
  - store the IE "Message type" of the received message in the table "Rejected transactions" in the variable `TRANSACTIONS`; and
  - set the IE "RRC transaction identifier" to zero in that table entry.
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined critical message extension, the UE shall:

- ignore the message.



## 9.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare) ~~or~~ a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value [49] for this IE~~, the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
  - set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended";
  - perform procedure specific error handling according to clause 8.

If the UE receives a system information block on the BCCH with a mandatory IE having a value reserved for future extension (spare); ~~or~~ a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the system information block using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the system information block.

If the UE receives an RRC message on the BCCH or PCCH with a mandatory IE having a value reserved for future extension (spare); ~~or~~ a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE~~, it shall

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the message.

## 9.5 Conditional information element error

If the UE receives an RRC message on the DCCH, BCCH, PCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, for which the specified conditions for absence of a conditional IE are met and that IE is present, the UE shall:

- ignore the IE;
- treat the rest of the message as if the IE was not present.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
- set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element missing";

- perform procedure specific error handling according to clause 8.

If the UE receives a system information block on the BCCH for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- ignore the system information block.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- ignore the message.

## 9.6 Unknown or unforeseen information element value, conditional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value [49] for this IE,~~ the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - set the variable `PROTOCOL_ERROR_REJECT` to `TRUE`;
  - set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "Information element value not comprehended";
  - perform procedure specific error handling according to clause 8.

If the UE receives a system information block on the BCCH for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE,~~ the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the system information block using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the system information block.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met, that IE is present, and that IE has a value, including choice, reserved for future extension (spare); or a value not used in this version of the specification (e.g. a dummy value) ~~or when the encoded IE does not result in any valid abstract syntax value for this IE,~~ the UE shall:

- if a default value of the IE is defined:
  - treat the rest of the message using the default value of the IE.
- if no default value of the IE is defined:
  - ignore the message.

## 9.7 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with an optional IE having a value, including choice, reserved for future extension (spare) ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value [49] for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the message as if the IE was not present.

If the UE receives a system information block on the BCCH with an optional IE having a value, including choice, reserved for future extension (spare) ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the system information block as if the IE was not present.

If the UE receives an RRC message on the BCCH or PCCH with an optional IE having a value, including choice, reserved for future extension (spare) ~~or a value not used in this version of the specification (e.g. a dummy value) or when the encoded IE does not result in any valid abstract syntax value for this IE~~, it shall:

- ignore the value of the IE;
- treat the rest of the message as if the IE was not present.

## 9.8 Unexpected non-critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

If the UE receives a system information block on the BCCH containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the system information block contents after the extension, but treat the parts of the system information block up to the extension normally.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

## 9.9 Handling of errors in nested information elements

An erroneous IE may be included in another IE, which may be included in another IE and so on. This section specifies the handling of errors in mandatory IEs as well as for conditional IEs for which the specified conditions for presence are met, that are nested in another IE.

In case the UE receives an IE (IE1) that includes a mandatory IE (IE1-1) having a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), it shall consider IE1 to have an undefined value and apply the corresponding generic error handling to IE-1. In case there are many IE nesting levels, in all of which the IE is mandatory while no default value is defined, this treatment may need to be repeated several times. The following example illustrates the general principle.

ExampleMessage ::=	SEQUENCE {	
ie1	IE1	OPTIONAL,
ie2	IE2	

```

}
IE1 ::= SEQUENCE {
    ie1-1          INTEGER (1..126),
    -- ie1-1 values 13..16 are spare and should not be used in this version of the protocol
    ie1-2          IE1-2          OPTIONAL,
    ie1-3          IE1-3
}

```

If in the above example, UTRAN would include ie1 and set ie1-1 to value 13 the UE experiences an error in a mandatory IE. The guideline outlined in the previous then means that the UE shall not discard the entire message but instead consider “ie1” to have an unknown value. Since IE1 is optional, the generic error handling would be to ignore “ie1”.

In case the UE receives an IE (IE1) that includes a list of another IE (IE1-1) for which one or more entries in the list have a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), it shall consider the list as if these entries were not included.

**NOTE:** In case the above generic error handling procedures do not result in the desired behaviour, the introduction of spares may need to be reconsidered.

## 10.1.1 Protocol extensions

RRC messages may be extended in future versions of this protocol, either by adding values for choices, enumerated and size constrained types or by adding information elements. An important aspect concerns the behaviour of a 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 9.

NOTE 1: 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.

Two kinds of protocol extensions are distinguished: non-critical and critical extensions. In general, a receiver shall process a message including not comprehended non-critical extensions as if the extensions were absent. However, a receiver shall entirely reject a message including not comprehended critical extensions (there is no partial rejection) and notify the sender, as specified in clause 9.

The general mechanism for adding critical extensions is by defining a new version of the message, which is indicated at the beginning of the message.

The UE shall always comprehend the complete transfer syntax specified for the protocol version it supports; if the UE comprehends the transfer syntax defined within protocol version A for message 1, it shall also comprehend the transfer syntax defined within protocol version A for message 2.

The following table shows for which messages only non-critical extensions may be added while for others both critical and non-critical extensions may be added.

NOTE 2: Critical extensions can only be added to certain downlink messages.

Extensions	Message
Critical and non-critical extensions	ACTIVE SET UPDATE 10.2.1 ASSISTANCE DATA DELIVERY 10.2.4 CELL CHANGE ORDER FROM UTRAN 10.2.5 CELL UPDATE CONFIRM 10.2.8 COUNTER CHECK 10.2.9 DOWNLINK DIRECT TRANSFER 10.2.11 HANDOVER TO UTRAN COMMAND 10.2.16a HANDOVER FROM UTRAN COMMAND 10.2.15 MEASUREMENT CONTROL 10.2.17 PHYSICAL CHANNEL RECONFIGURATION 10.2.22 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.25 RADIO BEARER RECONFIGURATION 10.2.27 RADIO BEARER RELEASE 10.2.30 RADIO BEARER SETUP 10.2.33 RRC CONNECTION REJECT 10.2.36 RRC CONNECTION RELEASE 10.2.37 RRC CONNECTION SETUP 10.2.40 SECURITY MODE COMMAND 10.2.43 SIGNALLING CONNECTION RELEASE 10.2.46 TRANSPORT CHANNEL RECONFIGURATION 10.2.50 UE CAPABILITY ENQUIRY 10.2.55 UE CAPABILITY INFORMATION CONFIRM 10.2.57 UPLINK PHYSICAL CHANNEL CONTROL 10.2.59 URA UPDATE CONFIRM 10.2.61 UTRAN MOBILITY INFORMATION 10.2.62
Non-critical extensions only	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL CHANGE ORDER FROM UTRAN FAILURE 10.2.6 CELL UPDATE 10.2.7 COUNTER CHECK RESPONSE 10.2.10 HANDOVER TO UTRAN COMPLETE 10.2.16b INITIAL DIRECT TRANSFER 10.2.16c HANDOVER FROM UTRAN FAILURE 10.2.16 MEASUREMENT CONTROL FAILURE 10.2.18 MEASUREMENT REPORT 10.2.19 PAGING TYPE 1 10.2.20 PAGING TYPE 2 10.2.21

Extensions	Message
	PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.23 PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.24 PUSCH CAPACITY REQUEST 10.2.26 RADIO BEARER RECONFIGURATION COMPLETE 10.2.28 RADIO BEARER RECONFIGURATION FAILURE 10.2.29 RADIO BEARER RELEASE COMPLETE 10.2.31 RADIO BEARER RELEASE FAILURE 10.2.32 RADIO BEARER SETUP COMPLETE 10.2.34 RADIO BEARER SETUP FAILURE 10.2.35 RRC CONNECTION RELEASE COMPLETE 10.2.38 RRC CONNECTION REQUEST 10.2.39 RRC CONNECTION SETUP COMPLETE 10.2.41 RRC STATUS 10.2.42 SECURITY MODE COMPLETE 10.2.44 SECURITY MODE FAILURE 10.2.45 SIGNALLING CONNECTION RELEASE INDICATION 10.2.47 Master Information Block 10.2.48.8.1 System Information Block type 1 to System Information Block type 17 10.2.48.8.2 to 10.2.48.8.19 SYSTEM INFORMATION CHANGE INDICATION 10.2.49 TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.51 TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.52 TRANSPORT FORMAT COMBINATION CONTROL 10.2.53 TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.54 UE CAPABILITY INFORMATION 10.2.56 UPLINK DIRECT TRANSFER 10.2.58 URA UPDATE 10.2.60 UTRAN MOBILITY INFORMATION CONFIRM 10.2.63 UTRAN MOBILITY INFORMATION FAILURE 10.2.64
No extensions	SYSTEM INFORMATION 10.2.48 First Segment 10.2.48.1 Subsequent or last Segment 10.2.48.3 Complete SIB 10.2.48.5 SIB content 10.2.48.8.1

NOTE 3: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks.

### 10.1.1.1 Non-critical extensions

#### 10.1.1.1.1 Extension of an information element with additional values or choices

In future versions of this protocol, non-critical values may be added to choices, enumerated and size constrained types.

For choices, enumerated and size constrained types it is possible to indicate how many non-critical spare values need to be reserved for future extension. In this case, the tabular format should indicate the number of spare values that are needed. The value range defined in ASN.1 for the extensible IE should include the number of spares that are needed, since a value outside the range defined for this IE will result in a general ASN.1 violation error. Within the ASN.1 spare values should only be used to increase the encoded size of an IE. This means that the ASN.1 should only include spares if the number of spare values that is needed exceeds the number of undefined code points that exist after encoding of the information element.

For downlink messages, spare values may be defined for non-critical information elements for which the need is specified to be MD or OP (or CV case leading to MD or OP). In this case, a receiver not comprehending the received spare value shall consider the information element to have the default value or consider it to be absent respectively.

For uplink messages spare values may be defined for all information elements, including those for which the need is specified to be MP (or CV case leading to MP).

In all cases at most one spare should be defined for choices. In this case, information elements applicable to the spare choices shall be added to the end of the message.

#### 10.1.1.1.2 Extension of a message with additional information elements

In future versions of this protocol, non-critical information elements may be added to RRC messages. These additional information elements shall be appended at the end of the message; the transfer syntax specified in this revision of the standard facilitates this. A receiver conformant to this revision of the standard shall accept such extension, and proceed as if it was not included.

#### 10.1.1.2 Critical extensions

##### 10.1.1.2.1 Extension of an information element with additional values or choices

In versions of this protocol, choices, enumerated and size constrained types may be extended with critical values. For extension with critical values the general critical extension mechanism is used, i.e. for this no spare values are reserved since backward compatibility is not required.

##### 10.1.1.2.2 Extension of a message with additional information elements

In future versions of this protocol, RRC messages may be extended with new information elements. Since messages including critical extensions are rejected by receivers not comprehending them, these messages may be modified completely, e.g. IEs may be inserted at any place and IEs may be removed or redefined.

## 10.2 Radio Resource Control messages

### 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 or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	
<b>CN information elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB information elements</b>				
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
<b>Phy CH information elements</b>				
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing "maximum UL TX power".
<b>Downlink radio resources</b>				
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 10.3.6.68	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
Radio link removal information	OP	1 to <maxRL>		Radio link removal information required for each RL to remove
>Radio link removal information	MP		Radio link removal information 10.3.6.69	
TX Diversity Mode	MD		TX Diversity Mode 10.3.6.86	Default value is the existing TX diversity mode.
SSDT information	OP		SSDT information 10.3.6.77	

## 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
<b>RB Information elements</b>				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

### 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

### 10.2.4 ASSISTANCE DATA DELIVERY

This message is sent by UTRAN to convey UE positioning 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>Measurement Information elements</b>				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE positioning OTDOA assistance data for UE-based	OP		UE positioning OTDOA assistance data for UE-based 10.3.7.103a	
UE positioning GPS assistance data	OP		UE positioning GPS assistance data 10.3.7.90	

## 10.2.5 CELL CHANGE ORDER FROM UTRAN

This message is used to order a cell change from UTRA to another radio access technology, e.g., GSM.

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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
<b>RB Information elements</b>				
RAB information list	OP	1 to <maxRABs etup>		For each RAB to be handed over
>RAB info	MP		RAB info 10.3.4.8	
<b>Other information elements</b>				
Target cell description	MP			
>CHOICE <i>Radio Access Technology</i>	MP			<del>At least one Two spare choice values are needed. Criticality: Reject, is needed.</del>
>>GSM				
>>>BSIC	MP		BSIC 10.3.8.2	
>>>Band Indicator	MP		Enumerated (DCS 1800 band used, PCS 1900 band used)	Indicates how to interpret the BCCH ARFCN
>>>BCCH ARFCN	MP		Integer (0..1023)	[45]
>>>NC mode	OP		Bit string(3)	[43]
>>>IS-2000				

## 10.2.6 CELL CHANGE ORDER FROM UTRAN FAILURE

This message is sent on the RRC connection used before the Cell change order from UTRAN was executed. The message indicates that the UE has failed to seize the new channel in the other radio access technology.

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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>Other information elements</b>				
Inter-RAT change failure	MP		Inter-RAT change failure 10.3.8.5	

## 10.2.7 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	
<b>UE information elements</b>				
U-RNTI	MP		U-RNTI 10.3.3.47	
RRC transaction identifier	<i>CV-Failure</i>		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		START 10.3.3.38	START value to be used in this CN domain.
AM_RLC error indication(RB2, RB3 or RB4)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error [16] occurred on RB2, RB3 or RB4 in the UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AM_RLC error indication(RB>4)	MP		Boolean	TRUE indicates AM_RLC unrecoverable error [16] occurred on RB>4 in the UE
Cell update cause	MP		Cell update cause 10.3.3.3	
Failure cause	OP		Failure cause and error information 10.3.3.14	
RB timer indicator	MP		RB timer indicator 10.3.3.28	
<b>Measurement information elements</b>				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

Condition	Explanation
<i>Failure</i>	This IE is mandatory present if the IE "Failure cause" is present and not needed otherwise.

## 10.2.8 CELL UPDATE CONFIRM

This message confirms the cell update procedure and can be used to reallocate new RNTI information for the UE valid in the new cell.

RLC-SAP: UM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
U-RNTI	<i>CV-CCCH</i>		U-RNTI 10.3.3.47	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
RLC re-establish indicator (RB2, RB3 and RB4)	MP		RLC re-establish indicator 10.3.3.35	
RLC re-establish indicator (RB5 and upwards)	MP		RLC re-establish indicator 10.3.3.35	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN Information Elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB information elements</b>				
RB information to release list	OP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.19	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.18	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
<b>CHOICE mode</b>	MP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
<b>CHOICE channel requirement</b>	OP			
>Uplink DPCH info			Uplink DPCH info 10.3.6.88.	
>CPCH SET Info			CPCH SET Info 10.3.6.13	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Downlink radio resources</b>				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

Condition	Explanation
CCCH	This IE is mandatory present when CCCH is used and ciphering is not required and not needed otherwise.

## 10.2.9 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			
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	MP		Integrity check info 10.3.3.16	
<b>RB information elements</b>				
RB COUNT-C MSB information	MP	1 to <maxRBallRABs >		For each RB (excluding signalling radio bearers) using UM or AM RLC.
>RB COUNT-C MSB information	MP		RB COUNT-C MSB information 10.3.4.14	



## 10.2.10 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			
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	MP		Integrity check info 10.3.3.16	
<b>RB information elements</b>				
RB COUNT-C information	OP	1 to < maxRBallR ABs >		
>RB COUNT-C information	MP		RB COUNT-C information 10.3.4.15	

## 10.2.11 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>CN information elements</b>				
CN Domain Identity	MP		Core Network Domain Identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	

## 10.2.12 Void

## 10.2.13 Void

## 10.2.14 Void

## 10.2.15 HANDOVER FROM UTRAN 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-RAT 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
<b>RB information elements</b>				
RAB information list	OP	1 to <maxRABs etup>		For each RAB to be handed over. In this version, the maximum size of the list of 1 shall be applied for all system types.
>RAB info	MP		RAB info 10.3.4.8	
<b>Other information elements</b>				
CHOICE <i>System type</i>	MP			This IE indicates which specification to apply, to decode the transported messages
>GSM				
>>Frequency band	MP		Enumerated (GSM/DCS 1800 band used), GSM/PCS 1900 band used)	
>>>GSM message				
>>>Single GSM message	MP		Bit string (no explicit size constraint)	Formatted and coded according to GSM specifications The first bit of the bit string contains the first

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>GSM message List	MP	1.to.<maxlnterSysMessages>	Bit string (1..512)	Formatted and coded according to GSM specifications. The first bit of the bit string contains the first bit of the GSM message.
>cdma2000				
>>cdma2000MessageList	MP	1.to.<maxlnterSysMessages>		
>>>MSG_TYPE(s)	MP		Bit string (8)	Formatted and coded according to cdma2000 specifications. The MSG_TYPE bits are numbered b0 to b7, where b0 is the least significant bit.
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications. The first bit of the bit string contains the first bit of the cdma2000 message.

## 10.2.16 HANDOVER FROM UTRAN FAILURE

This message is sent on the RRC connection used before the Inter-RAT 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>Other information elements</b>				
Inter-RAT handover failure	OP		Inter-RAT handover failure 10.3.8.6	
CHOICE <i>System type</i>	MP			This IE indicates which specification to apply to decode the transported messages
>GSM				
>GSM message List	MP	1.to.<maxlnterSysMessages>	Bit string (1..512)	Formatted and coded according to GSM specifications. The first bit of the bit string contains the first bit of the GSM message.
>cdma2000				
>>cdma2000MessageList	MP	1.to.<maxlnterSysMe		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>MSG_TYPE(s)	MP	Messages	Bit string (8)	Formatted and coded according to cdma2000 specifications. The MSG_TYPE bits are numbered b0 to b7, where b0 is the least significant bit.
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications. The first bit of the bit string contains the first bit of the cdma2000 message.

## 10.2.16a HANDOVER TO UTRAN COMMAND

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

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

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

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New U-RNTI	MP		U-RNTI Short 10.3.3.48	
Ciphering algorithm	OP		Ciphering algorithm 10.3.3.4	
<i>CHOICE specification mode</i>	MP			
>Complete specification				
<b>RB information elements</b>				
>>Signalling RB information to setup list	MP	1 to <maxSRBs etup>		For each signalling radio bearer established
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
>>RAB information to setup list	OP	1 to <maxRABs etup>		For each RAB established
>>>RAB information for setup	MP		RAB information for setup 10.3.4.10	
<b>Uplink transport channels</b>				
>>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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.5.2	
<b>Downlink transport channels</b>				
>>DL Transport channel information common for all transport channels	MP		DL Transport channel information common for all transport channels 10.3.5.6	
>>Added or Reconfigured TrCH information	MP	1 to <maxTrCH>		
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>Uplink radio resources</b>				
>>Uplink DPCH info	MP		Uplink DPCH info 10.3.6.88	
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>CPCH SET Info	OP		CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
>>>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>>>TDD				(no data)
>>Downlink information common for all radio links	MP		Downlink information common for all radio links 10.3.6.24	
>>Downlink information per radio link	MP	1 to <maxRL>		
>>>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	
>Preconfiguration				
>>CHOICE <i>Preconfiguration mode</i>	MP			
>>>Predefined configuration	MP		Predefined configuration identity 10.3.4.5	
>>>Default configuration				
>>>>Default configuration mode	MP		Enumerated (FDD, TDD)	Indicates whether the FDD or TDD version of the default configuration shall be used
>>>>Default configuration identity	MP		Default configuration identity 10.3.4.0	
>>RAB info	OP		RAB info Post 10.3.4.9	One RAB is established
>>Uplink DPCH info	MP		Uplink DPCH info Post	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.89	
<b>Downlink radio resources</b>				
>>Downlink information common for all radio links	MP		Downlink information common for all radio links Post 10.3.6.25	
>>Downlink information per radio link	MP	1 to <maxRL>		Send downlink information for each radio link to be set-up. In TDD MaxRL is 1.
>>>Downlink information for each radio link	MP		Downlink information for each radio link Post 10.3.6.28	
>>CHOICE mode	MP			
>>>FDD				(no data)
>>>TDD				
>>>>Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.59	
Frequency info	MP		Frequency info 10.3.6.36	
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.39	

## 10.2.16b 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	
<b>UE Information elements</b>				
START list	CH	1 to <maxCNdo mains>		START [40] 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 10.3.3.38	
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.

## 10.2.16c INITIAL DIRECT TRANSFER

This message is used to initiate a signalling connection based on indication from the upper layers, and to transfer a NAS 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	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>CN information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	
Intra Domain NAS Node Selector	MP		Intra Domain NAS Node Selector 10.3.1.6	
NAS message	MP		NAS message 10.3.1.8	
<b>Measurement information elements</b>				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

## 10.2.16d INTER RAT HANDOVER INFO

This message is sent by the UE via another radio access technology to provide information to the target RNC when preparing for a handover to UTRAN.

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

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

Direction: UE → UTRAN

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
<b>Radio Bearer IEs</b>				
Pre-defined configuration status information	OP		Pre-defined configuration status information 10.3.4.x	
<b>UE Information elements</b>				
UE security information	OP		UE security information 10.3.3.x	
UE radio access capability	OP		UE radio access capability 10.3.3.42	
UE radio access capability	OP		UE radio	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
extension			access capability extension 10.3.3.42a	

## 10.2.17 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>Measurement Information elements</b>				
Measurement Identity	MP		Measurement Identity 10.3.7.48	
Measurement Command	MP		Measurement Command 10.3.7.46	
Measurement Reporting Mode	OP		Measurement Reporting Mode 10.3.7.49	
Additional measurements list	OP		Additional measurements list 10.3.7.1	
CHOICE <i>Measurement type</i>	CV-command			
>Intra-frequency measurement			Intra-frequency measurement 10.3.7.36	
>Inter-frequency measurement			Inter-frequency measurement 10.3.7.16	
>Inter-RAT measurement			Inter-RAT measurement 10.3.7.27	
>UE positioning measurement			UE positioning measurement 10.3.7.100	
>Traffic Volume measurement			Traffic Volume measurement 10.3.7.68	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Quality measurement			Quality measurement 10.3.7.56	
>UE internal measurement			UE internal measurement 10.3.7.77	
<b>Physical channel information elements</b>				
DPCH compressed mode status info	OP		DPCH compressed mode status info 10.3.6.34	

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

## 10.2.18 MEASUREMENT CONTROL FAILURE

This message is sent by UE, if it cannot 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 10.2.19 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	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>Measurement Information Elements</b>				
Measurement identity	MP		Measurement identity 10.3.7.48	
Measured Results	OP		Measured Results 10.3.7.44	
Measured Results on RACH	OP		Measured Results on RACH 10.3.7.45	
Additional Measured results	OP	1 to <maxAdditionalMeas>		
>Measured Results	MP		Measured Results 10.3.7.44	
Event results	OP		Event results 10.3.7.7	

## 10.2.20 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	
<b>UE Information elements</b>				
Paging record list	OP	1 to <maxPage 1>		
>Paging record	MP		Paging record 10.3.3.23	
<b>Other information elements</b>				
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.

## 10.2.21 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Paging cause	MP		Paging cause 10.3.3.22	
<b>CN Information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	
Paging Record Type Identifier	MP		Paging Record Type Identifier 10.3.1.10	

## 10.2.22 PHYSICAL CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB information elements</b>				
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing value of the maximum allowed UL TX power
<b>CHOICE channel requirement</b>				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
>CPCH set ID			CPCH set ID 10.3.5.3	
<b>Downlink radio resources</b>				
<b>CHOICE mode</b>				
>FDD	MP			
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.23 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE <i>mode</i>	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

## 10.2.24 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	
<b>UE information elements</b>				
RRC transaction identifier	OP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 10.2.25 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 10.3.3.36	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink timing advance Control	MD		Uplink Timing Advance Control 10.3.6.96	Default value is the existing value for uplink timing advance
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.64	
PDSCH capacity allocation info	OP		PDSCH Capacity Allocation info 10.3.6.42	
Confirm request	MD		Enumerated( No Confirm, Confirm PDSCH, Confirm PUSCH)	Default value is No Confirm
Traffic volume report request	OP		Integer (0 .. 255)	Indicates the number of frames between start of the allocation period and sending measurement report. The value should be less than the value for Allocation Duration.
ISCP Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.84	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.
Request P-CCPCH RSCP	MP		Boolean	TRUE indicates that a Primary CCPCH RSCP measurement shall be reported by the UE in PUSCH CAPACITY REQUEST message.

## 10.2.26 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	<i>CV-ProtErr</i>		RRC transaction identifier 10.3.3.36	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic Volume	OP		Traffic Volume, measured results list 10.3.7.67	
Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.84	
>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.65	
Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54	
<i>CHOICE Allocation confirmation</i>	OP			
>PDSCH Confirmation			Integer(1..hi PDSCHidentities)	
>PUSCH Confirmation			Integer(1..hi PUSCHidentities)	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
Protocol error information	<i>CV-ProtErr</i>		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	This IE is mandatory present if the IE "Protocol error indicator" has the value "TRUE". Otherwise it is not needed.

## 10.2.27 RADIO BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.

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	
<b>UE Information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
<b>CN information elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB information elements</b>				
RAB information to reconfigure list	OP	1 to <maxRABse tup >		
>RAB information to reconfigure	MP		RAB information to reconfigure 10.3.4.11	
RB information to reconfigure list	MP	1 to <maxRB>		Although this IE is not always required, need is MP to align with ASN.1
>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	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
CHOICE <i>mode</i>	MP			
>FDD				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	MP	1 to <maxRL>		Although this IE is not always required, need is MP to align with ASN.1
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.28 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE <i>mode</i>	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

## 10.2.29 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	
<b>RB information elements</b>				
Radio bearers for which reconfiguration would have succeeded List	OP	1 to <maxRB>		
>Radio bearer for which reconfiguration would have succeeded	MP		RB identity, 10.3.4.16	

## 10.2.30 RADIO BEARER RELEASE

This message is used by UTRAN to release a radio bearer. It can also include modifications to the configurations of transport channels and/or physical channels. It can simultaneously indicate release of a signalling connection when UE is connected to more than one CN domain.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
Signalling Connection release indication	OP		CN domain identity 10.3.1.1	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB Information Elements</b>				
RAB information to reconfigure list	OP	1 to <maxRABse tup >		
>RAB information to reconfigure	MP		RAB information to reconfigure 10.3.4.11	
RB information to release list	MP	1 to <maxRB>		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>RB information to release	MP		RB information to release 10.3.4.19	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		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	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
<b>CHOICE mode</b>				
<b>&gt;FDD</b>				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Deleted TrCH information list	OP	1 to <maxTrCH>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
<i>CHOICE channel requirement</i>				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
<i>CHOICE mode</i>				
>FDD	MP			
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.31 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE <i>mode</i>	MP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	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
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

## 10.2.32 RADIO BEARER RELEASE FAILURE

This message is sent by UE if the configuration given by UTRAN is unacceptable or if radio bearer cannot 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	
<b>RB information elements</b>				
Radio bearers for which reconfiguration would have succeeded	OP	1 to <maxRB>		
>Radio bearer for which reconfiguration would have been succeeded	MP		RB identity, 10.3.4.16	

### 10.2.33 RADIO BEARER SETUP

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length	OP		UTRAN DRX	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
coefficient			cycle length coefficient 10.3.3.49	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB Information Elements</b>				
Signalling RB information to setup list	OP	1 to <maxSRBs etup>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
RAB information to setup list	OP	1 to <maxRABs etup>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.10	
RB information to be affected list	OP	1 to <maxRB>		
>RB information to be affected	MP		RB information to be affected 10.3.4.17	
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		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	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
<b>Downlink transport channels</b>				
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	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.34 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE <i>mode</i>	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	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 10.3.3.38	This information element is not needed for transparent mode RBs if prior to this procedure there exists one RB using RLC-TM.
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

## 10.2.35 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	
<b>RB information elements</b>				
Radio bearers for which reconfiguration would have succeeded	OP	1 to <maxRB>		
>Radio bearer for which reconfiguration would have succeeded	MP		RB identity, 10.3.4.16	

## 10.2.36 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	

<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Rejection cause	MP		Rejection cause 10.3.3.31	
Wait time	MP		Wait time 10.3.3.50	
Redirection info	OP		Redirection info 10.3.3.29	

## 10.2.37 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

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Message Type	MP		Message Type	
<b>UE information elements</b>				
U-RNTI	<i>CV-CCCH</i>		U-RNTI 10.3.3.47	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	<i>CV-DCCH</i>		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
N308	<i>CH-Cell_DCH</i>		Integer(1..8)	
Release cause	MP		Release cause 10.3.3.32	
<b>Other information elements</b>				
Rplmn information	OP		Rplmn information 10.3.8.15	

<b>Condition</b>	<b>Explanation</b>
<i>CCCH</i>	This IE is mandatory present when CCCH is used and not needed otherwise.
<i>DCCH</i>	This IE is mandatory present when DCCH is used and not needed otherwise.
<i>Cell_DCH</i>	This IE is mandatory present when UE is in CELL_DCH state and not needed otherwise.

## 10.2.38 RRC CONNECTION RELEASE COMPLETE

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

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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Error indication	OP		Failure cause and error information 10.3.3.14	

## 10.2.39 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	
<b>UE information elements</b>				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Establishment cause	MP		Establishment cause 10.3.3.11	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
<b>Measurement information elements</b>				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

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

## 10.2.40 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	
<b>UE Information Elements</b>				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.49	
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.2
<b>RB Information Elements</b>				
Signalling RB information to setup list	MP	3 to 4		
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
<i>CHOICE channel requirement</i>				
>Uplink DPCH info	OP		Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.41 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	
<b>UE Information Elements</b>				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>CN domain identity	MP		CN domain identity 10.3.1.1	
>START	MP		START 10.3.3.38	START value to be used in this CN domain.
UE radio access capability	OP		UE radio access capability 10.3.3.42	
UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
<b>Other information elements</b>				
UE system specific capability	OP	1 to <maxInter SysMessages>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	

## 10.2.41a RRC FAILURE INFO

This message is sent by the UE via another radio access technology to provide information about the cause for failure to perform the requested operation.

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

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

Direction: UE → UTRAN

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
<b>Other Information elements</b>				
Failure cause	MP		Failure cause 10.3.3.13	
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

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

## 10.2.42 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	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	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 10.3.3.36	
<b>Other information elements</b>				
Protocol error information	MP		Protocol error information 10.3.8.12	

Condition	Explanation
<i>Message identified</i>	This IE is mandatory present 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" and not needed otherwise.

## 10.2.43 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	MP		Integrity check info 10.3.3.16	
Security capability	MP		Security capability 10.3.3.37	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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 10.3.3.19	Only present if integrity protection shall be controlled
<b>CN Information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	Indicates which cipher and integrity protection keys are applicable
<b>Other information elements</b>				
UE system specific security capability	CH	1 to <maxInter SysMessages>		This IE is included if the IE "Inter-RAT UE radio access capability" was included in RRC CONNECTION SETUP COMPLETE message
>Inter-RAT UE security capability	MP		Inter-RAT UE security capability 10.3.8.8a	

## 10.2.44 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	MP		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
<b>RB Information elements</b>				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	

## 10.2.45 SECURITY MODE FAILURE

This message is sent to indicate a failure to act on a received SECURITY MODE COMMAND 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 10.2.46 SIGNALLING CONNECTION RELEASE

This message is used to notify the UE that its ongoing signalling connection 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
<b>CN information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	

## 10.2.47 SIGNALLING CONNECTION RELEASE INDICATION

This message is used by the UE to indicate to UTRAN the release of an existing signalling 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	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>CN information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	

## 10.2.48 SYSTEM INFORMATION

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message type	CV- <i>channel1</i>		Message type	
SFNprime	CV- <i>channel2</i>		Integer(0..40 94 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
<b>CHOICE Segment combination</b>	MP			<u>Five spares are needed</u>
>Combination 1				(no data)
>Combination 2				
>>First Segment	MP		First Segment, 10.2.48.1	
>Combination 3				
>>Subsequent Segment	MP		Subsequent Segment, 10.2.48.3	
>Combination 4				
>>Last segment	MP		Last segment (short),10.2. 48.5	
>Combination 5				
>>Last segment	MP		Last Segment (short)10.2.4 8.5	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 6				
>>Last Segment	MP		Last Segment (short), 10.2.48.5	
>>Complete list	MP	1 to maxSIBper Msg		Note 1

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Complete	MP		Complete SIB (short),10.2.48.7	
>Combination 7				
>>Last Segment	MP		Last Segment (short), 10.2.48.5	
>>Complete list	MP	1..<maxSIBperMsg>		Note 1
>>>Complete	MP		Complete SIB (short),10.2.48.7	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 8				
>>Complete list	MP	1 to maxSIBperMsg		Note 1
>>>Complete	MP		Complete SIB (short),10.2.48.7	
>Combination 9				
>>Complete list	MP	1..MaxSIBperMsg		Note 1
>>>Complete	MP		Complete SIB (short),10.2.48.7	
>>First Segment	MP		First Segment (short), 10.2.48.2	
>Combination 10				
>>>Complete SIB of size 215 to 226	MP		Complete SIB,10.2.48.6	
>Combination 11				
>>Last segment of size 215 to 222	MP		Last segment,10.2.48.4	

Condition	Explanation
<i>channel1</i>	The IE is mandatory present if the message is sent on the FACH and not needed otherwise.
<i>channel2</i>	This IE is mandatory present if the channel is BCH, otherwise it is not needed.

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.

### 10.2.48.1 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 2).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
SEG_COUNT	MP		SEG COUNT, 10.3.8.17	
SIB data fixed	MP		SIB data fixed, 10.3.8.19	

### 10.2.48.2 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
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
SEG_COUNT	MP		SEG COUNT, 10.3.8.17	
SIB data variable	MP		SIB data variable, 10.3.8.20	

### 10.2.48.3 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
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
Segment index	MP		Segment Index, 10.3.8.18	
SIB data fixed	MP		SIB data fixed, 10.3.8.19	



#### 10.2.48.4 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
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
Segment index	MP		Segment Index, 10.3.8.18	
SIB data fixed	MP		SIB data fixed, 10.3.8.19	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

#### 10.2.48.5 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
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
Segment index	MP		Segment Index, 10.3.8.18	
SIB data variable	MP		SIB data variable, 10.3.8.20	

#### 10.2.48.6 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 226 (Combination 10).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	
SIB data fixed	MP		Bit string (226)	In case the SIB data is less than 226 bits, padding shall be used. The same padding bits shall be used as defined in clause 12.1

#### 10.2.48.7 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 and 9).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Other information elements</b>				
SIB type	MP		SIB Type, 10.3.8.21	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data variable	MP		SIB data variable, 10.3.8.20	

## 10.2.48.8 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.

### 10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Other information elements</b>				
MIB Value tag	MP		MIB Value tag 10.3.8.9	
<b>CN information elements</b>				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV-GSM		PLMN Identity 10.3.1.11	
<b>ANSI-41 information elements</b>				
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 10.3.8.14	

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

### 10.2.48.8.2 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 10.3.8.13	

### 10.2.48.8.3 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 10.3.8.13	

### 10.2.48.8.4 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 connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>CN information elements</b>				
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 <maxCNdo mains>		Send CN information for each CN domain.
>CN domain system information	MP		CN domain system information 10.3.1.2	
<b>UE information</b>				
UE Timers and constants in idle mode	MD		UE Timers and constants in idle mode 10.3.3.44	Default value means that for all timers and constants - For parameters with need MD, the defaults specified in 10.3.3.44 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 10.3.3.43	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

### 10.2.48.8.5 System Information Block type 2

The system information block type 2 contains the URA identity.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>UTRAN mobility information elements</b>				
URA identity list	MP	1 ..<maxURA>		
>URA identity	MP		URA identity 10.3.2.6	

### 10.2.48.8.6 System Information Block type 3

The system information block type 3 contains parameters for cell selection and re-selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB4 Indicator	MP		Boolean	TRUE indicates that SIB4 is broadcast in the cell.
<b>UTRAN mobility information elements</b>				
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	

### 10.2.48.8.7 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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>UTRAN mobility information elements</b>				
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	

### 10.2.48.8.8 System Information Block type 5

The system information block type 5 contains parameters for the configuration of the common physical channels in the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB6 Indicator	MP		Boolean	TRUE indicates that SIB6 is broadcast in the cell.
<b>PhyCH information elements</b>				
PICH Power offset	MP		PICH Power offset 10.3.6.50	
CHOICE <i>mode</i>	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH.
>TDD				
>>PUSCH system information	OP		PUSCH system	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.57	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.55	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.72	
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 present if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed in the message

#### 10.2.48.8.9 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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>PhyCH information elements</b>				
PICH Power offset	MP		PICH Power offset 10.3.6.50	
CHOICE <i>mode</i>	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH.
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.57	Note 1
PRACH system information list	OP		PRACH system information list 10.3.6.55	
Secondary CCPCH system information	OP		Secondary CCPCH system information 10.3.6.72	
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 present if the IE "CTCH indicator" is equal to TRUE for at least one FACH, otherwise the IE is not needed

#### 10.2.48.8.10 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
CHOICE <i>mode</i>	MP			
>FDD				
>>UL interference	MP		UL interference 10.3.6.87	
>TDD				(no data)
<b>PhyCH information elements</b>				
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 10.3.6.35	
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 10.3.6.35	
Expiration Time Factor	MD		Expiration Time Factor 10.3.3.12	Default is 1.

#### 10.2.48.8.11 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
<b>UE information</b>				
CPCH parameters	MP		CPCH parameters 10.3.3.7	
<b>PhyCH information elements</b>				
CPCH set info list	MP	1 to <maxCPC Hsets>		
>CPCH set info	MP		CPCH set info 10.3.6.13	
CSICH Power offset	MP		CSICH Power offset 10.3.6.15	

#### 10.2.48.8.12 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
<b>PhyCH information elements</b>				
CPCH set persistence levels list	MP	1 to <maxCPC Hsets>		
>CPCH set persistence levels	MP		CPCH persistence levels 10.3.6.12	

#### 10.2.48.8.13 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
<b>UE information</b>				
DRAC system information	MP		DRAC system information 10.3.3.9	DRAC information is sent for each class of terminal

#### 10.2.48.8.14 System Information Block type 11

The system information block type 11 contains measurement control information to be used in the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB12 Indicator	MP		Boolean	TRUE indicates that SIB12 is broadcast in the cell.
<b>Measurement information elements</b>				
FACH measurement occasion info	OP		FACH measurement occasion	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.47	

#### 10.2.48.8.15 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
<b>Measurement information elements</b>				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.47	

#### 10.2.48.8.16 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
<b>Other information elements</b>				
<b>CN Information Elements</b>				
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	
<b>UE Information</b>				
UE timers and constants in idle mode	MD		UE timers and constants in idle mode 10.3.3.44	Default value means that for all timers and constants - for parameters with need MD, the defaults specified in 10.3.3.44 apply; and - for parameters with need OP, the parameters are absent.
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.2

#### 10.2.48.8.16.1 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
<b>ANSI-41 information elements</b>				
ANSI-41 RAND information	MP		ANSI-41 RAND information 10.3.9.6	

#### 10.2.48.8.16.2 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
<b>ANSI-41 information elements</b>				
ANSI-41 User Zone Identification information	MP		ANSI-41 User Zone Identification information 10.3.9.7	

#### 10.2.48.8.16.3 System Information Block type 13.3

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

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

#### 10.2.48.8.16.4 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
<b>ANSI-41 information elements</b>				
ANSI-41 Global Service Redirection information	MP		ANSI-41 Global Service Redirection information 10.3.9.2	

#### 10.2.48.8.17 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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>PhyCH information elements</b>				
Individual Timeslot interference list	MP	1 to <maxTS>		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.38	
Expiration Time Factor	MD		Expiration Time Factor 10.3.3.12	Default is 1.

#### 10.2.48.8.18 System Information Block type 15

The system information block type 15 contains information useful for UE-based or UE-assisted positioning methods.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Data ciphering info	OP		UE positioning Cipher info 10.3.7.86	If this IE is present then the SIB types 15.1, 15.2 & 15.3 are ciphered in accordance with the Data Assistance Ciphering Algorithm specified in [18]
Reference position	MP		Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	approximate position where the UE is located
GPS reference time	MP		UE positioning GPS reference time 10.3.7.96	
Satellite information	OP	1 to <maxSat>		This IE is present whenever bad (failed/failing) satellites are detected by UTRAN [18].
>BadSatID	MP		Enumerated(0..63)	

#### 10.2.48.8.18.1 System Information Block type 15.1

The system information block type 15.1 contains information useful for UE positioning DGPS Corrections. The DGPS Corrections message contents are based on a Type-1 message of DGPS specified in [13].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
DGPS corrections	MP		UE positioning GPS DGPS corrections 10.3.7.91	

#### 10.2.48.8.18.2 System Information Block type 15.2

The system information block type 15.2 contains information useful for GPS Navigation Model. These IE fields are based on information 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		Integer (0..604799)	The approximate GPS time-of-week when the message is broadcast.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
				in seconds
SatID	MP		Enumerated(0..63)	Satellite ID
GPS Ephemeris and Clock Correction Parameters	MP		UE positioning GPS Ephemeris and Clock Correction parameters 10.3.7.91a	

#### 10.2.48.8.18.3 System Information Block type 15.3

The system information block type 15.3 contains information useful for ionospheric delay, UTC offset, and Almanac. These IEs contain information extracted from the subframes 4 and 5 of the GPS navigation message, [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Integer (0..604799)	The approximate GPS time-of-week when the message is broadcast. in seconds
GPS Almanac and Satellite Health	OP		UE positioning GPS almanac 10.3.7.89	
GPS ionospheric model	OP		UE positioning GPS ionospheric model 10.3.7.92	
GPS UTC model	OP		UE positioning GPS UTC model 10.3.7.97	
SatMask	CV- <i>Almanac</i>		Bit string(1..32)	indicates the satellites that contain the pages being broadcast in this data set
LSB TOW	CV- <i>Almanac</i>		Bit string(8)	

Condition	Explanation
<i>Almanac</i>	This IE is mandatory present if the IE "GPS Almanac and Satellite Health" is present

#### 10.2.48.8.18.4 System Information Block type 15.4

The system information block type 15.4 contains ciphering information for System Information Block type 15.5 and information useful for OTDOA assisted UE Positioning method.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
OTDOA Data ciphering info	OP		UE positioning Ciphering info 10.3.7.86	If this IE is present then the for UE-based the System Information Block type 15.5 is ciphered in accordance with the Data Assistance Ciphering Algorithm specified in [18]
OTDOA assistance data for UE-assisted	OP		UE positioning OTDOA assistance data for UE-assisted 10.3.7.103	

#### 10.2.48.8.18.4a System Information Block type 15.5

The system information block type 15.5 contains information useful for OTDOA based UE Positioning method.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
OTDOA assistance data for UE-based	MP		UE positioning OTDOA assistance data for UE-based 10.3.7.103a	

#### 10.2.48.8.19 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.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<b>RB information elements</b>				
Predefined RB configuration	MP		Predefined RB configuration 10.3.4.7	
<b>TrCH Information Elements</b>				
Predefined TrCH configuration	MP		Predefined TrCH configuration 10.3.5.9	
<b>PhyCH Information Elements</b>				
Predefined PhyCH configuration	MP		Predefined PhyCH configuration 10.3.6.56	

#### 10.2.48.8.20 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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>PhyCH information elements</b>				
PUSCH system information	OP		PUSCH system information 10.3.6.66	
PDSCH system information	OP		PDSCH system information 10.3.6.46	

#### 10.2.48.8.21 System Information Block type 18

The System Information Block type 18 contains PLMN identities of neighbouring cells to be considered in idle mode as well as in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Idle mode PLMN identities	OP		PLMN identities of neighbour cells 10.3.7.53a	
Connected mode PLMN identities	OP		PLMN identities of neighbour cells 10.3.7.53a	

### 10.2.49 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	
<b>Other information elements</b>				
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.

### 10.2.50 TRANSPORT CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
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 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB information elements</b>				
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
<b>Downlink radio resources</b>				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

## 10.2.51 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE <i>mode</i>	OP			
>FDD				(no data)
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	
<b>RB Information elements</b>				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.13	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.



## 10.2.52 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 10.2.53 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: 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
<b>TrCH information elements</b>				
CHOICE <i>mode</i>	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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.5.22	
Activation time for TFC subset	MD		Activation time 10.3.3.1	Default value is "now"
TFC Control duration	OP		TFC Control duration 10.3.6.80	

## 10.2.54 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 10.2.55 UE CAPABILITY ENQUIRY

The UE CAPABILITY ENQUIRY is used by the UTRAN to enquire inter-RAT classmarks from 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Capability update requirement	MP		Capability update	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			requirement 10.3.3.2	

## 10.2.56 UE CAPABILITY INFORMATION

This message is sent by UE to convey UE specific capability information to the 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	
<b>UE information elements</b>				
RRC transaction identifier	OP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
UE radio access capability	OP		UE radio access capability 10.3.3.42	
UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
<b>Other information elements</b>				
UE system specific capability	OP	1 to <maxInter SysMessages>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	

## 10.2.57 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied

## 10.2.58 UPLINK DIRECT TRANSFER

This message is used to transfer NAS messages for an existing signalling 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	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
<b>CN information elements</b>				
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS message	MP		NAS message 10.3.1.8	
<b>Measurement information elements</b>				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

## 10.2.59 UPLINK PHYSICAL CHANNEL CONTROL

NOTE: Only for TDD.

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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	OP		Integrity check info 10.3.3.16	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<b>PhyCH information elements</b>				
CCTrCH power control info	OP		CCTrCH power control info 10.3.6.8	Power control information for one CCTrCH
Alpha	OP		Alpha 10.3.6.5	
Special Burst Scheduling	OP		Special Burst Scheduling 10.3.6.75a	UL Special Burst generation period in radio frames
Timing Advance Control	OP		UL Timing Advance Control 10.3.6.96	
PRACH Constant Value	OP		Constant value 10.3.6.11	Operator controlled PRACH Margin
PUSCH Constant Value	OP		Constant value 10.3.6.11	Operator controlled PUSCH Margin

## 10.2.60 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	
<b>UE information elements</b>				
U-RNTI	MP		U-RNTI 10.3.3.47	
RRC transaction identifier	CV- <i>ProtErr</i>		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
URA update cause	MP		URA update cause 10.3.3.46	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
<b>Other information elements</b>				
Protocol error information	CV- <i>ProtErr</i>		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	The IE is mandatory present if the IE "Protocol error indicator" has the value "TRUE" and not needed otherwise.

## 10.2.61 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	
<b>UE information elements</b>				
U-RNTI	<i>CV-CCCH</i>		U-RNTI 10.3.3.47	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	OP		UTRAN DRX cycle length coefficient 10.3.3.49	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>UTRAN mobility information elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB information elements</b>				
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.4.22	

Condition	Explanation
CCCH	This IE is mandatory present when CCCH is used and not needed otherwise.

## 10.2.62 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	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
New U-RNTI	OP		U-RNTI 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
UE Timers and constants in connected mode	OP		UE Timers and constants in connected mode 10.3.3.43	
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info full 10.3.1.3a	
<b>UTRAN Information Elements</b>				
URA identity	OP		URA identity 10.3.2.6	
<b>RB Information elements</b>				
Downlink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			information 10.3.4.22	

## 10.2.63 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
<b>RB Information elements</b>				
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	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdo mains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

## 10.2.64 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	
<b>UE information elements</b>				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.14	

## 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)	

#### 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	
<i>CHOICE CN Type</i>	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 <maxCNdo mains>		
>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: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

### 10.3.1.3a CN Information info full

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 <maxCNdo mains>		
>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	
>CN domain specific DRX cycle length coefficient	MP		CN domain specific DRX cycle length coefficient, 10.3.3.6	

### 10.3.1.4 IMEI

This IE contains an International Mobile Equipment Identity. Setting specified in [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMEI	MP	15		The first element contains the first IMEI digit, the second element the second IMEI digit and so on.
>IMEI digit	MP		INTEGER(0..15)	

### 10.3.1.5 IMSI (GSM-MAP)

This IE contains an International Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN. Setting specified in [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMSI	MP	6 to <u>4521</u>		The first element contains the first IMSI digit, the second element the second IMSI digit and so on. <u>Although normally upto 15 digits are used for this IE, a bigger length is used to support future extension.</u>
>IMSI digit	MP		INTEGER(0..9)	

### 10.3.1.6 Intra Domain NAS Node Selector

This IE carries information to be used to route the establishment of a signalling connection to a CN node within a CN domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>version</i>	MP			
>R99				
>>CHOICE <i>CN type</i>	MP			
>>>GSM-MAP				
>>>>CHOICE <i>Routing basis</i>	MP			
>>>>>local (P)TMSI				TMSI allocated in the current LA or PTMSI allocated in the current RA
>>>>>>Routing parameter	MP		Bit string (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI where bit b14 is the least significant.
>>>>>(P)TMSI of same PLMN, different (RA)LA				TMSI allocated in another LA of this PLMN or PTMSI allocated in another RA this PLMN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>>Routing parameter	MP		Bit string (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI where bit b14 is the least significant.
>>>>>(P)TMSI of different PLMN				TMSI or a PTMSI allocated in another PLMN
>>>>>Routing parameter	MP		Bit string (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI where bit b14 is the least significant.
>>>>>IMSI(response to IMSI paging)				NAS identity is IMSI
>>>>>Routing parameter	MP		Bit string (10)	The "Routing parameter" bit string consists of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
>>>>>IMSI(cause UE initiated event)				NAS identity is IMSI
>>>>>Routing parameter	MP		Bit string (10)	The "Routing parameter" bit string consists of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
>>>>>IMEI				NAS parameter is IMEI
>>>>>Routing parameter	MP		Bit string (10)	The "Routing parameter" bit string consists of DecimalToBinary [(IMEI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
>>>>>Spare 1			Bit string (10)	This choice shall not be used in this version
>>>>>Spare 2			Bit string (10)	This choice shall not be used in this version
>>>>>Entered parameter	MP		Boolean	Entered parameter shall be set to TRUE if the most significant byte of the current LAI/RAI is different compared to the most significant byte of the LAI/RAI stored on the SIM; Entered parameter shall be set to FALSE otherwise
>>>>>ANSI-41			Bit string (14)	All bits shall be set to 0

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Later			Bit string(15)	This bit string shall not be sent by mobiles that are compliant to this version of the protocol.

### 10.3.1.7 Location Area Identification

Identifies uniquely a location area for a GSM-MAP type of PLMN. Setting specified in [5].

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)	The LAC bits are numbered b0-b15, where b0 is the least significant bit.

### 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)	The first octet contains octet 1 [17] of the NAS message, the second octet contains octet 2 of the NAS message and so on.

### 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 )	The first octet contains octet 1 [17] of the NAS system information element, the second octet contains octet 2 of the NAS system information element and so on.

### 10.3.1.10 Paging record type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging record type identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/ P-TMSI, IMSI (DS-41), TMSI (DS-41))	<u>Three spare values are needed</u>

### 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 [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC	MP	3		The first element contains the first MCC digit, the second element the second MCC digit and so on.
>MCC digit	MP		INTEGER(0..9)	
MNC	MP	2 to 3		The first element contains the first MNC digit, the second element the second MNC digit and so on.
>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)	<u>One spare value is needed</u>

### 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 [11]. The P-TMSI bits are numbered b0-b31, where b0 is the least significant bit.

### 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 <i>RAB identity type</i>	MP			
>RAB identity (GSM-MAP)			Bit string (8)	Formatted according to [5]. The bits are numbered b1-b8, where b1 is the least significant bit.
>RAB identity (ANSI-41)			Bit string (8)	The bits are numbered b1-b8, where b1 is the least significant bit.

<b>CHOICE NAS binding info type</b>	<b>Condition under which the given RAB identity type is chosen</b>
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.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Routing Area Code	MP		Bit string(8)	Setting specified in [11]. The Routing Area Code bits are numbered b0 to b7, where b0 is the least significant bit.

### 10.3.1.16 Routing Area Identification

Identifies uniquely a routing area for a GSM-MAP type of PLMN. Setting specified in [11].

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
LAI	MP		Location area identification 10.3.1.7	
RAC	MP		Routing area code 10.3.1.15	

### 10.3.1.17 TMSI (GSM-MAP)

This IE contains a Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
TMSI (GSM-MAP)	MP		Bit string (32)	Setting specified in [11]. The TMSI bits are numbered b0-b31, where b0 is the least significant bit.

## 10.3.2 UTRAN mobility Information elements

### 10.3.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Cell Barred	MP		Enumerated(not barred, barred)	
Intra-frequency cell re-selection indicator	CV- <i>Barred</i>		Enumerated(not allowed, allowed)	
T <sub>barred</sub>	CV- <i>Barred</i>		Integer (10,20,40,80,160,320,640,1280)	[4] [s]
Cell Reserved for operator use	MP		Enumerated(	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			reserved, not reserved)	
Cell Reservation Extension	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
<i>Barred</i>	The IE is mandatory present 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.

NOTE: This information element may carry any implementation dependent identity that unambiguously identifies a cell 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	OP		Mapping info 10.3.2.5	This IE should not be sent.
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. This IE is also sent to the UE in SIB11/12. Both occurrences of the IE should be set to the same value.
CHOICE mode	MP			
>FDD				
>>S <sub>intrasearch</sub>	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>S <sub>intersearch</sub>	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>S <sub>searchHCS</sub>	OP		Integer (-	If a negative value is received



Information Element/Group name	Need	Multi	Type and reference	Semantics description
			105..91 by step of 2)	the UE shall consider the value to be 0. [4] [dB]
>>RAT List	OP	1 to <maxOther RAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	
>>>S <sub>search,RAT</sub>	MP		Integer (-32..20 by step of 2)	In case the value 20 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]
>>>S <sub>HCS,RAT</sub>	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>>S <sub>limit,SearchRAT</sub>	MP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>Qqualmin	MP		Integer (-24..0)	Ec/NO, [dB]
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]
>TDD				
>>S <sub>intra</sub> search	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>S <sub>inter</sub> search	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>S <sub>searchHCS</sub>	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>RAT List	OP	1 to <maxOther RAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	
>>>S <sub>search,RAT</sub>	MP		Integer (-105..91 by step of 2)	In case the value 91 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]
>>>S <sub>HCS,RAT</sub>	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				[4] [dB]
>>>S <sub>limit,SearchRAT</sub>	MP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]
>>Q <sub>rxlevmin</sub>	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]
Q <sub>hyst1s</sub>	MP		Integer (0..40 by step of 2)	[4] [dB]
Q <sub>hyst2s</sub>	CV-FDD-Quality-Measure		Integer (0..40 by step of 2)	Default value is Q <sub>hyst1s</sub> [4] [dB]
T <sub>reselections</sub>	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 10.3.6.39	[dBm] UE_TXPWR_MAX_RACH in [4].

Condition	Explanation
FDD-Quality-Measure	The IE is not needed 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
Q <sub>offset1s,n</sub>	MD		Integer(-50..50)	Default value is 0. [dB]
Q <sub>offset2s,n</sub>	CV-FDD-Quality-Measure		Integer(-50..50)	Default value is 0. [dB]
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	According to UE_TXPWR_MAX_RACH in [4], [dBm]. If applied to FDD or TDD cells, the default is the Maximum allowed UL TX power for the serving cell. If applied to a GSM cell, the default is the UE maximum output power applicable for this GSM cell, according to the UE's radio access capability.
HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
CHOICE mode	MP			
>FDD				
>>Q <sub>qualmin</sub>	CV-FDD-Serving-		Integer (-24..0)	Ec/N0, [dB] Default value is Q <sub>qualmin</sub> for

Information Element/Group name	Need	Multi	Type and reference	Semantics description
	<i>Cell</i>			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)	GSM RSSI, [dBm] Default value is Qrxlevmin for the serving cell

Condition	Explanation
<i>FDD-Quality-Measure</i>	This IE is mandatory and has a default value for Intra/Inter Frequency Cells if the IE "Cell selection and reselection quality measure" has the value CPICH Ec/No. Otherwise the IE is optional
<i>FDD-Serving-Cell</i>	This IE is mandatory and has a default value if the serving cell is an FDD cell. Otherwise the IE is mandatory present.

### 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 [4]. 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 [4].
>>Upper_limit	CV- <i>MaxInt</i>		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
<i>MaxInt</i>	This IE is mandatory present if Mapping Function Parameter List has not reached maxMeasIntervals and is not needed otherwise.

### 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 take effect. 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)	CFN [10]

### 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 FDD capability update requirement	MP		Boolean	TRUE indicates update required
UE radio access TDD capability update requirement	MP		Boolean	TRUE indicates update required
System specific capability update requirement list	OP	1 to <maxSystemCapability>		In this version, a maximum size of 4 for the list shall be applied and any items after the 4 <sup>th</sup> item in the list shall be ignored.
>System specific capability update requirement	MP		Enumerated (GSM)	

Default value is:

"UE radio capability FDD update requirement" = false

"UE radio capability TDD 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, uplink data transmission, paging response, re-entered service area, radio link failure, RLC unrecoverable error)	At least one spare value is needed.

### 10.3.3.4 Cipherng Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cipherng algorithm	MP		Enumerated (UEA0, UEA1)	

### 10.3.3.5 Cipherng mode info

This information element contains the cipherng specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cipherng mode command	MP		Enumerated (start/restart, stop)	
Cipherng algorithm	CV- <i>notStop</i>		Cipherng algorithm 10.3.3.4	
Cipherng activation 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 cipherng 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
<i>notStop</i>	The IE is mandatory present if the IE "Cipherng 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 [4]).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CN domain specific DRX cycle length coefficient	MP		Integer(6...9)	Refers to 'k' in the formula as specified in [4], 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			

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>N_ap_retrans_max	MP		Integer (1..64)	Max number of AP transmissions without AP-AICH response, a PHY parameter.
>N_access_fails	MP		Integer (1..64)	Max number of preamble ramping cycles when NAK response received, a MAC parameter.
>NF_bo_no_aich	MP		Integer (0..31)	Number of frames for UE backoff after N <sub>ap_retrans_max</sub> unsuccessful AP access 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- <i>algo</i>		Integer (1, 2)	In dB
DL DPCCH BER	MP		Integer (0..63)	The BER quality value shall be set in the range $0 \leq \text{DPCCH BER} \leq 1$ in the unit BER_dB where:  BER_dB_0: DPCCH BER = 0  BER_dB_1: $-\infty < \text{Log}_{10}(\text{DPCCH BER}) < -4.03$  BER_dB_2: $-4.03 \leq \text{Log}_{10}(\text{DPCCH BER}) < -3.965$  BER_dB_3: $-3.965 \leq \text{Log}_{10}(\text{DPCCH BER}) < -3.9$ ... BER_dB_61: $-0.195 \leq \text{Log}_{10}(\text{DPCCH BER}) < -0.13$  BER_dB_62: $-0.13 \leq \text{Log}_{10}(\text{DPCCH BER}) < -0.065$  BER_dB_63: $-0.065 \leq \text{Log}_{10}(\text{DPCCH BER}) \leq 0$

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

### 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 <maxDRA Cclasses>		DRAC information is sent for each class of terminal
>Transmission probability	MP		Transmission probability 10.3.3.39	
>Maximum bit rate	MP		Maximum bit rate 10.3.3.20	

### 10.3.3.10 RRC State Indicator

Indicates to a UE the RRC state to be entered.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC State indicator	MP		Enumerated(CELL_DCH, CELL_FACH, CELL_PCH, URA_PCH)	



### 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-RAT cell re-selection, Inter-RAT cell change order, Registration, Detach, Originating High Priority Signalling, Originating Low Priority Signalling, Call re-establishment, Terminating High Priority Signalling, Terminating Low Priority Signalling, Terminating – cause unknown)	<del>At least one</del> Twelve spare values <u>are</u> needed.

### 10.3.3.12 Expiration Time Factor

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Expiration Time Factor	MP		Enumerated(2times, 4times, 8times, 16times, 32times, 64times, 128times, 256times)	

### 10.3.3.13 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 update occurred, invalid configuration, configuration incomplete, unsupported measurement)	<del>At least one</del> Seven spare values are needed.

### 10.3.3.14 Failure cause and error information

Cause for failure to perform the requested procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Failure cause	MP		Failure cause 10.3.3.13	
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	
Deleted TGPSI	CV-CompModeErr		TGPSI 10.3.6.82	

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

### 10.3.3.15 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 <i>UE id type</i>	MP			
>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.5	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	MP		TMSI (GSM-MAP) 10.3.1.17	
->>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 10.3.1.4	
>ESN (DS-41)			Bit string (SIZE (32))	TIA/EIA/IS-2000-4
>IMSI (DS-41)			Octet string (SIZE (5..7))	TIA/EIA/IS-2000-4
>IMSI and ESN (DS-41)				TIA/EIA/IS-2000-4
>>IMSI (DS-41)	MP		Octet string (SIZE (5..7))	TIA/EIA/IS-2000-4
>>ESN (DS-41)	MP		Bit string (SIZE (32))	TIA/EIA/IS-2000-4
>TMSI (DS-41)			Octet string (SIZE (2..4217))	TIA/EIA/IS-2000-4 Although normally upto 12 digits are used for this IE, a bigger length is used to support future extension.

### 10.3.3.16 Integrity check info

The Integrity check info contains the RRC message sequence number needed in the calculation of XMAC-I [40] 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 [40]. The Message Authentication Code bits are numbered b0-b31, where b0 is the least significant bit. 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.

### 10.3.3.17 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.  The value for RB1 shall be ignored if this IE was included in a RRC message sent on RB1.  The value for RB2 shall be ignored if this IE was included in a RRC message sent on RB2.
>RRC message sequence number	MP		Integer (0..15)	

### 10.3.3.18 Integrity protection Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection algorithm	MP		Enumerated (UIA1)	

### 10.3.3.19 Integrity protection mode info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection mode command	MP		Enumerated(start, modify)	
Downlink integrity protection activation info	CV-modify		Integrity protection activation info 10.3.3.17	
Integrity protection algorithm	OP		Integrity protection algorithm 10.3.3.18	
Integrity protection initialisation number	CV-start		Bit string(32)	FRESH [40]

Condition	Explanation
Start	The IE is mandatory present if the IE "Integrity protection mode command" has the value "start ", otherwise it is not needed in the message.
Modify	The IE is mandatory present if the IE "Integrity protection mode command" has the value "modify" and not needed otherwise.

### 10.3.3.20 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

### 10.3.3.21 Measurement capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>Need for downlink compressed mode</b>				
FDD measurements	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on FDD
TDD measurements	CV- <i>tdd_sup</i>		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD
GSM measurements	CV- <i>gsm_sup</i>			
>GSM 900	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 900
>DCS 1800	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on DCS 1800

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>GSM 1900	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement	CV- <i>mc_sup</i>		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
<b>Need for uplink compressed mode</b>				
FDD measurements	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on FDD
TDD measurements	CV- <i>tdd_sup</i>		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD
GSM measurements	CV- <i>gsm_sup</i>			
>GSM 900	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 900
>DCS 1800	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on DCS 1800
>GSM 1900	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 1900
Multi-carrier measurement	CV- <i>mc_sup</i>		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
<i>tdd_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "TDD" or "FDD/TDD". Otherwise this field is not needed in the message.
<i>gsm_sup</i>	The IE is mandatory present if the IE "Inter-RAT UE radio access capability" indicates support for GSM900, GSM1800 and/or GSM1900. Otherwise this field is not needed in the message.
<i>mc_sup</i>	The IE is mandatory present if the IE "Support of multi-carrier" has the value TRUE. Otherwise this field is not needed in the message.

### 10.3.3.21a Measurement capability extension

This IE may be used to replace the measurement capability information provided within IE "Measurement capability".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
FDD measurements	MP	1 to <maxFreq BandsFDD >		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>FDD Frequency band	MD		Enumerated(FDD2100, FDD1900)	The default value is the same as indicated in the IE "Frequency band" included in the IE " UE radio access capability extension". <del>At least one Six</del> spare values <u>is</u> are needed
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on the FDD frequency band indicated by the IE "FDD Frequency band"
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on the FDD frequency band indicated by the IE "FDD Frequency band"
TDD measurements	CV- <i>tdd_sup</i>	1 to <maxFreq BandsTDD >		
>TDD Frequency band	MP		Enumerated(a, b, c)	
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD frequency band indicated by the IE "TDD Frequency band"
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD frequency band indicated by the IE "TDD Frequency band"
GSM measurements	CV- <i>gsm_sup</i>	1 to <maxFreq BandsGS M>		
>GSM Frequency band	MP		Enumerated(GSM450, GSM480, GSM850, GSM900P, GSM900E, GSM1800, GSM1900)	as defined in [45]. <del>at least one Nine</del> spare values <u>are</u> are needed.
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM frequency band indicated by the IE "GSM Frequency band"
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM frequency band indicated by the IE "GSM Frequency band"
Multi-carrier measurement	CV- <i>mc_sup</i>			

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Need for DL compressed mode	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
>Need for UL compressed mode	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
<i>tdd_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "TDD" or "FDD/TDD". Otherwise this field is not needed in the message.
<i>gsm_sup</i>	The IE is mandatory present if the IE "Support of GSM" has the value TRUE. Otherwise this field is not needed in the message.
<i>mc_sup</i>	The IE is mandatory present if the IE "Support of multi-carrier" has the value TRUE. Otherwise this field is not needed in the message.

### 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, Terminating High Priority Signalling, Terminating Low Priority Signalling, Terminating – cause unknown )	<u>One spare value is needed</u>

### 10.3.3.23 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Used paging identity</i>	MP			
>CN identity				
>>Paging cause	MP		Paging cause 10.3.3.22	
>>>CN domain identity	MP		CN domain identity	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>CHOICE <i>UE Identity</i>	MP		10.3.1.1	<u>Three spare values are needed</u>
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.5	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.17	
>>>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				
>>U-RNTI	MP		U-RNTI 10.3.3.47	
>>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
<b>CHOICE <i>Used paging identity</i></b>	<b>Condition under which the given <i>used paging identity</i> is chosen</b>
CN identity	For CN originating pages (for idle mode UEs)
UTRAN 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- <i>hc_sup</i>		Integer(512, 1024, 2048, 4096, 8192)	

Condition	Explanation
<i>hc_sup</i>	The IE is mandatory present if the 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
<b>Downlink physical channel capability information elements</b>				
FDD downlink physical channel capability	CH- <i>fdd_req_su p</i>			
>Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>Max no physical channel bits received	MP		Integer (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)
>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- <i>if_sim_rec _pdsch _sup</i>		Boolean	TRUE means supported
>Max no of S-CCPCH RL	CV- <i>if_sim_rec</i>		Integer(1)	Maximum number of simultaneous S-CCPCH radio links
>Support of dedicated pilots for channel estimation	MD		Enumerated (true)	Presence of this element means supported and absence not supported. Note 1.
TDD downlink physical channel capability	CH- <i>tdd_req_su p</i>			
>Maximum number of timeslots per frame	MP		Integer (1..14)	
>Maximum number of physical channels per frame	MP		Integer (1..224)	
>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)	
<b>Uplink physical channel capability information elements</b>				
FDD uplink physical channel capability	CH- <i>fdd_req_su p</i>			
>Maximum number of DPDCH bits transmitted per 10 ms	MP		Integer (600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600)	
>Support of PCPCH	MP		Boolean	TRUE means supported

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
TDD uplink physical channel capability	CH- <i>tdd_req_sup</i>			
>Maximum Number of timeslots per frame	MP		Integer (1..14)	
>Maximum number of physical channels per timeslot	MP		Integer (1, 2)	
>Minimum SF	MP		Integer (1, 2, 4, 8, 16)	
>Support of PUSCH	MP		Boolean	TRUE means supported

Condition	Explanation
<i>if_sim_rec_pdsch_sup</i>	The IE is mandatory present if the IE "Simultaneous reception of SCCPCH and DPCH" = True and IE Support of PDSCH = True. Otherwise this field is not needed in the message.
<i>if_sim_rec</i>	The IE is mandatory present if the IE "capability Simultaneous reception of SCCPCH and DPCH" = True. Otherwise this field is not needed in the message.
<i>tdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "TDD" or "FDD/TDD" and a TDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.
<i>fdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "FDD" or "FDD/TDD" and a FDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.

NOTE 1: These performance requirements are defined in Release 5.

### 10.3.3.26 Protocol error cause

This IE indicates the cause for a message or information that 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, Information element missing, Message extension not comprehended)	<del>At least one</del> <u>Two</u> spare values 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.

### 10.3.3.28 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.

### 10.3.3.29 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 <i>Redirection Information</i>	MP			
>Frequency info			Frequency info 10.3.6.36	
>Inter-RAT info			Inter-RAT info 10.3.7.25	

### 10.3.3.30 Re-establishment timer

This information element indicates which timer to associate with RAB.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Re-establishment timer	MP		Enumerated( useT314, useT315)	

### 10.3.3.31 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)	

### 10.3.3.32 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject, user inactivity), directed signalling connection re-establishment)	<u>One spare value is needed.</u>

### 10.3.3.33 RF capability FDD

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE power class	MP		Enumerated(1..4)	as defined in [21]
Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in [21]. NOTE: Not applicable if UE is not operating in frequency band a (as defined in [21]).

### 10.3.3.33a RF capability FDD extension

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE power class extension	MP		Enumerated(1..4)	as defined in [21]. <del>Four</del> <u>At least one spare value are</u> needed
Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in [21]. NOTE: Not applicable if UE is not operating in frequency band a (as defined in [21]).

### 10.3.3.33b RF capability TDD

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE power class	MP		Enumerated(1..4)	as defined in [22]
Radio frequency bands	MP		Enumerated(a, b, c, a+b, a+c, b+c, a+b+c)	as defined in [22]. <u>One spare value needed.</u>
Chip rate capability	MP		Enumerated(3.84Mcps, 1.28Mcps)	as defined in [22]

### 10.3.3.34 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 <u>One spare value is needed.</u>
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(3,4,5,6,8,16,30)	

### 10.3.3.35 RLC re-establish 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 re-establish indicator	MP		Boolean	TRUE means re-establish required FALSE means re-establish not required

### 10.3.3.36 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)	

### 10.3.3.37 Security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm capability	MP			
>UEA0	MP		Boolean	The value TRUE means that an unciphered connection after the Security mode control procedure is accepted by the UE.
>UEA1	MP		Boolean	The value TRUE means that UEA1, Kasumi, is supported
>Spare	MP	14	Boolean	Shall be set to FALSE by UEs complying with this version of the protocol.
Integrity protection algorithm capability	MP			
>UIA1	MP		Boolean	The value TRUE means that UIA1, Kasumi, is supported
>Spare	MP	15	Boolean	Shall be set to FALSE by UEs complying with this version of the protocol.

NOTE: The UE shall support at least one UEAx other than UEA0 and one UIAx.

### 10.3.3.38 START

There is a START value per CN domain. The START is used to initialise 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)	The START [40] bits are numbered b0-b19, where b0 is the least significant bit.

### 10.3.3.39 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

### 10.3.3.40 Transport channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<b>Downlink transport channel capability information elements</b>				
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 at an arbitrary time instant
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 at an arbitrary time instant
Max turbo coded bits received	CV- <i>turbo_dec_sup</i>		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 at an arbitrary time instant
Maximum number of simultaneous transport channels	MP		Integer(4, 8, 16, 32)	
Maximum number of simultaneous CCTrCH	MP		Integer(1..8)	
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
Maximum number of TFC in the TFCS	MP		Integer(16, 32, 48, 64, 96, 128, 256, 512, 1024)	
Maximum number of TF	MP		Integer(32, 64, 128, 256, 512, 1024)	
Support for turbo decoding	MP		Boolean	TRUE means supported
<b>Uplink transport channel capability information elements</b>				
Max no of bits transmitted	MP		Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960,	Maximum sum of number of bits of all transport blocks transmitted at an arbitrary time instant



Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			81920, 163840)	
Max convolutionally coded 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 convolutionally coded transport blocks transmitted at an arbitrary time instant
Max turbo coded bits transmitted	CV- <i>turbo_enc_sup</i>		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 at an arbitrary time instant
Maximum number of simultaneous transport channels	MP		Integer(2, 4, 8, 16, 32)	
Maximum number of simultaneous CCTrCH of DCH type	CH- <i>tdd_req_sup</i>		Integer (1..8)	
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
Maximum number of TFC in the TFCS	MP		Integer(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024)	
Maximum number of TF	MP		Integer(32, 64, 128, 256, 512, 1024)	
Support for turbo encoding	MP		Boolean	TRUE means supported

Condition	Explanation
<i>turbo_dec_sup</i>	The IE is mandatory present if the IE "Support of turbo decoding" = True. Otherwise this field is not needed in the message.
<i>turbo_enc_sup</i>	The IE is mandatory present if the IE "Support of turbo encoding" = True. Otherwise this field is not needed in the message.
<i>tdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "TDD" or "FDD/TDD" and a TDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.

### 10.3.3.41 UE multi-mode/multi-RAT capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<b>Multi-RAT capability</b>				
Support of GSM	MP		Boolean	
Support of multi-carrier	MP		Boolean	
Multi-mode capability	MP		Enumerated (TDD, FDD, FDD/TDD)	

### 10.3.3.42 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 [42]-2 (Implementation Conformance Statement (ICS) proforma specification) that is applicable for the UE.
PDCP capability	MP		PDCP capability 10.3.3.24	
RLC capability	MP		RLC capability 10.3.3.34	
Transport channel capability	MP		Transport channel capability 10.3.3.40	
RF capability FDD	OP		RF capability FDD 10.3.3.33	
RF Capability TDD	OP		RF capability TDD 10.3.3.33b	
Physical channel capability	MP		Physical channel capability 10.3.3.25	
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.41	
Security capability	MP		Security capability 10.3.3.37	
UE positioning capability	MP		UE positioning capability 10.3.3.45	
Measurement capability	CH- <i>fdd_req_sup</i>		Measurement capability 10.3.3.21	

Condition	Explanation
<i>fdd_req_sup</i>	The IE is mandatory present if the IE "Multi-mode capability" has the value "FDD" or "FDD/TDD" and a FDD capability update has been requested in a previous message. Otherwise this field is not needed in the message.

### 10.3.3.42a UE radio access capability extension

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Frequency band specific capability list	MP	1 to <maxFreqbandsFDD>		
>Frequency band	MP		Enumerated(FDD2100, FDD1900)	At least one. Six spare values are needed

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>RF capability FDD extension	MD		RF capability FDD extension 10.3.3.33a	the default values are the same values as in the immediately preceding IE "RF capability FDD extension"; the first occurrence is MP
>Measurement capability extension	MP		Measurement capability extension 10.3.3.21a	

### 10.3.3.42b UE security information

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>UE information elements</b>				
START-CS	MP		START 10.3.3.38	START values to be used in this CN domain.

### 10.3.3.43 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. This IE should not be used by the UE in this release of the protocol. <u>One spare value is needed.</u>
N301	MD		Integer(0..7)	Default value is 2. This IE should not be used by the UE in this release of the protocol.
T302	MD		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 4000. <u>One spare value is needed.</u>
N302	MD		Integer(0..7)	Default value is 3.
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. <u>At least one Three spare values is are needed.</u> Note 1.
N304	MD		Integer(0..7)	Default value is 2. Note 1.
T305	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. <u>One spare value is needed.</u>
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 160. Note 1.
T309	MD		Integer(1...8)	Value in seconds. Default value is 5. Note 1.
T310	MD		Integer(40 .. 320 by step	Value in milliseconds. Default value is 160. Note 1.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			of 40)	
N310	MD		Integer(0 .. 7)	Default value is 4. Note 1.
T311	MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is 2000. Note 1.
T312	MD		Integer (0..15)	Value in seconds. Default value is 1. The value 0 is not used in this version of the specification.
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 3. Note 1.
N313	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200)	Default value is 20. Note 1.
T314	MD		Integer(0, 2, 4, 6, 8, 12, 16, 20)	Value in seconds. Default value is 12. Note 1.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180. Note 1.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1. Note 1.
T316	MD		Integer(0, 10, 20, 30, 40, 50, infinity)	Value in seconds. Default value is 30. <u>One spare value is needed.</u>
T317	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds Default value is 180.

NOTE 1: If the value of SIB1 changes, the UE shall re-read SIB1 and use the new value of the parameter, if modified.

#### 10.3.3.44 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. Default value is 1000. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.
N300	MP		Integer(0..7)	Default value is 3. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.
T312	MP		Integer(0 .. 15)	Value in seconds. Default value is 1. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16. The value 0 is not used in this version of the specification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
N312	MP		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.

### 10.3.3.45 UE positioning 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.
Support for GPS timing of cell frames measurement	MP		Boolean	Defines if a UE has the capability to perform the UE GPS timing of cell frames measurement [7]. 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
Support for Rx-Tx time difference type2 measurement	MP		Boolean	TRUE means supported

### 10.3.3.46 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)	At least One spare value is needed.

### 10.3.3.47 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)	

### 10.3.3.48 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)	

### 10.3.3.49 UTRAN DRX cycle length coefficient

A coefficient in the formula to count the paging occasions to be used by a specific UE (specified in [4]).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX cycle length coefficient	MP		Integer(3..9)	Refers to 'k' in the formula as specified in [4], Discontinuous reception

### 10.3.3.50 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

### 10.3.4.0 Default configuration identity

This information element identifies a default radio parameter configuration.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Default configuration identity	MP		Integer (0..9)	The corresponding default configurations are specified in 13.7

### 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..50 by step of 10, 550..1000 by step of 50)	Minimum time in ms between STATUS reports
Timer_EPC	OP		Integer(50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	Time in ms

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Missing PDU Indicator	MP		Boolean	Value true indicates that UE should send a STATUS report for each missing PDU 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- <i>LosslessCriteria</i>		Boolean	TRUE means support
Max PDCP SN window size	CV- <i>Lossless</i>		Enumerated( sn255, sn65535)	Maximum PDCP sequence number window size. The handling of sequence number when the Max PDCP SN window size is 255 is specified in [23].
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 <maxPDC PAlgoType >		
>CHOICE <i>algorithm type</i>	MP			
>>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
<i>LosslessCriteria</i>	This IE is mandatory present if the IE "RLC mode" is "Acknowledged", the IE "In-sequence delivery " is "True" and the IE "SDU Discard Mode" is "No discard" and not needed otherwise.
<i>Lossless</i>	This IE is mandatory present if the IE "Support for lossless SRNS relocation" Is TRUE, otherwise it is not needed.

#### 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..65535)	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(10..550 by step of 10, 600..1000 by step of 50)	Minimum time between polls in ms
Timer_poll	OP		Integer(10..550 by step of 10, 600..1000 by step of 50)	Time in ms.
Poll_PDU	OP		Integer(1,2,4,8,16,32,64,128)	Number of PDUs, interval between pollings
Poll_SDU	OP		Integer(1,4,16,64)	Number of SDUs, interval between pollings
Last transmission PDU poll	MP		Boolean	TRUE indicates that poll is made at last PDU in transmission buffer
Last retransmission PDU poll	MP		Boolean	TRUE indicates that poll is made at last PDU in retransmission buffer
Poll_Window	OP		Integer(50,60,70,80,85,90,95,99)	Percentage of transmission window, threshold for polling
Timer_poll_periodic	OP		Integer(100, 200, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds Timer for periodic polling.

#### 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)	



### 10.3.4.5a Predefined configuration status information

Another system may provide the UE with one or more predefined UTRAN configurations, comprising of radio bearer, transport channel and physical channel parameters. If requested, the UE shall indicate the configurations it has stored. The predefined configuration status information should include the following RRC information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>RB information elements</b>				
Predefined configurations		maxPredef ConfigCount		The list is in order of preconfiguration identity
>Predefined configuration value tag	OP		Predefined configuration value tag 10.3.4.6	The UE shall include the value tag if it has stored the concerned configuration

Multi Bound	Explanation
MaxPredefConfigCount	Maximum number of predefined configurations

### 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
<b>UE information elements</b>				
Re-establishment timer	MP		Re-establishment timer 10.3.3.30	Only one RAB supported
<b>Signalling radio bearer information</b>				
Signalling RB information to setup List	MP	1 to <maxSRBs setup>		For each signalling radio bearer
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24	
<b>RB information</b>				
RB information to setup list	MP	1 to <maxRBperRAB>		Only one RAB supported
>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	
NAS Synchronization Indicator	OP		NAS Synchronization indicator 10.3.4.12	
Re-establishment timer	MP		Re-establishment timer 10.3.3.30	

### 10.3.4.9 RAB info Post

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	
NAS Synchronization Indicator	OP		NAS Synchronization indicator 10.3.4.12	

### 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	
CN domain identity	MP		CN domain identity 10.3.1.1	
NAS synchronization indicator	MP		NAS Synchronization info	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.4.12	

### 10.3.4.12 NAS Synchronization indicator

A container for non-access stratum information to be transferred transparently through UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS Synchronization indicator	MP		Bit string(4)	The bits are numbered b1-b4, where b1 is the least significant bit.

### 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	MP	1 to <maxRB>		
>RB identity	MP		RB identity 10.3.4.16	
>RLC sequence number	MP		Integer (0.. 4095)	RLC SN [16] . Used for radio bearers mapped on RLC AM and UM

### 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 )	Values 1-4 shall only be used for signalling radio bearers. The IE value minus one shall be used as BEARER in the ciphering algorithm.

#### 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	OP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
RLC info	OP		RLC info 10.3.4.23	
RB mapping info	OP		RB mapping info 10.3.4.21	
RB stop/continue	OP		Enumerated( stop, continue)	

#### 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 <i>RLC info type</i>	MP			
>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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			info 10.3.4.21	

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. This parameter is not used in this release and shall be set to TRUE.
>Number of uplink RLC logical channels	CV-UL-RLC info	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH,CPCH,USCH)	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 For radio bearers mapped to RACH, "Explicit list" is the only valid choice. The UE shall regard all other choices as undefined IE values and handle these as specified in clause 9.
>>>>All			Null	All RLC sizes listed in the <i>Transport Format Set</i> . 10.3.5.23
>>>>Configured			Null	The RLC sizes configured for this logical channel in the <i>Transport Format Set</i> . 10.3.5.23 if present in this message or in the previously stored configuration otherwise
>>>>Explicit List		1 to <maxTF>		Lists the RLC sizes that are valid for the logical channel.
>>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the <i>RLC size</i> which arrived at that position in

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				the <i>Transport Format Set</i> 10.3.5.23
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [15]
>Downlink RLC logical channel info	<i>CV-DL-RLC info</i>			
>>Number of downlink RLC logical channels	<i>MD</i>	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8.
>>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH,DCH+DSCH)	
>>>DL DCH Transport channel identity	<i>CV-DL-DCH</i>		Transport channel identity 10.3.5.18	
>>>DL DSCH Transport channel identity	<i>CV-DL-DSCH</i>		Transport channel identity 10.3.5.18	
>>>Logical channel identity	OP		Integer(1..15)	16 is reserved

Condition	Explanation
<i>UL-RLC info</i>	If "CHOICE <i>Uplink RLC mode</i> " in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.
<i>DL-RLC info</i>	If "CHOICE <i>Downlink RLC mode</i> " in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.
<i>UL-RLCLogicalChannels</i>	If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, then this IE is mandatory present. Otherwise this IE is not needed.
<i>UL-DCH/USCH</i>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.
<i>DL-DCH</i>	If IE "Downlink transport channel type" is equal to "DCH" or "DCH+DSCH" this IE is mandatory present. Otherwise the IE is not needed.
<i>DL-DSCH</i>	If IE "Downlink transport channel type" is equal to "DSCH" or "DCH+DSCH" this IE is mandatory

present. 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 <i>Uplink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used.
>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)	Elapsed time in milliseconds. It is used to trigger the retransmission of RESET PDU.
>>Max_RST	MP		Integer(1, 4, 6, 8, 12, 16, 24, 32)	Defined in [16]
>>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 <i>Downlink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>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
>>Downlink RLC status Info	MP		Downlink RLC status info 10.3.4.1	
>UM RLC				(No data)
>TM RLC				
>>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 specified in subclause 8.6.4.1
CHOICE <i>RLC info type</i>	MP			
>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"

#### 10.3.4.25 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>SDU Discard Mode</i>	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



Information Element/Group name	Need	Multi	Type and reference	Semantics description
				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)	Elapsed time in milliseconds. It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field
>>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)	Defined in [16]
>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)	Defined in [16]
>>Timer_MRW	MP		Integer(50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	Elapsed time in milliseconds. It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field
>>MaxMRW	MP		Integer(1, 4, 6, 8, 12, 16, 24, 32)	Defined in [16]
>No discard				
>>Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Defined in [16]

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
Downlink transport channel type	MP		Enumerated(DCH,DSCH)	
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
<i>CHOICE DL parameters</i>				
>Explicit				
>>TFS	MP		Transport Format Set 10.3.5.23	
>SameAsUL				
>>Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH
DCH quality target	OP		Quality target 10.3.5.10	
Transparent mode signalling info	OP		Transparent mode signalling info 10.3.5.17	This IE should not be included in this version of the protocol.

#### 10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only
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
Downlink transport channel type	MP		Enumerated(DCH,DSCH)	
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
Uplink transport channel type	MP		Enumerated(DCH,USCH)	USCH is TDD only
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 not be included in this version of the protocol.
CHOICE <i>mode</i>	MP			Although this IE is not always required, need is MP to align with ASN.1
>FDD				
>>CHOICE <i>DL parameters</i>	OP			
>>>Explicit				
>>>>DL DCH TFCS	MP		Transport Format Combination Set 10.3.5.20	Although this IE is not always required, need is MP to align with ASN.1
>>>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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>CHOICE <i>DL parameters</i>	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 14.8.

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..maxDRACclasses)	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 <i>Gain Factors</i>	MP			
>Signalled Gain Factors				
>>CHOICE <i>mode</i>				
>>>FDD				
>>>>Gain Factor $\beta_c$	MP		Integer (0.. 15)	For UL DPCH or control part of PRACH or PCPCH
>>>>TDD				(no data)
>>>>>Gain Factor $\beta_d$	MP		Integer (0..15)	For UL DPCH 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 <i>mode</i>	MP			
>FDD				
>>>Power offset P <sub>p-m</sub>	OP		Integer(-5..10)	In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				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 $\beta_c$ (only in FDD mode) and $\beta_d$ are signalled directly for a TFC.
Computed Gain Factors	The gain factors $\beta_c$ (only in FDD mode) and $\beta_d$ are computed for a TFC, based on the signalled settings for the associated reference TFC.

### 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	
<b>Added or Reconfigured TrCH information</b>				
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	
<b>Downlink transport channels</b>				
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(-6.3 ..0 by step of 0.1)	Signalled value is Log10(Transport channel BLER quality target)

### 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
Type of channel coding	MP		Enumerated(No coding, Convolutional, Turbo)	
Coding Rate	<i>CV-Coding</i>		Enumerated(1/2, 1/3)	
Rate matching attribute	MP		Integer(1..hi RM)	
CRC size	MP		Integer(0, 8, 12, 16, 24)	in bits

Condition	Explanation
<i>Coding</i>	This IE is mandatory present if IE "Type of channel coding" is "Convolutional" and not needed otherwise.

### 10.3.5.12 TFCI Field 2 Information

This IE is used for signalling the mapping between TFCI (field 2) values and the corresponding TFC.

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE <i>Signalling method</i>	MP			
>TFCI range				
>>TFCI(field 2) range	MP	1 to <maxPDS CH-TFCIgroup s>		
>>>Max TFCI(field2) value	MP		Integer(1..10 23)	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	

### 10.3.5.13 TFCS Explicit Configuration

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE <i>TFCS representation</i>	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 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 (TFCl range method)

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE <i>CTFC Size</i>	MP			
>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

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
CHOICE CTFC Size	MP			
>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

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Removal TFCI information	MP	1 to <maxTFC>		
>TFCI	MP		Transport Format Combination (TFC) 10.3.5.19	In TDD 0 is a reserved value

### 10.3.5.17 Transparent mode signalling info

This IE is not used in this version of the protocol.

### 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 <i>TFCI signalling</i>	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	

<b>CHOICE <i>TFCI signalling</i></b>	<b>Condition under which <i>TFCI signalling type</i> is chosen</b>
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 <i>Subset representation</i>	MP			
>Minimum allowed Transport format combination index			Transport format combination 10.3.5.19	
>Allowed transport format combination list		1 to <maxTFC>		
>>Allowed transport format combination	MP		Transport format combination 10.3.5.19	
>Non-allowed transport format combination list		1 to <maxTFC>		
>>Non-allowed transport format combination	MP		Transport format combination 10.3.5.19	
>Restricted TrCH information		1 to <maxTrCH>		
>>Uplink transport channel type	MP		Enumerated(DCH, USCH)	USCH is TDD only
>>Restricted UL TrCH identity	MP		Transport channel identity 10.3.5.18	
>>>Allowed TFIs	OP	1 to <maxTF>		
>>>>Allowed TFI	MP		Integer(0..31)	
>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 <i>Transport channel type</i>	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>		
>>>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- <i>dynamicTTI</i>		Integer(10,20,40,80)	Unit is ms.
>>>>>Number of Transport blocks	MP		Integer(0..512)	
>>>>>CHOICE <i>Logical Channel List</i>	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 <i>RB mapping info.</i> 10.3.4.21 if present in this

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				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- RLCLogical Channels		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>		Note
>>>RLC Size	MP		Integer(0..49 92)	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.
>>>>Number of Transport blocks	MP		Integer(0..51 2)	
>>>>CHOICE mode	MP			
>>>>>FDD				(no data)
>>>>>TDD				
>>>>>>Transmission Time Interval	CV- dynamicTT I		Integer(10,2 0,40,80)	Unit is ms.
>>>>CHOICE Logical Channel List	MP			The logical channels that are allowed to use this RLC Size. For radio bearers mapped to RACH, the UE shall regard "Explicit list" as an undefined IE value and handle these as specified in clause 9.
>>>>ALL			Null	All logical channels mapped to this transport channel.
>>>>Configured			Null	The logical channels configured to use this RLC size in the <i>RB mapping info</i> . 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- RLCLogical Channels		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".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.11	

Condition	Explanation
<i>dynamicTTI</i>	This IE is mandatory present if dynamic TTI usage is indicated in IE Transmission Time Interval in Semi-static Transport Format Information. Otherwise it is not needed.
<i>UL-RLCLogicalChannels</i>	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 mandatory present. Otherwise this IE 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 [34].

### 10.3.5.24 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PRACH TFCS	OP		Transport format combination set 10.3.5.20	This IE should not be included in this version of the protocol.
CHOICE <i>mode</i>	OP			
>FDD				
>>TFC subset	MD		Transport Format Combination Subset 10.3.5.22	Default value is the complete existing set of transport format combinations
>>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	
>>>TFC subset	MD		Transport Format Combination Subset 10.3.5.22	Default value is the complete existing set of transport format combinations

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 (see subclause 8.5.13.)

### 10.3.6.2 AICH Info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
STTD indicator	MP		STTD Indicator 10.3.6.78	
AICH transmission timing	MP		Enumerated (0, 1)	See parameter AICH_Transmission_Timing in [26]

### 10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This parameter is used to indicate the power level of AICH, AP-AICH and CD/CA-ICH channels. This is the power per transmitted Acquisition Indicator, AP Acquisition Indicator or CD/CA 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 (0..255)	Start the allocation period at the given CFN.
Allocation Duration	MP		Integer (1..256)	Total number of frames for the allocation period.

### 10.3.6.5 Alpha

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Alpha Value	MP		Enumerated(0, 1/8, 2/8, 3/8, 4/8, 5/8, 6/8, 7/8, 1)	

### 10.3.6.6 ASC setting

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Available signature Start Index	MP		Integer(0..15)	
>>Available signature End Index	MP		Integer(0..15)	
>>Assigned Sub-Channel Number	MP		Bit string(4)	This IE defines the subchannel assignment as specified in 8.6.6.29. The bits are numbered b0 to b3, where b0 is the least significant bit.
>TDD				
>>Available Channelisation codes indices	MD		Bit string(8)	Each bit indicates availability of a channelisation code index, where the channelisation code indices are numbered "channelisation code index 0" to "channelisation code index 7". The value 1 of a bit indicates that the channelisation code index is available for the ASC this IE is associated to. The value 0 of a bit indicates that the channelisation code index is not available for the ASC this IE is associated to. Default is that all channelisation codes defined in PRACH Info are available.
>>CHOICE <i>subchannel size</i>	MP			
>>>Size1				
>>>>Available Subchannels	MP		null	Indicates that all Subchannels are available.
>>>Size2				
>>>>Available Subchannels	MD		Bit string (2)	NOTE 1
>>>Size4				
>>>>Available Subchannels	MD		Bit string (4)	NOTE 1
>>>Size8				
>>>>Available Subchannels	MD		Bit string (8)	NOTE

NOTE: Each bit indicates availability of a subchannel, where the subchannels are numbered subchannel 0, subchannel 1 etc. The value 1 of a bit indicates that the subchannel is available for the ASC this IE is associated with. The value 0 of a bit indicates that the subchannel is not available for the ASC this IE is associated with. Default value of the IE is that all subchannels within the size are available for the ASC this IE is associated with.

### 10.3.6.7 Void

### 10.3.6.8 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 10.3.6.91	

### 10.3.6.8a Cell and Channel Identity info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Burst type	MP		Enumerated (Type1, Type2)	Identifies the channel in combination with the Midamble shift and slot number
Midamble Shift	MP		Integer (0...15)	
Time Slot	OP		Timeslot number 10.3.6.84	This IE is present only if no IPDL scheme is configured in the reference cell. Otherwise the slot is defined by the IPDL configuration.
Cell parameters ID	MP		Cell parameters ID 10.3.6.9	Identifies the cell

### 10.3.6.9 Cell parameters Id

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Cell parameter Id	MP		Integer(0..127)	

### 10.3.6.10 Common timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
2 <sup>nd</sup> 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



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

### 10.3.6.11 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 subclause 8.5.7.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Constant value	MP		Integer (-35..-10)	In dB

### 10.3.6.12 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	MP		Dynamic persistence level 10.3.6.35	Persistence level for transport format.

### 10.3.6.13 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	Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			Format Set 10.3.5.23	Information allocated to this CPCH set.
TFCS	MP		Transport Format Combination Set 10.3.5.20	Transport Format Set Information allocated to this CPCH set
AP preamble scrambling code	MP		Integer (0..79)	Preamble scrambling code for AP in UL
AP-AICH channelisation code	MP		Integer(0..255)	Channelisation code for AP-AICH in DL
CD preamble scrambling code	MP		Integer (0..79)	Preamble scrambling code for CD in UL
CD/CA-ICH channelisation code	MP		Integer (0..255)	Channelisation code for CD/CA-ICH in DL
Available CD access slot subchannel	CV- <i>CDSigPresent</i>	1 to <maxPCP CH-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 <maxPCP CH-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 $T_{EOT} = N_{TTI} * \text{ceil}(N_{EOT}/N_{TTI})$ , where $N_{TTI}$ is the number of frames per TTI and "ceil" refers to rounding up to nearest integer.
Channel Assignment Active	OP		Boolean	When present, indicates that Node B send a CA message and VCAM mapping rule (14.11) shall be used.
CPCH status indication mode	MP		CPCH status indication mode 10.3.6.14	
PCPCH Channel Info.	MP	1 to <maxPCP CHs>		
>UL scrambling code	MP		Integer (0..79)	For PCPCH message part
>DL channelisation code	MP		Integer (0..511)	For DL DPCCH for PCPCH message part
>DL scrambling code	MD		Secondary Scrambling	Default is the same scrambling code as for the primary

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			Code 10.3.6.74	CPICH.
>PCP length	MP		Enumerated (0, 8)	Indicates length of power control preamble, 0 slots (no preamble used) or 8 slots
>UCSM Info	CV-NCAA			
>>Minimum Spreading Factor	MP		Integer (4,8,16,32,64,128,256)	The UE may use this PCPCH at any Spreading Factor equal to or greater than the indicated minimum Spreading Factor. The Spreading Factor for initial access is the minimum Spreading Factor.
>>>NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>>>Channel request parameters for UCSM	MP			Required in UE channel selection mode.
>>>>Available AP signature	MP	1 to <maxPCP CH-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 <maxPCP CH-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 <maxPCP CH-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 <maxPCP CH-APsig>		Signatures for AP preamble in UL.
>>>>>>AP signature			Integer (0..15)	
>>>>>>>Available AP sub-channel	OP	1 to <maxPCP CH-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
<i>CDSigPresent</i>	This IE is optional if IE "Available CD signatures" is present and not needed otherwise.
<i>NCAA</i>	This IE is mandatory present if IE "Channel Assignment Active" is not present and not needed otherwise.
<i>CAA</i>	This IE is mandatory present if IE "Channel Assignment Active" is present and not needed otherwise.

#### 10.3.6.14 CPCH Status Indication mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH Status Indication mode	MP		Enumerated (PA mode, PAMASF mode)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)

CPCH Status Indication mode defines the structure of the CSICH information that is broadcast by Node B on the CSICH channel. CSICH mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). [26] defines the structure of the CSICH information for both CSICH modes.

#### 10.3.6.15 CSICH Power offset

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

#### 10.3.6.16 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 <i>mode</i>				
>FDD				
>>Default DPCH Offset Value (DOFF)	MP		Integer (0..306688 by step of 512)	Number of chips=. 0 to 599 time 512 chips, see [10].
>TDD				
>>Default DPCH Offset Value (DOFF)	MP		Integer(0..7)	Number of frames; See [10]

### 10.3.6.17 Downlink channelisation codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>codes representation</i>	MP			
>Consecutive codes				
>>First channelisation code	MP		Enumerated ( (16/1)...(16/1 6))	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)...(16/1 6))	If this is the same as First channelisation code, only one code is used by the physical layer.
>Bitmap				
>>Channelisation codes bitmap	MP		Bit string(16)	Each bit indicates the availability of a channelisation code for SF16, where the channelisation codes are numbered as channelisation code 1 (SF16) to channelisation code 16 (SF16). (For SF 16, a 1 in the bitmap means that the corresponding code is used, a 0 means that the corresponding code is not used.) If all bits are set to zero, SF 1 shall be used.

### 10.3.6.18 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated( Initialise, Maintain)	NOTE
CFN-targetSFN frame offset	CV- <i>TimInd</i>		Integer(0..25 5)	In frame
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	
CHOICE <i>mode</i>	MP			
>FDD				
>>Power offset $P_{\text{Pilot-DPCH}}$	MP		Integer(0..24 )	Power offset equals $P_{\text{Pilot}} - P_{\text{DPCH}}$ , range 0..6 dB, in steps of 0.25 dB
>>Downlink rate matching restriction information	OP		Downlink rate matching restriction information 10.3.6.31	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)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>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). In ASN.1 choice "Otherwise" is not explicitly available as all values are available, it is implied by the use of any value other than 128 or 256.
>TDD				(no data)

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

Condition	Explanation
<i>TimInd</i>	This IE is optional if the IE "Timing Indication" is set to "Initialise". Otherwise it is not needed.

NOTE: Within the HANDOVER TO UTRAN COMMAND message, only value "initialise" is applicable.

#### 10.3.6.19 Downlink DPCH info common for all RL Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	

#### 10.3.6.20 Downlink DPCH info common for all RL Pre

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>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	In bits

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
			(2,4,8)	
>>>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 10.3.6.10	

CHOICE <i>SF</i>	Condition under which the given <i>SF</i> 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

### 10.3.6.21 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.62	
>>DPCH frame offset	MP		Integer(0..381 44 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in [26]
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.73	
>>DL channelisation code	MP	1 to <maxDPC H-DLchan>		For the purpose of physical channel mapping [27] the DPCHs are numbered, starting from DPCH number 1, according to the order that they are contained in this IE.
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.74	Default is the same scrambling code as for the Primary CPICH
>>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenum 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 10.3.6.85	
>>SSDT Cell Identity	OP		SSDT Cell	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			Identity 10.3.6.76	
>>Closed loop timing adjustment mode	CH- <i>TxDiversity Mode</i>		Integer(1, 2)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	MP	1..<maxCC TrCH>		
>>>TFCS ID	MD		Integer(1..8)	Identity of this CCTrCh. Default value is 1
>>>Time info	MP		Time Info 10.3.6.83	
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.10	Default is the current Common timeslot info
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.32	Default is to use the old timeslots and codes.
>>>UL CCTrCH TPC List	MD	0..<maxCC TrCH>		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	

Condition	Explanation
<i>SF/2</i>	The information element is mandatory present if the UE has an active compressed mode pattern sequence, which is using compressed mode method "SF/2". Otherwise the IE is not needed.
<i>TxDiversity Mode</i>	This IE is mandatory present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Otherwise the IE is not needed.

### 10.3.6.22 Downlink DPCH info for each RL Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.62	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.74	Default is the same scrambling code as for the Primary CPICH
>>CHOICE <i>Spreading factor</i>	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512- AndCodenumbr with "code number" in ASN.1
>>Code number	MP		Integer(0.. Spreading	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Scrambling code change	CH-SF/2		factor - 1) 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 10.3.6.85	
>TDD				
>>Downlink DPCH timeslots and codes	MP		Downlink Timeslots and Codes 10.3.6.32	

### 10.3.6.23 Downlink DPCH power control information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	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 [29].
>TDD				
>>TPC Step Size	OP		Integer (1, 2, 3)	In dB

### 10.3.6.24 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 10.3.6.18	
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.33	Default value is the existing value of DPCH compressed mode information
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.86	Default value is the existing value of TX Diversity mode
>>SSDT information	OP		SSDT information 10.3.6.77	
>TDD				(no data)
Default DPCH Offset Value	OP		Default DPCH Offset Value, 10.3.6.16	

### 10.3.6.25 Downlink information common for all radio links Post

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 10.3.6.19	

### 10.3.6.26 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 10.3.6.20	

### 10.3.6.27 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 10.3.6.60	
>>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.47	
>>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.43	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.21	
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	

### 10.3.6.28 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 10.3.6.60	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			post 10.3.6.58	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL Post 10.3.6.22	

### 10.3.6.29 Void

### 10.3.6.30 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 10.3.6.47	
PDSCH code mapping	OP		PDSCH code mapping 10.3.6.43	

### 10.3.6.31 Downlink rate matching restriction information

This IE indicates which TrCH is restricted in TFI.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Restricted TrCH information	OP	1 to <maxTrCH >		
>Downlink transport channel type	MP		Enumerated( DCH,DSCH)	
>Restricted DL TrCH identity	MP		Transport channel identity 10.3.5.18	
>Allowed TFIs	MP	1 to <maxTF>		
>>Allowed TFI	MP		Integer(0..31 )	

### 10.3.6.32 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 10.3.6.37	Individual timeslot info for the first timeslot used by the physical layer.
First timeslot channelisation codes	MP		Downlink channelisation codes 10.3.6.17	These codes shall be used by the physical layer in the timeslot given in First Individual timeslot info.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>more timeslots</i>	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 <i>parameters</i>	MP			
>>>>Same as last				
>>>>>Timeslot number	MP		Timeslot Number 10.3.6.84	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 10.3.6.37	
>>>>>Channelisation codes	MP		Downlink channelisation codes 10.3.6.17	

### 10.3.6.33 DPCH compressed mode info

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission gap pattern sequence	MP	1 to <maxTGPS>		
>TGPSI	MP		TGPSI 10.3.6.82	
>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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>TGCFN	CV-Active		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 carrier RSSI measurement, GSM Initial BSIC identification, GSM BSIC re-confirmation, Multi-carrier measurement)	Transmission Gap pattern sequence Measurement Purpose.
>>TGPRC	MP		Integer (1..511, Infinity)	The number of transmission gap patterns within the Transmission Gap Pattern Sequence.
>>TGSN	MP		Integer (0..14)	Transmission Gap Starting Slot Number The slot number of the first transmission gap slot within the TGCFN.
>>TGL1	MP		Integer(1..14)	The length of the first Transmission Gap within the 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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>ITP	MP		Enumerated (mode 0, mode 1).	Initial Transmit Power is the uplink power control method to be used to compute the initial transmit power after the compressed mode gap.
>>CHOICE <i>UL/DL mode</i>	MP			
>>>DL only				Compressed mode used in DL only
>>>>Downlink compressed mode method	MP		Enumerated (puncturing, SF/2, higher layer scheduling)	Method for generating downlink compressed mode gap
>>>UL only				Compressed mode used in UL only
>>>>Uplink compressed mode method	MP		Enumerated (SF/2, higher layer scheduling)	Method for generating uplink compressed mode gap
>>>UL and DL				Compressed mode used in UL and DL
>>>>Downlink compressed mode method	MP		Enumerated (puncturing, SF/2, higher layer scheduling)	Method for generating downlink compressed mode gap
>>>>Uplink compressed mode method	MP		Enumerated (SF/2, higher layer scheduling)	Method for generating uplink compressed mode gap
>>Downlink frame type	MP		Enumerated (A, B)	
>>DeltaSIR1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the frame containing the start of the first transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)
>>DeltaSIRafter1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the first transmission gap in the transmission gap pattern.
>>DeltaSIR2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the frame containing the start of the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase) When omitted, DeltaSIR2 = DeltaSIR1.
>>DeltaSIRafter2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the second transmission gap in the transmission gap pattern. When omitted, DeltaSIRafter2 = DeltaSIRafter1.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>N Identify abort	CV-Initial BSIC		Integer(1..128)	Indicates the maximum number of repeats of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure
>>T Reconfirm abort	CV-Re-confirm BSIC		Real(0.5..10.0 by step of 0.5)	Indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure. The time is given in steps of 0.5 seconds.

Condition	Explanation
Active	This IE is mandatory present when the value of the IE "TGPS Status Flag" is "Active" and not needed otherwise.
Initial BSIC	This IE is mandatory present when the value of the IE "TGMP" is set to "GSM Initial BSIC identification" and not needed otherwise.
Re-confirm BSIC	This IE is mandatory present when the value of the IE "TGMP" is set to "GSM BSIC re-confirmation" and not needed otherwise.

#### 10.3.6.34 DPCH Compressed Mode Status Info

This information element indicates status information of the compressed mode used by the UE in order to perform inter-frequency and inter-RAT measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGPS reconfiguration CFN	MP		Integer (0..255)	Connection Frame Number of the frame where already active Transmission Gap Pattern Sequences shall be deactivated
Transmission gap pattern sequence	MP	1 to <maxTGPS>		
>TGPSI	MP		TGPSI 10.3.6.82	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	CV-Active		Integer (0..255)	Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence.

Condition	Explanation
Active	This IE is mandatory present when the value of the IE "TGPS Status Flag" is "Active" and not needed otherwise.

### 10.3.6.35 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. The mapping is described in subclause 8.5.12.

### 10.3.6.36 Frequency info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UARFCN uplink (Nu)	OP		Integer(0..16383)	[21] If IE not present, default duplex distance of 190 MHz shall be used.
>>UARFCN downlink (Nd)	MP		Integer(0 .. 16383)	[21]
>TDD				
>>UARFCN (Nt)	MP		Integer(0 .. 16383)	[22]

### 10.3.6.37 Individual timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Timeslot number 10.3.6.84	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 10.3.6.41	

### 10.3.6.38 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 10.3.6.84	
UL Timeslot Interference	MP		UL Interference 10.3.6.87	



### 10.3.6.39 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

### 10.3.6.40 Void

### 10.3.6.41 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 <i>Burst Type</i>	MP			
>Type 1				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	
>>Midamble configuration burst type 1 and 3	MP		Integer(4, 8, 16)	As defined in [30]
>>Midamble Shift	CV-UE		Integer(0..15)	
>Type 2				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	
>>Midamble configuration burst type 2	MP		Integer(3, 6)	As defined in [30]
>>Midamble Shift	CV-UE		Integer(0..5)	
>Type 3				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, UE specific midamble)	
>>Midamble configuration burst type 1 and 3	MP		Integer(4, 8, 16)	As defined in [30]
>>Midamble Shift	CV-UE		Integer (0..15)	NOTE: Burst Type 3 is only used in uplink.

Condition	Explanation
UE	This IE is mandatory present when the value of the IE "Midamble Allocation Mode" is "UE-specific midamble" and not needed otherwise.

### 10.3.6.42 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.
<i>CHOICE Configuration</i>	MP			
>Old configuration				
>>PDSCH Identity	MP		Integer(1..hi PDSCHidentities)	
>New configuration				
>>PDSCH Info	MP		PDSCH Info 10.3.6.44	
>>PDSCH Identity	OP		Integer(1..hi PDSCHidentities)	
>>PDSCH power control info	OP		PDSCH power control info 10.3.6.45	

### 10.3.6.43 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). The following signalling methods are specified:

- 'code range': the mapping is described in terms of a number of groups, each group associated with a given spreading factor;
- 'TFCI range': the mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code;
- 'Explicit': the mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2);
- 'Removal': replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Scrambling Code	MD		Secondary scrambling code 10.3.6.74	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
<i>Choice signalling method</i>	MP			
>code range				
>>PDSCH code mapping	MP	1 to < maxPDSC H-TFCIgroups >		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>multi-code info	MP		Integer(1..16)	
>>>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 < maxPDSCHTFCIgroups >		
>>>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)	
>>>Code number (for PDSCH code)	MP		Integer(0..Spreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	
>Explicit				
>>PDSCH code info	MP	1 to < maxTFCI-2-Combs >		The first instance of the parameter <i>PDSCH code</i> corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1 and so on.
>>>Spreading factor (for PDSCH code)	MP		Integer(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0..Spreading factor-1)	
>>>multi-code info	MP		Integer(1..16)	
>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)	
>>>multi-code info	MP		Integer(1..16)	

### 10.3.6.44 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 10.3.6.10	
PDSCH timeslots and codes	OP		Downlink Timeslots and Codes 10.3.6.32	Default is to use the old timeslots and codes.

### 10.3.6.45 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 CCH TPC List	OP	1..<maxCC TrCH>		UL CCH identities for TPC commands associated with this DL CCH
>UL TPC TFCS Identity	MP		Transport Format Combination Set Identity 10.3.5.21	

### 10.3.6.46 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..hi PDSCH identities)	
>PDSCH info	MP		PDSCH info 10.3.6.44	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.75	
>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 not needed in System Information Block 17. Otherwise it is optional.

### 10.3.6.47 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		Primary CPICH info 10.3.6.60	This parameter indicates on which radio link the user will be allocated resource on the DSCH.
TFCI(field2) Combining set	OP	1 to <maxRL>		This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
>Radio link identifier	MP		Primary CPICH info 10.3.6.60	

### 10.3.6.48 Persistence scaling factors

This IE defines scaling factors associated with ASC 2 – ASC 7 to be applied to the dynamic persistence value.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service Class	MP	1 to maxASCpersist		multiplicity corresponds to the number of PRACH partitions minus 2
>Persistence scaling factor	MP		Real(0.9..0.2, by step of 0.1)	Scaling factors in the range 0,...,1

### 10.3.6.49 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>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 10.3.6.78	
>TDD				
>>Channelisation code	MD		Enumerated ( (16/1)...(16/16) )	Default value is the channelisation code used by the SCCPCH carrying the associated PCH.
>>>Timeslot number	MD		Timeslot number 10.3.6.84	Default value is the timeslot used by the SCCPCH carrying the associated PCH.
>>>Midamble shift and burst type	MP		Midamble shift and burst type 10.3.6.41	
>>>Repetition period/length	MD		Enumerated(	Default value is "(64/2)".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			(4/2),(8/2), (8/4),(16/2), (16/4), (32/2),(32/4), (64/2),(64/4)	
>>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 <sub>GAP</sub>	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 <sub>PCH</sub>	MD		Integer(1 .. 8)	Number of paging groups. Default value is 2.

### 10.3.6.50 PICH Power offset

This is the power transmitted on the PICH minus power of the Primary CPICH in FDD and Primary CCPCH Tx Power in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PICH Power offset	MP		Integer(-10 .. +5)	Offset in dB

### 10.3.6.51 PRACH Channelisation Code List

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>SF</i>	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))	

### 10.3.6.52 PRACH info (for RACH)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Available Signature	MP		Bit string(16)	Each bit indicates availability for a signature, where the signatures are numbered "signature 0" up to "signature 15". The value 1 of a bit indicates that the corresponding signature is

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				available and the value 0 that it is not available.
>>Available SF	MP		Integer (32,64,128,256)	In chips per symbol Defines the minimum allowed SF (i.e. the maximum rate)
>>Preamble scrambling code number	MP		Integer (0 .. 15)	Identification of scrambling code see [28]
>>Puncturing Limit	MP		Real(0.40..1.00 by step of 0.04)	
>>Available Sub Channel Number	MP		Bit string(12)	Each bit indicates availability for a subchannel, where the subchannels are numbered "subchannel 0" to "subchannel 11". The value 1 of a bit indicates that the corresponding subchannel is available and the value 0 indicates that it is not available.
>TDD				
>>Timeslot number	MP		Timeslot number 10.3.6.84	
>>PRACH Channelisation Code List	MP		PRACH Channelisation Code List 10.3.6.51	
>>PRACH Midamble	MP		Enumerated (Direct, Direct/Inverted)	Direct or direct and inverted midamble are used for PRACH

### 10.3.6.53 PRACH partitioning

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service class	MP	1 to maxASC		
ASC Setting	MD		ASC setting 10.3.6.6	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" for FDD and "all available channelisation codes" and "all available subchannels" with "subchannel size=Size 1" in TDD.

### 10.3.6.54 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

### 10.3.6.55 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRA CH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.52	
>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) NOTE: For TDD in this release there is a single TF within the RACH TFS.
>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). NOTE: For TDD in this release there is no TFCS required.
>PRACH partitioning	MD		PRACH partitioning 10.3.6.53	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 10.3.6.48	This IE shall not be present if only ASC 0 and ASC 1 are defined. 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	CV-SIB5-MD		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5. Default value is the value of "AC-to-ASC mapping" for the previous PRACH in the list (note : the first occurrence is then MP in SIB5).
>CHOICE mode	MP			
>>FDD				
>>>Primary CPICH TX power	MD		Primary CPICH TX power 10.3.6.61	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	Default value is the value of



Information element	Need	Multi	Type and reference	Semantics description
			value 10.3.6.11	"Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>PRACH power offset	MD		PRACH power offset 10.3.6.54	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 10.3.6.67	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)

Condition	Explanation
<i>SIB5-MD</i>	The information element is present only in SIB 5 and in SIB 5 it is mandatory with default.

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 different TFS and/or TFCS, then for that combination only the TFS/TFCS of the PRACH listed first is valid, where PRACHs listed in System Information Block type 5 shall be counted first.

### 10.3.6.56 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
<b>Uplink radio resources</b>				
Uplink DPCH info	MP		Uplink DPCH info Pre 10.3.6.90	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links Pre 10.3.6.26	

### 10.3.6.57 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>TX Diversity indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>CHOICE <i>SyncCase</i>	OP			
>>>Sync Case 1				
>>>>Timeslot	MP		Integer	PCCPCH timeslot

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Sync Case 2			(0..14)	
>>>>Timeslot	MP		Integer(0..6)	
>>Cell parameters ID	OP		Cell parameters Id 10.3.6.9	The Cell parameters ID is described in [32].
>>SCTD indicator	MP		SCTD indicator 10.3.6.70a	

### 10.3.6.58 Primary CCPCH info post

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>SyncCase</i>	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 10.3.6.9	The Cell parameters ID is described in [32].
SCTD indicator	MP		SCTD indicator 10.3.6.70a	

### 10.3.6.59 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

### 10.3.6.60 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)	

### 10.3.6.61 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)	Power in dBm.

### 10.3.6.62 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)	

### 10.3.6.63 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 10.3.6.10	
PUSCH timeslots and codes	OP		Uplink Timeslots and Codes 10.3.6.94	

### 10.3.6.64 PUSCH Capacity Allocation info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>PUSCH allocation</i>	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 10.3.6.65	
>>TFCS ID	MD		Integer(1..8)	Default is 1.
>>CHOICE <i>Configuration</i>	MP			
>>>Old configuration				
>>>>PUSCH Identity	MP		Integer(1..hi PUSCHidentities)	
>>>New configuration				
>>>>PUSCH info	MP		PUSCH info 10.3.6.63	
>>>>PUSCH Identity	OP		Integer(1..hiPUSCHidentities)	

### 10.3.6.65 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

### 10.3.6.66 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..hi PUSCHidentities)	
>PUSCH info	MP		PUSCH info 10.3.6.63	
>SFN Time Info	CH-Block17		SFN Time Info 10.3.6.75	
>USCH TFS	OP		Transport format set 10.3.5.23	
>USCH TFCS	OP		Transport Format Combination Set 10.3.5.20	

Condition	Explanation
Block17	This IE is not needed in System Information Block 17. Otherwise it is optional.

### 10.3.6.67 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

### 10.3.6.68 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.6.21	
TFCI combining indicator	MP		TFCI combining indicator 10.3.6.81	
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70	Note 1

NOTE 1: These IEs are present when the UE needs to listen to system information on FACH in CELL\_DCH state.

### 10.3.6.69 Radio link removal information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.60	

### 10.3.6.70 SCCPCH Information for FACH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.71	
TFCS	MP		Transport format combination set 10.3.5.20	For FACHs and PCH
FACH/PCH information	MP	1 to <maxFACH HPCH>		
>TFS	MP		Transport format set 10.3.5.23	For each FACHs and PCH
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
CHOICE mode				
>FDD				
>>References to system information blocks	MP	1 to <maxSIB-FACH>		
>>>Scheduling information	MP		Scheduling information 10.3.8.16	
>>>SIB type SIBs only	MP		SIB Type SIBs only, 10.3.8.22	
>TDD				(No data)

NOTE: TFS for PCH shall be the first "FACH/PCH information" in the list if a PCH exists for the respective secondary CCPCH.

### 10.3.6.70a SCTD indicator

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCTD indicator	MP		Boolean	TRUE indicates that SCTD is used

### 10.3.6.71 Secondary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Secondary scrambling code	OP		Secondary scrambling code 10.3.6.74	May only be sent for SCCPCH channels not carrying the PCH.
>>STTD indicator	MD		STTD Indicator 10.3.6.78	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"
>>TFCl 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	MP		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 10.3.6.10	
>>Individual timeslot info	MP		Individual timeslot info 10.3.6.37	
>>Code List	MP	1 to 16		
>>>Channelisation Code	MP		Enumerated( (16/1)..(16/16))	

### 10.3.6.72 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCC PCH>		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.71	Note 1
>TFCS	MD		Transport format combination set 10.3.5.20	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 <maxFACH PCH>		Default value is the value of "FACH/PCH" for the previous SCCPCH in the list (note : the first occurrence is then MP)
>>TFS	MP		Transport format set 10.3.5.23	For each FACH and PCH Note 2
>>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>>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 10.3.6.49	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.

### 10.3.6.73 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 10.3.6.74	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Integer(0..255)	SF=256

### 10.3.6.74 Secondary scrambling code

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MP		Integer(1..15)	

### 10.3.6.75 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.

### 10.3.6.75a Special Burst Scheduling

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Special Burst Generation Period	MP		Integer (2, 4, 8, 16, 32, 64, 128, 256)	Value in radio frames

### 10.3.6.76 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)	

### 10.3.6.77 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.

### 10.3.6.78 STTD indicator

NOTE: Only for FDD



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

### 10.3.6.79 TDD open loop power control

This information element contains parameters for open loop power control setting for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CCPCH Tx Power	MP		Primary CCPCH Tx Power 10.3.6.59	For path loss calculation
Alpha	OP		Alpha 10.3.6.5	
PRACH Constant Value	MP		Constant Value 10.3.6.11	Operator controlled PRACH Margin
DPCH Constant Value	MP		Constant Value 10.3.6.11	Operator controlled UL DPCH Margin
PUSCH Constant Value	OP		Constant Value 10.3.6.11	Operator controlled PUSCH Margin

### 10.3.6.80 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.

### 10.3.6.81 TFCI Combining Indicator

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2), which will be transmitted on the DPCCCH of a newly added radio link, should be soft-combined with the others in the TFCI (field 2) combining set. This IE is relevant only when the UE is in CELL\_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCI combining indicator	MP		Boolean	TRUE means that TFCI is combined, FALSE means that TFCI is not combined or that this IE is not applicable to the added radio link.

### 10.3.6.82 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.

### 10.3.6.83 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".

### 10.3.6.84 Timeslot number

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Integer(0..14)	Timeslot within a frame

### 10.3.6.85 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.

### 10.3.6.86 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)	

### 10.3.6.87 UL interference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL interference	MP		Integer (-110..-70)	In dBm

NOTE: In TDD, this IE is a timeslot specific value.

### 10.3.6.88 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 10.3.6.91	
CHOICE <i>mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16777215)	
>>Number of DPDCH	MD		Integer(2..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	Minimum allowed SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	OP		Integer (1, 2)	In bits.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.96	
>>UL CCTrCH List	MP	1 to <maxCCTrCH>		
>>>TFCS ID	MD		Integer(1..8)	Default value is 1.
>>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>Time info	MP		Time info 10.3.6.83	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.10	Default is the current Common timeslot info
>>>Uplink DPCH timeslots and codes	MD		Uplink Timeslots and Codes 10.3.6.94	Default is to use the old timeslots and codes.

### 10.3.6.89 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 10.3.6.92	
CHOICE <i>mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>>Reduced scrambling code number	MP		Integer(0..8191)	Sub-range of values for initial use upon handover to UTRAN.
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part There is only one DPDCH for this case
>TDD				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.96	
>>Uplink DPCH timeslots and codes	MP		Uplink Timeslots and Codes 10.3.6.94	

### 10.3.6.90 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 10.3.6.93	
CHOICE <i>mode</i>	MP			
>FDD				
>>TFCI existence	MP		Boolean	TRUE means existence. Default value is "TRUE"
>>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Common timeslot info	MP		Common Timeslot Info 10.3.6.10	

Condition	Explanation
<i>Single</i>	This IE is mandatory present if the IE "Number of DPDCH" is "1" and not needed otherwise.

### 10.3.6.91 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 <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Integer(-164,..-6 by step of 2)	In dB
>>PC Preamble	MP		Integer (0..7)	In number of frames
>>SRB delay	MP		Integer(0..7)	In number of frames
>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV- <i>algo</i>		Integer (1, 2)	In dB
>TDD				
>>UL target SIR	OP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>CHOICE <i>UL OL PC info</i>	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 10.3.6.38	
>>>>DPCH Constant Value	OP		Constant Value 10.3.6.11	Quality Margin
>>>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.59	For Pathloss Calculation

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

### 10.3.6.92 Uplink DPCH power control info Post

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Integer(-110..-50 by step of 4)	In dB
>>PC Preamble	MP		Integer (0..7)	in number of frames
>>SRB delay	MP		Integer (0..7)	In number of frames
>TDD				
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>UL Timeslot Interference	MP		UL Interference 10.3.6.87	

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

### 10.3.6.93 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 <i>mode</i>	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	<i>CV-algo</i>		Integer (1, 2)	In dB
>TDD				(No data)
>>DPCH Constant Value	MP		Constant Value 10.3.6.11	Quality Margin

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

### 10.3.6.94 Uplink Timeslots and Codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic SF usage	MP		Boolean	
First Individual timeslot info	MP		Individual timeslot info 10.3.6.37	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)..(16/16))	
CHOICE <i>more timeslots</i>	MP			
>No more timeslots				(no data)
>Consecutive timeslots				

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>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 10.3.6.84	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 10.3.6.37	
>>>>>>>Code List	MP	1..2		
>>>>>>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

### 10.3.6.95 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

### 10.3.6.96 Uplink Timing Advance Control

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Timing Advance</i>	MP			
>Disabled			Null	Indicates that no timing advance is applied
>Enabled				
>>UL Timing Advance	MD		Uplink Timing Advance 10.3.6.95	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 10.3.7.48	

#### 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 10.3.7.60	In chips. This IE is absent for serving cell.
Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.60	This IE is absent only if measuring RSSI only (broadband measurement.)



Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>TX Diversity Indicator	MP		Boolean	TRUE indicates that transmit diversity is used.
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.59	
>>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- <i>BCHopt</i>		Cell Selection and Re-selection for SIB11/12Info 10.3.2.4	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.

Condition	Explanation
<i>BCHopt</i>	This IE is Optional when sent in SYSTEM INFORMATION, Otherwise, the IE is not needed

### 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 10.3.7.63	
Cell synchronisation information	OP		Cell synchronisation information 10.3.7.6	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>CPICH Ec/N0	OP		Integer(0..49)	According to CPICH_Ec/No in [19] and [20] <u>Fourteen spare values are needed.</u>

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>CPICH RSCP	OP		Integer(0..91)	According to CPICH_RSCP in [19] and [20]. Thirty- six spare values are needed.
>>>Pathloss	OP		Integer(46..158)	In dB Fifteen spare values are needed.
>TDD				
>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9	
>>>Proposed TGSN	OP		Integer (0..14)	Proposal for the next TGSN
>>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54	
>>>Pathloss	OP		Integer(46..158)	In dB Fifteen spare values are needed.
>>>Timeslot list	OP	1 to <maxTS>		
>>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

#### 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 <i>mode</i>	MP			
>FDD				
>>>Primary CPICH info	MP	1 to <maxCellMEas>	Primary CPICH info 10.3.6.60	
>TDD				
>>>Primary CCPCH info	MP	1 to <maxCellMEas>	Primary CCPCH info 10.3.6.57	

#### 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 reporting indicator	MP		Enumerated( No report, type 1, type 2)	
Cell synchronisation information reporting indicator	MP		Boolean	
Cell Identity reporting indicator	MP		Boolean	
CHOICE <i>mode</i>	MP			
>FDD				
>>>CPICH Ec/N0 reporting indicator	MP		Boolean	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>CPICH RSCP reporting indicator	MP		Boolean	
>>Pathloss reporting indicator	MP		Boolean	
>TDD				
>>Timeslot ISCP reporting indicator	MP		Boolean	
>>Proposed TGSN Reporting required	MP		Boolean	
>>Primary CCPCH RSCP reporting indicator	MP		Boolean	
>>Pathloss reporting indicator	MP		Boolean	

### 10.3.7.6 Cell synchronisation information

The IE "Cell synchronisation information" contains the OFF and Tm as defined in [7] and [8] and the four most significant bits of the difference between the 12 least significant bits of the RLC Transparent Mode COUNT-C in the UE and the SFN of the measured 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 <i>mode</i>	MP			
>FDD				
>>COUNT-C-SFN frame difference	OP			
>>>COUNT-C-SFN high	MP		Integer(0..3840 by step of 256)	in frames
>>>OFF	MP		Integer(0..255)	in frames
>>Tm	MP		Integer(0..38399)	in chips
>TDD				
>>COUNT-C-SFN frame difference	OP			
>>>COUNT-C-SFN high	MP		Integer(0..3840 by step of 256)	in frames
>>>OFF	MP		Integer(0..255)	in 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 <i>event result</i>	MP			One spare value is needed.
>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-RAT measurement			Inter-RAT	For IS-2000 results, include

Information Element/Group name	Need	Multi	Type and reference	Semantics description
event results			measurement event results 10.3.7.28	fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.69	
>Quality measurement event results			Quality measurement event results 10.3.7.57	
>UE internal measurement event results			UE internal measurement event results 10.3.7.78	
>UE positioning measurement event results			UE positioning measurement event results 10.3.7.101	

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-RAT measurement event results	If measurement type = inter-RAT 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
UE positioning measurement event results	If measurement type = UE positioning measurement

### 10.3.7.8 FACH measurement occasion info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
FACH Measurement occasion cycle length coefficient	OP		Integer(1..12)	
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
Inter-RAT measurement indicators	OP	1 to <maxOther RAT>		
>RAT type	MP		Enumerated(GSM, IS2000)	

### 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

### 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	<i>CV-Penalty used</i>			
>Temporary_offset1	MP		Integer(3, 6, 9, 12, 15, 18, 21, inf)	[dB]
>Temporary_offset2	<i>CV-FDD-Quality-Measure</i>		Integer(2, 3, 4, 6, 8, 10, 12, inf)	[dB]

Condition	Explanation
<i>Penalty used</i>	This IE is not needed if the IE "Penalty time" equals "not used", else it is mandatory present.
<i>FDD-Quality-Measure</i>	This IE is not needed if the IE "Cell selection and reselection quality measure" has the value CPICH RSCP, otherwise the IE is mandatory present. This conditional presence is implemented in ASN.1 by the use of a specific RSCP and EcN0 variant of 10.3.7.10.

### 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
Qhcs	MD		Qhcs 10.3.7.54a	Default value = 0
HCS Cell Re-selection Information	MP		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
Qhcs	MD		Qhcs 10.3.7.54a	Default value = 0
T <sub>CRmax</sub>	MD		Enumerated( not used, 30, 60, 120, 180, 240)	[s] Default value is not used
N <sub>CR</sub>	CV-UE speed detector		Integer(1..16 )	Default value = 8
T <sub>CRmaxHyst</sub>	CV-UE speed detector		Enumerated( not used, 10, 20, 30, 40, 50, 60, 70)	[s]

Condition	Explanation
UE Speed detector	This IE is not needed if T <sub>CRmax</sub> equals 'not used', else it is mandatory present.

### 10.3.7.13 Inter-frequency cell info list

Contains the information for the list of measurement objects for an inter-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Inter-frequency cell removal</i>	OP			
>Remove all inter-frequency cells				No data
>Remove some inter-frequency cells				
>>Removed inter-frequency cells	MP	1 .. <maxCellMeas>		
>>>Inter-frequency cell id	MP		Integer(0 .. <maxCellMeas>-1)	
>No inter-frequency cells removed				No data
New inter-frequency cells	OP	1 to <maxCellMeas>		
>Inter-frequency cell id	MD		Integer(0 .. <maxCellMeas>-1)	
>Frequency info	MD		Frequency info 10.3.6.36	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	
Cell for measurement	CV- BCHopt	1 to <maxCellMeas>		
>Inter-frequency cell id	MP		Integer(0 .. <maxCellMeas>-1)	

Condition	Explanation
<i>BCHopt</i>	This IE is not needed when sent in SYSTEM INFORMATION. Otherwise, the IE is Optional

#### 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)	<u>Two spare values are needed.</u>

#### 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 10.3.6.36	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(0..76 )	According to UTRA_carrier_RSSI_LEV in [19] and [20]. <u>51 spare values are needed.</u>
>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 measurement objects list	MP		Inter-frequency cell info list 10.3.7.13	
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
Inter-frequency set update	OP		Inter-frequency set update 10.3.7.22	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>report criteria</i>	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 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE " <i>report criteria</i> " 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 10.3.7.14	
Inter-frequency cells	OP	1 to <maxFreq>		
>Frequency info	MP		Frequency info 10.3.6.36	
>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 <i>reporting criteria</i>	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement	MP		Intra-	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
quantity			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 <maxMeas Event>		
>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 2		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 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms.
>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>Parameters required for each non-used frequency	OP	1 to <maxFreq >		In this release, the first listed threshold and W parameter shall apply to all non-used frequencies.
>>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. This IE is not needed if the IE "Inter-frequency event identity" is set to 2a. However, it is specified to be mandatory to align with the ASN.1.
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	This IE is mandatory present if the IE "Inter frequency event identity" is set to 2b, 2d, or 2f, otherwise the IE is not needed.
Clause 1	This IE is mandatory present if the IE "Inter frequency event identity" is set to 2a, 2b, 2c or 2e, otherwise the IE is not needed
Clause 2	This IE is mandatory present if the IE "Inter-frequency event identity" is set to 2a, 2b, 2d or 2f, 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 cell info list	OP		Inter-frequency cell info list 10.3.7.13	

### 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. This parameter is not used in this release and should be set to FALSE. It shall be ignored by the UE.
Non frequency related cell reporting quantities	MP		Cell reporting quantities 10.3.7.5	

### 10.3.7.22 Inter-frequency SET UPDATE

NOTE 1: Only for FDD.

Contains the changes of the virtual 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 virtual 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	<i>CV-Update</i>			
>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 10.3.6.60	NOTE 2
>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 10.3.6.60	NOTE 2

Condition	Explanation
<i>Update</i>	The IE is mandatory present if the IE"UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

NOTE 2: 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-RAT cell info list

Contains the information for the list of measurement objects for an inter-RAT measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Inter-RAT cell removal</i>	MP			
>Remove all inter-RAT cells				No data
>Remove some inter-RAT cells				
>>Removed inter-RAT cells	MP	1 to <maxCellMeas>		
>>>Inter-RAT cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no inter-RAT cells				
New inter-RAT cells	MP	1 to <maxCellMeas>		Although this IE is not always required, need is MP to align with ASN.1
>Inter-RAT cell id	OP		Integer(0 .. <maxCellMeas> - 1)	
>CHOICE <i>Radio Access Technology</i>	MP			
>>GSM				
>>>Cell individual offset	MP		Integer (-50..50)	In dB Used to offset measured quantity value
>>>Cell selection and re-selection info	OP		Cell selection and re-selection info for SIB11/12 10.3.2.4	see 8.6.7.3 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	
>>>Band indicator	MP		Enumerated (DCS 1800 band used, PCS 1900 band used)	Indicates how to interpret the BCCH ARFCN
>>>BCCH ARFCN	MP		Integer (0..1023)	[45]
>>IS-2000				
>>>System specific measurement info	MP		enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, subclause 3.7.3.3.2.27, <i>Candidate Frequency Neighbour List Message</i>
>>None			(no data)	This value has been introduced to handle the case when IE "New inter-RAT cells" is not required
Cell for measurement	OP	1 to <maxCellMeas>		
>Inter-RAT cell id	MP		Integer(0 .. <maxCellMeas>-1)	

### 10.3.7.24 Inter-RAT event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT event identity	MP		Enumerated (3a, 3b, 3c, 3d)	

### 10.3.7.25 Inter-RAT info

Inter-RAT info defines the target system for redirected cell selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT info	MP		Enumerated (GSM)	

### 10.3.7.26 Inter-RAT measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT measurement results	OP	1 to <maxOther RAT-16>		
>CHOICE <i>system</i>	MP			At least <u>One</u> spare value <u>is</u> needed
>>GSM				
>>>Measured GSM cells	MP	1 to <maxReportedGSMCells>		
>>>>GSM carrier RSSI	OP		bit string(6)	RXLEV, [46]. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit.
>>>>CHOICE <i>BSIC</i>	MP			
>>>>>Verified BSIC				
>>>>>>inter-RAT cell id	MP		Integer(0..<maxCellMeasurements>-1)	
>>>>>>Non verified BSIC				
>>>>>>>BCCH ARFCN	MP		Integer (0..1023)	[45]
>>>>>>>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.52	

### 10.3.7.27 Inter-RAT measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT measurement objects list	OP		Inter-RAT cell info list 10.3.7.23	
Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
<i>CHOICE report criteria</i>	MP			
>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE " <i>report criteria</i> " is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

### 10.3.7.28 Inter-RAT measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-RAT measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT event identity	MP		Inter-RAT event identity 10.3.7.24	
Cells to report	MP	1 to <maxCellMeas>		
>CHOICE <i>BSIC</i>	MP			
>>Verified <i>BSIC</i>				
>>>inter-RAT cell id	MP		Integer(0..<maxCellMeas>-1)	
>>Non verified <i>BSIC</i>				
>>>BCCH ARFCN	MP		Integer (0..1023)	[45]

### 10.3.7.29 Inter-RAT measurement quantity

The quantity the UE shall measure in case of inter-RAT 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	OP		Intra-frequency measurement quantity 10.3.7.38	
<i>CHOICE system</i>	MP			
>GSM				
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		Enumerated(required, not required)	
>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

The IE "BSIC verification required" must be set to "required" if IE "Observed time difference to GSM cell" in IE "Inter-RAT reporting quantity" is set to "true".

### 10.3.7.30 Inter-RAT measurement reporting criteria

The triggering of the event-triggered reporting for an inter-RAT measurement. All events concerning inter-RAT 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 <maxMeas Event>		
>Inter-RAT event identity	MP		Inter-RAT event identity 10.3.7.24	
>Threshold own system	CV-clause 0		Integer (-115..0)	
>W	CV-clause 0		Real(0, 0.1..2.0 by step of 0.1)	In event 3a
>Threshold other system	CV-clause 1		Integer (-115..0)	In event 3a, 3b, 3c
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory present if the IE "Inter-RAT event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory present if the IE "Inter-RAT event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

### 10.3.7.31 Inter-RAT measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT cell info list	OP		Inter-RAT cell info list 10.3.7.23	

### 10.3.7.32 Inter-RAT 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	This parameter is not used in this release and should be set to FALSE.
CHOICE system	MP			
>GSM				
>>Observed time difference to GSM cell Reporting indicator	MP		Boolean	
>>GSM Carrier RSSI Reporting indicator	MP		Boolean	

### 10.3.7.33 Intra-frequency cell info list

Contains the information for the list of measurement objects for an intra-frequency measurement.



Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Intra-frequency cell removal</i>	OP			Absence of this IE is equivalent to choice "Remove no intra-frequency cells".
>Remove all intra-frequency cells				No data
>Remove some intra-frequency cells				
>>Removed intra-frequency cells	MP	1 to <maxCellMeas>		
>>>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no intra-frequency cells				
New intra-frequency cells	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	OP		Integer(0 .. <maxCellMeas> - 1)	
>Cell info	MP		Cell info 10.3.7.2	
Cells for measurement	CV- <i>BCHopt</i>	1 to <maxCellMeas>		
>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas>-1)	

Condition	Explanation
<i>BCHopt</i>	This IE is not needed when sent in SYSTEM INFORMATION. Otherwise, the IE is Optional

### 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,1i)	<u>Seven spare values are needed.</u>

### 10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement 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 measurement objects 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	OP		Intra-frequency reporting quantity 10.3.7.41	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
<i>CHOICE report criteria</i>	OP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE " <i>report criteria</i> " 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 measurement event results	MP		Cell measurement 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 <i>mode</i>	MP			
>FDD				
>>Measurement quantity	MP		Enumerated( CPICH Ec/N0, CPICH RSCP, Pathloss, UTRA Carrier RSSI)	
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated( Primary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	

### 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 (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 <maxMeas Event>		
>Intra-frequency event identity	MP		Intra- frequency event identity 10.3.7.34	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>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 Constant	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 CPICH info 10.3.6.60	
>>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>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..-25 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	Indicates the period of time between the timing of event

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			10.3.7.64	detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	CV–clause 7		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	In case the IE "Intra-frequency reporting criteria" is included in the IE "Inter-frequency measurement", this IE is not needed.
>Reporting interval	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. In case the IE "Intra-frequency reporting criteria" is included in the IE "Inter-frequency measurement", this IE is not needed.
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed.
Clause 1	The IE is optional if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 2	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed.
Clause 3	The IE is mandatory present if the IE "Intra-frequency event identity" is set to , "1e", "1f", "1h" or "1i", otherwise the IE is not needed.
Clause 4	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed.
Clause 5	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed.
Clause 6	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1e", otherwise the IE is not needed.
Clause 7	The IE is mandatory present if the IE "Intra-frequency event identity" is set to "1a" or "1c", otherwise the IE is not needed.

#### 10.3.7.40 Intra-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement identity	MD		Measurement identity 10.3.7.48	The intra-frequency measurement identity 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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency reporting quantity for RACH Reporting	OP		10.3.7.38 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 10.3.7.43	
Reporting information for state CELL_DCH	OP		Reporting information for state CELL_DCH 10.3.7.62	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 reporting indicator	MP		Enumerated( No report, type 1, type 2)	
CHOICE <i>mode</i>	MP			
>FDD				
>>Reporting quantity	MP		Enumerated( CPICH Ec/N0, CPICH RSCP, Pathloss, No report)	
>TDD				
>>Reporting quantity list	MP	1 to 2		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>Reporting quantity	MP		Enumerated (Timeslot ISCP, Primary CCPCH RSCP, No report)	

#### 10.3.7.43 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)	

#### 10.3.7.44 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 <i>Measurement</i>	MP			<u>One spare value is needed.</u>
>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-RAT measured results list			Inter-RAT measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.67	
>Quality measured results list			Quality measured results list 10.3.7.55	
>UE Internal measured results			UE Internal measured	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			results 10.3.7.76	
>UE positioning measured results			UE positioning measured results 10.3.7.99	

### 10.3.7.45 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 quantity (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 <i>mode</i>	MP			
>FDD				
>>CHOICE <i>measurement quantity</i>	MP			<u>One spare value is needed.</u>
>>>CPICH Ec/No			Integer(0..49 )	In dB. According to CPICH_Ec/No in [19]. <u>Fourteen spare values are needed</u>
>>>CPICH RSCP			Integer(0..91 )	In dBm. According to CPICH_RSCP_LEV in [19]. <u>Thirty- six spare values are needed.</u>
>>>Pathloss			Integer(46..158)	In dB. <u>Fifteen spare values are needed.</u>
>TDD				
>>Timeslot List	OP	1 to 14		
>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.65	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 10.3.7.54	
Measurement results for monitored cells	OP	1 to 78		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.63	It is absent for current cell
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>>CHOICE <i>measurement quantity</i>	OP			It is absent for current cell. <u>One spare value is needed.</u>
>>>>CPICH Ec/No			Integer(0..49 )	In dB. According to CPICH_Ec/No in [19]. <u>Fourteen spare values are needed.</u>



Information Element/group name	Need	Multi	Type and reference	Semantics description
>>>>CPICH RSCP			Integer(0..91 )	In dBm. According to CPICH_RSCP_LEV in [19]. <u>Thirty- six spare values are needed.</u>
>>>>Pathloss			Integer(46..158)	In dB <u>Fifteen spare values are needed.</u>
>>TDD				
>>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9	
>>>Primary CCPCH RSCP	MP		Primary CCPCH RSCP info 10.3.7.54	

NOTE: Monitored cells consist of current cell and neighbouring cells.

### 10.3.7.46 Measurement Command

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement command	MP		Enumerated( Setup, Modify, Release)	

### 10.3.7.47 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-RAT measurement system information	OP		Inter-RAT measurement system information 10.3.7.31	
Traffic volume measurement system information	OP		Traffic volume measurement system information 10.3.7.73	

UE Internal measurement system information	OP		UE Internal measurement system information 10.3.7.81	
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### 10.3.7.48 Measurement Identity

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	MP		Integer(1..16)	

### 10.3.7.49 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)	

### 10.3.7.50 Measurement Type

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Type	MP		Enumerated (Intra-frequency, Inter-frequency, Inter-RAT, Traffic volume, Quality, UE internal, UE positioning)	

### 10.3.7.51 Measurement validity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE state	MP		Enumerated(CELL_DCH, all states except CELL_DCH, all states)	

### 10.3.7.52 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Integer(0,4095)	According to GSM_TIME in [19] and [20]

### 10.3.7.53 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)	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

### 10.3.7.53a PLMN identities of neighbour cells

This IE contains the PLMN identities of neighbour cells.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMNs of intra-frequency cells list	OP	1 to <maxCellMEas>		
>PLMN identity	MD		PLMN identity 10.3.1.11	Default value is the previous "PLMN identity" in the list. The default value for the first PLMN in the list is the identity of the selected PLMN if the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP"; otherwise, the first occurrence is MP.
PLMNs of inter-frequency cells list	OP	1 to <maxCellMEas>		

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>PLMN identity	MD		PLMN identity 10.3.1.11	Default value is the previous "PLMN identity" in the list. The default value for the first PLMN in the list is the identity of the selected PLMN if the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP"; otherwise, the first occurrence is MP.
PLMNs of inter-RAT cells list	OP	1 to <maxCellIM eas>		
>PLMN identity	MD		PLMN identity 10.3.1.11	Default value is the previous "PLMN identity" in the list. The default value for the first PLMN in the list is the identity of the selected PLMN if the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP"; otherwise, the first occurrence is MP.

#### 10.3.7.54 Primary CCPCH RSCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Primary CCPCH RSCP	MP		Integer(0..91)	According to P-CCPCH_RSCP_LEV in [19] and [20]. <u>Thirty- six spare values are needed.</u>

#### 10.3.7.54a Qhcs

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Qhcs	MP		Integer(0..99)	Qhcs, mapped from CPICH Ec/No (FDD), see [4] [dB] 0: -24 1: -23.5 2: -23 3: -22.5 ... 45: -1.5 46: -1 47: -0.5 48: 0 49: (spare) ... 98: (spare) 99: (spare)

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
				Qhcs, mapped from CPICH RSCP (FDD), see [4] [dBm] 0: -115 1: -114 2: -113 : 88: -27 89: -26 90: -(spare) 91: -(spare) : 98: -(spare) 99: -(spare)
				Qhcs, mapped from PCCPCH RSCP (TDD), see [4] [dBm] 0: -115 1: -114 2: -113 : 88: -27 89: -26 90: -(spare) 91: -(spare) : 98: -(spare) 99: -(spare)
				Qhcs level, mapped from Averaged received signal level RSSI (GSM), see [4] [dBm] 0: -110 1: -109 2: -108 : 61: -49 62: -48 63: -47 64: -46 65: -45 66: -44 67: -43 68: -42 69: -41 70: -40 71: -39 72: -38 73: -37 74: -(spare) : 98: -(spare) 99: -(spare)

### 10.3.7.55 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	transport channel type = DCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			identity 10.3.5.18	
>DL Transport Channel BLER	OP		Integer (0..63)	According to BLER_LOG in [19] and [20]
CHOICE <i>mode</i>	MP			
>FDD				No data
>TDD				
>>SIR measurement results	OP	1 to <MaxCCTrCH>		SIR measurements for DL CCTrCH
>>>TFCS ID	MP		Integer(1..8)	
>>>Timeslot list	MP	1 to <maxTS>		for all timeslot on which the CCTrCH is mapped on
>>>>SIR	MP		Integer(0..63)	According to UE_SIR in [20]

### 10.3.7.56 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.59	
CHOICE <i>report criteria</i>	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.57 Quality measurement event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channels causing the event	OP	1 to <maxTrCH>		
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	transport channel type = DCH

### 10.3.7.58 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 >		
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	transport channel type = DCH
>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

### 10.3.7.59 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	<i>CV-BLER reporting</i>	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	transport channel type = DCH
<i>CHOICE mode</i>	MP			
>FDD				No data
>TDD				
>>SIR measurement list	OP	1 to <maxCCTrCH>		SIR measurements shall be reported for all listed TFCS IDs
>>>TFCS ID	MP		Integer(1..8)	

Condition	Explanation
<i>BLER reporting</i>	This IE is not needed if the IE "DL Transport Channel BLER" is "False" and optional if the IE "DL Transport Channel BLER" is "True"

### 10.3.7.60 Reference time difference to cell

In the System Information message, the reference time difference to cell indicates the timing 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 timing 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 <i>accuracy</i>	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

### 10.3.7.61 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 on and/or detected set cells 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 <i>reported cell</i>	MP			
>Report cells within active set				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within active set and/or monitored set cells on used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within detected set on used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report all active set cells + cells within monitored set on used frequency				This choice is not valid for inter-RAT measurements
>>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 detected set on used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active	



Information Element/Group name	Need	Multi	Type and reference	Semantics description
			set cells+2, ....., virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT measurements
>>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				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored and/or virtual active set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report all virtual active set cells + cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, ....., virtual/active set cells+6)	
>Report cells within active set or within virtual active set or of the other RAT				
>>Maximum number of reported cells	MP		Integer (1..12)	
>Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..12)	

### 10.3.7.62 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 10.3.7.49	
<i>CHOICE report criteria</i>	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	

### 10.3.7.63 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<i>CHOICE type</i>	MP			
>Type 1			Integer(0..9830399)	According to T1_SFNSFN_TIME in [19] and [20]. <u>6946816 spare values are needed.</u>
>Type 2			Integer(0..40961)	According to T2_SFNSFN_TIME in [19] and [20] <u>24574 spare values are needed.</u>

### 10.3.7.64 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)	Time in ms

### 10.3.7.65 Timeslot ISCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Timeslot ISCP	MP		Integer (0..91)	According to UE_TS_ISCP_LEV in [20] <u>Thirty- six spare values are needed.</u>

### 10.3.7.66 Traffic volume event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume event identity	MP		Enumerated(4a, 4b)	

### 10.3.7.67 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, <u>Twelve spare values are needed.</u>
>Average of 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, <u>Twelve spare values are needed.</u>
>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, <u>Two spare values are needed.</u>

### 10.3.7.68 Traffic volume measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement Object	OP		Traffic volume measurement Object 10.3.7.70	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
Measurement validity	OP		Measurement validity 10.3.7.51	
<i>CHOICE report criteria</i>	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.69 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink transport channel type causing the event	MP		Enumerated(DCH,RACH or CPCH,USCH)	USCH is TDD only. CPCH is FDD only. RACH or CPCH is the currently configured default in the uplink.
UL Transport Channel identity	<i>CV-UL-DCH/USCH</i>		Transport channel identity 10.3.5.18	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	

Condition	Explanation
<i>UL-DCH/USCH</i>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.

### 10.3.7.70 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <maxTrCH >		
>Uplink transport channel type	MP		Enumerated(DCH,RACHorCPCH,USCH)	USCH is TDD only. CPCH is FDD only. RACHorCPCH is the currently configured default in the uplink.
>UL Target Transport Channel ID	<i>CV-UL-DCH/USCH</i>		Transport channel identity 10.3.5.18	

Condition	Explanation
<i>UL-DCH/USCH</i>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.

### 10.3.7.71 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)	The use of this parameter is described in section 8.6.7.10.
Time Interval to take an average or a variance	<i>CV-A/V</i>		Integer(20, 40, ..260, by steps of 20)	In ms

Condition	Explanation
<i>A/V</i>	This IE is mandatory present when "Average RLC buffer" or "Variance of RLC buffer payload" is chosen and not needed otherwise.

### 10.3.7.72 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: Transport Channel Traffic Volume [15] exceeds an absolute threshold.

Event 4b: Transport Channel Traffic Volume [15] becomes smaller than an absolute threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH >		This IE is always required, need is OP to align with ASN.1
>Uplink transport channel type	OP		Enumerated(DCH,RACHorCPCH,USCH)	USCH is TDD only. CPCH is FDD only. RACHorCPCH is the currently configured default in the uplink.
>UL Transport Channel ID	CV-UL-DCH/USCH		Transport channel identity 10.3.5.18	
>Parameters required for each Event	OP	1 to <maxMeas perEvent>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	
>>Reporting Threshold	MP		Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K)	Threshold in bytes And N Kbytes = N*1024 bytes
>>Time to trigger	OP		Time to trigger 10.3.7.64	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)	Indicates the period of time during which it is forbidden to send any new measurement reports with the same Traffic volume event identity even if the triggering condition is fulfilled. Time in milliseconds
>>Tx interruption after trigger	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)	Time in milliseconds. Indicates how long the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.

Condition	Explanation
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is optional. Otherwise the IE is not needed.

### 10.3.7.73 Traffic volume measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement identity	MD		Measurement identity 10.3.7.48	The traffic volume measurement identity has default value 4.
Traffic volume measurement object	OP		Traffic volume measurement object 10.3.7.70	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
Measurement validity	OP		Measurement validity 10.3.7.51	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.49	
<i>CHOICE reporting criteria</i>	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	

### 10.3.7.74 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 of RLC Buffer Payload for each RB	MP		Boolean	
Variance of RLC Buffer Payload for each RB	MP		Boolean	

### 10.3.7.75 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)	

### 10.3.7.76 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		UE Transmitted Power info 10.3.7.85	
>>UE Rx-Tx report entries	OP	1 to <maxRL>		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference type 1	MP		UE Rx-Tx time difference type 1 10.3.7.83	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 10.3.7.85	
>>Applied TA	OP		Uplink Timing Advance 10.3.6.95	Uplink timing advance applied by the UE

### 10.3.7.77 UE internal measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
CHOICE <i>report criteria</i>	MP			
>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement



<b>CHOICE report criteria</b>	<b>Condition under which the given report criteria is chosen</b>
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

### 10.3.7.78 UE internal measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE internal measurements.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
UE internal event identity	MP		UE internal event identity 10.3.7.75	
CHOICE mode	MP			
>FDD				
>Primary CPICH info	CV-clause 1		Primary CPICH info 10.3.6.60	
>TDD				(no data)

<b>Condition</b>	<b>Explanation</b>
Clause 1	This IE is mandatory present if the IE "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed.

### 10.3.7.79 UE internal measurement quantity

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

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
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	

### 10.3.7.80 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 <maxMeas Event>		
>UE internal event identity	MP		UE internal event identity 10.3.7.75	
>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- <i>clause 1</i>		Integer(-50..33)	Power in dBm. In event 6a, 6b.
>UE Rx-Tx time difference threshold	CV- <i>clause 2</i>		Integer(768..1280)	Time difference in chip. In event 6f, 6g.

Condition	Explanation
<i>Clause 1</i>	The IE is mandatory present if the IE "UE internal event identity" is set to "6a" or "6b", otherwise the IE is not needed.
<i>Clause 2</i>	The IE is mandatory present if the IE "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed.

### 10.3.7.81 UE internal measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement identity	MD		Measurement identity 10.3.7.48	The UE internal measurement identity has default value 5.
UE internal measurement quantity	MP		UE internal measurement quantity 10.3.7.79	

### 10.3.7.82 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 <i>mode</i>	MP			
>FDD				
>>UE Rx-Tx time difference	MP		Boolean	
>TDD				
>>Applied TA	MP		Boolean	

### 10.3.7.83 UE Rx-Tx time difference type 1

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 1	MP		Integer(768..1280)	In chips. 511 spare values are needed.

### 10.3.7.84 UE Rx-Tx time difference type 2

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 2	MP		Real(768.0..1279.9375 by step of 0.0625)	Resolution of 1/16 of a chip.

### 10.3.7.85 UE Transmitted Power info

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
UE Transmitted Power	MP		Integer (0..104)	According to UE_TX_POWER in [19] and [20]

### 10.3.7.86 UE positioning Ciphering info

This IE contains information for the ciphering of UE positioning assistance data broadcast in System Information.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering Key Flag	MP		Bit string(1)	
Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm

### 10.3.7.87 UE positioning Error

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Error reason	MP		Enumerated(ER1, ER2, ER3, ER4, ER5, ER6, ER7, ER8)	Note 1
GPS Additional Assistance Data Request	OP		UE positioning GPS Additional Assistance Data Request 10.3.7.88a	

NOTE 1: The following table gives the mapping of the IE "Error reason"

Value	Indication
ER1	There were not enough cells to be received.
ER2	There were not enough GPS satellites to be received.
ER3	UE positioning GPS assistance data missing.
ER4	Undefined error.
ER5	UE positioning request denied by upper layers.
ER6	UE positioning request not processed by upper layers and timeout.
ER7	UE was not able to read the SFN of the reference cell.
ER8	UE was not able to accomplish the GPS timing of cell frames measurement.

### 10.3.7.88 UE positioning GPS acquisition assistance

This IE contains parameters that enable fast acquisition of the GPS signals in UE-assisted GPS positioning.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Reference Time</i>	MP			
GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds rounded down to the nearest millisecond unit.
UTRAN GPS reference time	OP			
>UTRAN GPS timing of cell frames	MP		Integer(0 ... 2322431999 999)	GPS timing of cell frames in steps of 1 chip.
>CHOICE <i>mode</i>	OP			
>>FDD				
>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship
>>TDD				
>>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship
>SFN	MP		Integer(0..40 95)	The SFN which the UTRAN GPS timing of cell frames time stamps.
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Integer (0..63)	
>Doppler (0 <sup>th</sup> order term)	MP		Real(-5120..5117.5 by step of 2.5)	Hz

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>Extra Doppler	OP			
>>Doppler (1 <sup>st</sup> order term)	MP		Real (-0.966..0.483 by step of 0.023)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Enumerated (12.5,25,50,100,200)	Hz. <u>Three spare values are needed.</u>
>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		Real(0..348.75 by step of 11.25)	Degrees
>>Elevation	MP		Real(0..78.75 by step of 11.25)	Degrees

CHOICE <i>Reference time</i>	Condition under which the given <i>reference time</i> 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

### 10.3.7.88a UE positioning GPS Additional Assistance Data Request

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Almanac	MP		Boolean	TRUE means requested
UTC Model	MP		Boolean	TRUE means requested
Ionospheric model	MP		Boolean	TRUE means requested
Navigation Model	MP		Boolean	TRUE means requested
DGPS Corrections	MP		Boolean	TRUE means requested
Reference Location	MP		Boolean	TRUE means requested
Reference Time	MP		Boolean	TRUE means requested
Acquisition Assistance	MP		Boolean	TRUE means requested
Real-Time Integrity	MP		Boolean	TRUE means requested
Navigation Model Additional data	CV- <i>Navigation Model</i>			this IE is present only if "Navigation Model" is set to TRUE otherwise it is absent
>GPS Week	MP		Integer (0..1023)	
>GPS_Toe	MP		Integer (0..167)	GPS time of ephemeris in hours of the latest ephemeris set contained by the UE. <u>Eighty- eight spare values needed.</u>
>T-Toe limit	MP		Integer (0..10)	ephemeris age tolerance of the UE to UTRAN in hours. <u>Five spare values needed.</u>

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>Satellites list related data	MP	0 to <maxSat>		
>>SatID	MP		Integer (0..63)	
>>IODE	MP		Integer (0..255)	Issue of Data Ephemeris for SatID

### 10.3.7.89 UE positioning GPS almanac

This IE contains a reduced-precision subset of the ephemeris and clock correction parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
WN <sub>a</sub>	MP		Bit string(8)	
Satellite information	MP	1 to <maxSat>		
>DataID	MP		Integer(0..3)	See [12]
>SatID	MP		Enumerated(0..63)	Satellite ID
>e	MP		Bit string(16)	Eccentricity [12]
>t <sub>oa</sub>	MP		Bit string(8)	Reference Time of Almanac [12]
>δi	MP		Bit string(16)	
>OMEGADOT	MP		Bit string(16)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
>SV Health	MP		Bit string(8)	
>A <sup>1/2</sup>	MP		Bit string(24)	Semi-Major Axis (meters) <sup>1/2</sup> [12]
>OMEGA <sub>0</sub>	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
>M <sub>0</sub>	MP		Bit string(24)	Mean Anomaly at Reference Time (semi-circles) [12]
>ω	MP		Bit string(24)	Argument of Perigee (semi-circles) [12]
>af <sub>0</sub>	MP		Bit string(11)	apparent clock correction [12]
>af <sub>1</sub>	MP		Bit string(11)	apparent clock correction [12]
SV Global Health	OP		Bit string(364)	This enables GPS time recovery and possibly extended GPS correlation intervals. It is specified in page 25 of subframes 4 and 5 [12]

### 10.3.7.90 UE positioning GPS assistance data

This IE contains GPS assistance data.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE positioning GPS reference time	OP		UE positioning GPS reference time 10.3.7.96	
UE positioning GPS reference UE position	OP		Ellipsoid point with altitude and uncertainty ellipsoid	A priori knowledge of UE 3-D position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			10.3.8.4c	
UE positioning GPS DGPS corrections	OP		UE positioning GPS DGPS corrections 10.3.7.91	
UE positioning GPS navigation model	OP		UE positioning GPS navigation model 10.3.7.94	
UE positioning GPS ionospheric model	OP		UE positioning GPS ionospheric model 10.3.7.92	
UE positioning GPS UTC model	OP		UE positioning GPS UTC model 10.3.7.97	
UE positioning GPS almanac	OP		UE positioning GPS almanac 10.3.7.89	
UE positioning GPS acquisition assistance	OP		UE positioning GPS acquisition assistance 10.3.7.88	
UE positioning GPS real-time integrity	OP		UE positioning GPS real-time integrity 10.3.7.95	
UE positioning GPS reference cell info	OP		UE positioning GPS reference cell info 10.3.7.95a	Identifies reference cell associated with request for UE GPS timing of cell frames measurement

10.3.7.90a Void

### 10.3.7.91 UE positioning GPS DGPS corrections

This IE contains DGPS corrections to be used by the UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS TOW sec	MP		Integer(0..604799)	seconds GPS time-of-week when the DGPS corrections were calculated

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
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)	
DGPS information	CV- Status/Health	1 to <maxSat>		If the Cipher information is included these fields are ciphered.
>SatID	MP		Enumerated (0...63)	
>IODE	MP		Integer(0..255)	
>UDRE	MP		Enumerated( UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	The value in this field shall be multiplied by the UDRE Scale Factor in the IE Status/Health to determine the final UDRE estimate for the particular satellite.
>PRC	MP		Real(-655.04..655.04 by step of 0.32)	meters (different from [13])
>RRC	MP		Real(-4.064..4.064 by step of 0.032)	meters/sec (different from [13])
>Delta PRC2	MP		Integer(-127..127)	meters
>Delta RRC2	MP		Real(-0.224..0.224 by step of 0.032)	meters/sec
>Delta PRC3	CV-DCCH		Integer(-127..127)	meters
>Delta RRC3	CV-DCCH		Real(-0.224..0.224 by step of 0.032)	meters/sec

Condition	Explanation
Status/Health	This IE is mandatory present if "status" is not equal to "no data" or "invalid data", otherwise the IE is not needed.
DCCH	This IE is mandatory present if the IE " UE positioning GPS DGPS corrections" it is included in the point-to-point message. It is optional if the IE "UE positioning GPS DGPS corrections" is included in the broadcast message. Otherwise it is not needed.



### 10.3.7.91a UE positioning GPS Ephemeris and Clock Correction parameters

This IE contains information for GPS ephemeris and clock correction.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
C/A or P on L2	MP		Bit string(2)	Code(s) on L2 Channel [12]
URA Index	MP		Bit string(4)	User Range Accuracy [12]
SV Health	MP		Bit string(6)	[12]
IODC	MP		Bit string(10)	Issue of Data, Clock [12]
L2 P Data Flag	MP		Bit string(1)	[12]
SF 1 Reserved	MP		Bit string(87)	[12]
TGD	MP		Bit string(8)	Estimated group delay differential [12]
$t_{oc}$	MP		Bit string(16)	apparent clock correction [12]
$af_2$	MP		Bit string(8)	apparent clock correction [12]
$af_1$	MP		Bit string(16)	apparent clock correction [12]
$af_0$	MP		Bit string(22)	apparent clock correction [12]
$C_{rs}$	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term to the Orbit Radius (meters) [12]
$\Delta n$	MP		Bit string(16)	Mean Motion Difference From Computed Value (semi-circles/sec) [12]
$M_0$	MP		Bit string(32)	Mean Anomaly at Reference Time (semi-circles) [12]
$C_{uc}$	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
$e$	MP		Bit string(32)	$c$
$C_{us}$	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
$(A)^{1/2}$	MP		Bit string(32)	Semi-Major Axis (meters) <sup>1/2</sup> [12]
$t_{oe}$	MP		Bit string(16)	Reference Time Ephemeris [12]
Fit Interval Flag	MP		Bit string(1)	[12]
AODO	MP		Bit string(5)	Age Of Data Offset [12]
$C_{ic}$	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
$\text{OMEGA}_0$	MP		Bit string(32)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
$C_{is}$	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
$i_0$	MP		Bit string(32)	Inclination Angle at Reference Time (semi-circles) [12]
$C_{rc}$	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius (meters) [12]
$\omega$	MP		Bit string(32)	Argument of Perigee (semi-circles) [12]
$\text{OMEGA}\dot{\phantom{0}}$	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
$i\dot{\phantom{0}}$	MP		Bit string(14)	Rate of Inclination Angle (semi-circles/sec) [12]

### 10.3.7.92 UE positioning GPS ionospheric model

The IE contains fields needed to model the propagation delays of the GPS signals through the ionosphere.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
$\alpha_0$	MP		Bit string(8)	Note 1
$\alpha_1$	MP		Bit string(8)	Note 1
$\alpha_2$	MP		Bit string(8)	Note 1
$\alpha_3$	MP		Bit string(8)	Note 1
$\beta_0$	MP		Bit string(8)	Note 2
$\beta_1$	MP		Bit string(8)	Note 2
$\beta_2$	MP		Bit string(8)	Note 2
$\beta_3$	MP		Bit string(8)	Note 2

NOTE 1: The parameters  $\alpha_n$  are the coefficients of a cubic equation representing the amplitude of the vertical delay [12].

NOTE 2: The parameters  $\beta_n$  are the coefficients of a cubic equation representing the period of the ionospheric model [12].

### 10.3.7.93 UE positioning GPS measured results

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Reference Time</i>	MP			
>UTRAN reference time				
>>UE GPS timing of cell frames	MP		Integer(0..3715891199999)	GPS Time of Week in units of 1/16 <sup>th</sup> UMTS chips according to [19]. <u>33209832177664 spare values are needed.</u>
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship.
>>>TDD				
>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship.
>>Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid. If UE GPS timing of cell frames is included this is also the SFN which is time stamped.
>GPS reference time only				
>>GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time is the GPS TOW measured by the UE.
Measurement Parameters	MP	1 to <maxSat>		
>Satellite ID	MP		Enumerated(0..63)	
>C/N <sub>0</sub>	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 units of dB-Hz (typical levels will be in the range of 20 – 50

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>Doppler	MP		Integer(-32768..32768)	dB-Hz. Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1022)	Unit in GPS chips.
>Fractional GPS Chips	MP		Integer(0..(2 <sup>10</sup> -1))	Scale factor 2 <sup>-10</sup>
>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.

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 <sub>i</sub>	Pseudorange value, P
0	000	000	0.5	P < 0.5
1	001	000	0.5625	0.5 ≤ P < 0.5625
l	X	Y	0.5 * (1 + x/8) * 2 <sup>y</sup>	x <sub>i-1</sub> ≤ P < x <sub>i</sub>
62	110	111	112	104 ≤ P < 112
63	111	111	--	112 ≤ P

### 10.3.7.94 UE positioning GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
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
>GPS Ephemeris and Clock Correction parameters	CV- <i>Satellite status</i>		UE positioning GPS Ephemeris and Clock Correction parameters	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			10.3.7.91a	

NOTE: The UE shall interpret enumerated symbols as follows.

Value	Indication
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
<i>Satellite status</i>	The IE is not needed if the IE "Satellite status" is ES_SN and mandatory present otherwise.

### 10.3.7.95 UE positioning GPS real-time integrity

This IE contains parameters that describe the real-time status of the GPS constellation.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <maxSat>		
>BadSatID	MP		Enumerated(0..63)	

### 10.3.7.95a UE positioning GPS reference cell info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>TDD				
>>cell parameters ID	MP		Cell parameters id 10.3.6.9	

### 10.3.7.96 UE positioning 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.. $048 \cdot 10^8 - 1$ )	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
UTRAN GPS reference time	OP			
>UTRAN GPS timing of cell frames	MP		Integer(0..232243199999)	UTRAN GPS timing of cell frames in steps of 1/16 <sup>th</sup> chips
>CHOICE <i>mode</i>	OP			
>>FDD				
>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship
>>TDD				

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship
>SFN	MP		Integer(0..4095)	The SFN which the UTRAN GPS timing of cell frames time stamps.
SFN-TOW Uncertainty	OP		Enumerated (lessThan10, moreThan10)	This field indicates the uncertainty of the relation GPS TOW/SFN. lessThan10 means the relation is accurate to at least 10 ms.
T <sub>UTRAN-GPS</sub> drift rate	OP		Integer (0, 1, 2, 5, 10, 15, 25, 50, -1, -2, -5, -10, -15, -25, -50)	in 1/256 chips per sec.
T <sub>UTRAN-GPS</sub> drift rate	OP		Integer (0, 1, 2, 5, 10, 15, 25, 50, -1, -2, -5, -10, -15, -25, -50)	in 1/256 chips per sec.
GPS TOW Assist	OP	1 to <maxSat>		
GPS TOW Assist	OP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	
>TLM Message	MP		Bit string(14)	
>TLM Reserved	MP		Bit string(2)	
>Alert	MP		Boolean	
>Anti-Spoof	MP		Boolean	

### 10.3.7.97 UE positioning 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 <sub>1</sub>	MP		Bit string(24)	sec/sec [12]
A <sub>0</sub>	MP		Bit string(32)	seconds [12]
t <sub>ot</sub>	MP		Bit string(8)	seconds [12]
WN <sub>t</sub>	MP		Bit string(8)	weeks [12]
Δt <sub>LS</sub>	MP		Bit string(8)	seconds [12]
WN <sub>LSF</sub>	MP		Bit string(8)	weeks [12]
DN	MP		Bit string(8)	days [12]
Δt <sub>LSF</sub>	MP		Bit string(8)	seconds [12]

### 10.3.7.98 UE positioning IPDL parameters

This IE contains parameters for the IPDL mode. The use of this parameters is described in [29].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Integer(5,7,10,15,20,30,40,50)	See [29]
IP length	MP		Integer(5,10)	See [29]
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T <sub>cell</sub> defined in [10]; See [29]

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Seed	MP		Integer(0..63)	See [29]
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	See [29]
>Burst Length	MP		Integer(10..25)	See [29]
>Burst freq	MP		Integer(1..16)	See [29]

### 10.3.7.99 UE positioning measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE positioning OTDOA measured results	OP		UE positioning OTDOA measured results 10.3.7.105	
UE positioning Position estimate info	OP		UE positioning Position estimate info 10.3.7.109	
UE positioning GPS measured results	OP		UE positioning GPS measured results 10.3.7.93	
UE positioning error	OP		UE positioning error 10.3.7.87	Included if UE positioning error occurred

### 10.3.7.100 UE positioning measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE positioning reporting quantity	OP		UE positioning reporting quantity 10.3.7.111	
Measurement validity	OP		Measurement validity 10.3.7.51	
<i>CHOICE reporting criteria</i>	OP			
>UE positioning reporting criteria			UE positioning reporting criteria 10.3.7.110	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE positioning OTDOA assistance data for UE-assisted	OP		UE positioning OTDOA assistance data for UE-assisted 10.3.7.103	another measurement
UE positioning OTDOA assistance data for UE-based	OP		UE positioning OTDOA assistance data for UE-based 10.3.7.103a	
UE positioning GPS assistance data	OP		UE positioning GPS assistance data 10.3.7.90	

### 10.3.7.101 UE positioning measurement event results

This IE contains the measurement event results that are reported to UTRAN for UE positioning measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE <i>Event ID</i>	MP			<u>One spare value is needed.</u>
>7a				
>>UE positioning Position estimate info	MP		UE positioning Position estimate info 10.3.7.109	
>7b				
>>UE positioning OTDOA measured results	MP		UE positioning OTDOA measured results 10.3.7.105	
>7c				
>>UE positioning GPS measurement	MP		UE positioning GPS measured results 10.3.7.93	

### 10.3.7.102 Void

### 10.3.7.103 UE positioning OTDOA assistance data for UE-assisted

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE positioning OTDOA reference cell info for UE-assisted	OP		UE positioning OTDOA	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			reference cell info 10.3.7.108	
UE positioning OTDOA neighbour cell list for UE-assisted	OP	1 to <maxCellMEas>		
>UE positioning OTDOA neighbour cell info for UE-assisted	MP		UE positioning OTDOA neighbour cell info 10.3.7.106	

### 10.3.7.103a UE positioning OTDOA assistance data for UE-based

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE positioning OTDOA reference cell info for UE-based	OP		UE positioning OTDOA reference cell info for UE-based 10.3.7.108a	
UE positioning OTDOA neighbour cell list for UE-based	OP	1 to <maxCellMEas>		
>UE positioning OTDOA neighbour cell info for UE-based	MP		UE positioning OTDOA neighbour cell info for UE-based 10.3.7.106a	

### 10.3.7.104 Void

### 10.3.7.105 UE positioning OTDOA measured results

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	MP		Integer(0..4095)	SFN during which the last measurement was performed
CHOICE mode				
>FDD				
>>Reference cell id	MP		Primary CPICH info 10.3.6.60	
>>>UE Rx-Tx time difference type 2 info	MP			
>>>>UE Rx-Tx time difference type 2	MP		UE Rx-Tx time difference type 2 10.3.7.84	
>>>>>UE positioning OTDOA quality	MP		UE positioning OTDOA	Quality of the UE Rx-Tx time difference type 2 measurement from the



Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			quality 10.3.7.107	reference cell.
>TDD				(no data)
>>Reference cell id	MP		Cell parameters ID 10.3.6.9	
Neighbours	MP	0 to <maxCellMEas>		
>CHOICE mode	MP			
>>FDD				
>>>Neighbour Identity	MD		Primary CPICH info 10.3.6.60	Default value is the same as in the first set of multiple sets.
>>>Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
>>>UE Rx-Tx time difference type 2 info	OP			Included if the neighbour is in the active set
>>>>UE Rx-Tx time difference type 2	MP		UE Rx-Tx time difference type 2 10.3.7.84	
>>>>UE positioning OTDOA quality	MP		UE positioning OTDOA quality 10.3.7.107	Quality of the UE Rx-Tx time difference type 2 measurement from the neighbour cell.
>>TDD				
>>>Cell and Channel ID	MD		Cell and Channel Identity info 10.3.6.8a	Default value is the same as in the first set of multiple sets.
>UE positioning OTDOA quality	MP		UE positioning OTDOA quality 10.3.7.107	Quality of the SFN-SFN observed time difference type 2 measurement from the neighbour cell.
>SFN-SFN observed time difference type 2	MP		SFN-SFN observed time difference 10.3.7.63	Gives the timing relative to the reference cell. Only type 2 is allowed.

### 10.3.7.106 UE positioning OTDOA neighbour cell info

This IE gives approximate cell timing in order to decrease the search window.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE mode	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>TDD				
>>cell and channel ID	MP		Cell and Channel Identity info 10.3.6.8a	Identifies the channel to be measured on.
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
			10.3.6.36	
IPDL parameters	CV-IPDLs		UE positioning IPDL parameters 10.3.7.98	
SFN offset	CV-IPDLs		Integer (0 .. 4095)	Define Tref as the time of beginning of system frame number SFNref of the reference cell. Define Tnc as the beginning of a frame from the neighbour cell occurring immediately after the time Tref. Let the corresponding system frame number be SFNnc. Then SFNnc = SFNref-SFN offset modulo 4096.
SFN-SFN relative time difference	MP		Integer(0..38399)	Gives the relative timing compared to the reference cell Equal to $\lfloor (T_{nc}-T_{ref}) / (3.84 \cdot 10^6) \rfloor$ where $\lfloor () \rfloor$ denotes rounding to the nearest lower integer. in chips.
SFN-SFN drift	OP		Integer (0, -1, -2, -3, -4, -5, -8, -10, -15, -25, -35, -50, -65, -80, -100, 1, 2, 3, 4, 5, 8, 10, 15, 25, 35, 50, 65, 80, 100)	in 1/256 chips per second
Search Window Size	MP		Integer(20, 40, 80, 160, 320, 640, 1280, infinity)	in chips. If the value is X then the expected SFN-SFN observed time difference is in the range [RTD-X, RTD+X] where RTD is the value of the field SFN-SFN relative time difference. Infinity means that the uncertainty is larger than 1280 chips.
CHOICE <i>PositioningMode</i>	MP			
>UE based				(no data)
>UE assisted				(no data)

Condition	Explanation
IPDLs	This IE is mandatory present if IPDLs are applied and not needed otherwise.

### 10.3.7.106a UE positioning OTDOA neighbour cell info for UE-based

This IE gives approximate cell timing in order to decrease the search window, as well as the cell locations and fine cell timing for UE based OTDOA.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE positioning OTDOA neighbour cell info	MP		UE positioning OTDOA neighbour	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			cell info 10.3.7.106	
Cell Position	MD			Default is the same as previous cell
>Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to reference cell.
>Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to reference cell.
>Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.
Fine SFN-SFN	MP		Real(0..0.9375 in steps of 0.0625)	Gives finer resolution
UE positioning Relative Time Difference Quality	MP		UE positioning OTDOA quality 10.3.7.109a	Quality of the relative time difference between neighbour and reference cell.
Round Trip Time	OP		Real(876.00 .. 2923.875) in steps of 0.0625	In chips. Included if cell is in active set.

### 10.3.7.107 UE positioning OTDOA quality

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Std Resolution	MP		Bit string(2)	Std Resolution field includes the resolution used in Std of OTDOA Measurements field. Encoding on two bits as follows: '00' 10 meters '01' 20 meters '10' 30 meters '11' Reserved
Number of OTDOA Measurements	MP		Bit string(3)	Number of measurements field is used together with Std of OTDOA Measurements field to define quality of a reported OTDOA measurement. The field indicates how many OTDOA measurements have been used in the UE to define the standard deviation of the measurements. Following 3 bit encoding is used: '000' 0-4 '001' 5-9 '010' 10-14 '011' 15-24 '100' 25-34 '101' 35-44 '110' 45-54 '111' 55 or more

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Std of OTDOA Measurements	MP		Bit string(5)	Std of OTDOA Measurements field includes standard deviation of OTDOA measurements. Following linear 5 bit encoding is used: '00000' 0 - (R*1-1) meters '00001' R*1 – (R*2-1) meters '00010' R*2 – (R*3-1) meters ... '11111' R*31 meters or more where R is the resolution defined by Std Resolution field. E.g. R=20 m corresponds to 0-19 m, 20-39 m,...,620+ m.

### 10.3.7.108 UE positioning OTDOA reference cell info

This IE defines the cell used for time references in all OTDOA measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	OP		Integer (0..4095)	Time stamp (SFN of Reference Cell) of the SFN-SFN relative time differences and SFN-SFN drift rates. Included if any SFN-SFN drift value is included in IE UE positioning OTDOA neighbour cell info.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>TDD				
>>cell and channel ID	MP		Cell and Channel Identity info 10.3.6.8a	Identifies the channel to be measured on.
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information. This IE shall always be set to default value
CHOICE <i>PositioningMode</i>	MP			
>UE based				
>UE assisted				(no data)
IPDL parameters	OP		UE positioning IPDL parameters 10.3.7.98	If this element is not included there are no idle periods present

### 10.3.7.108a UE positioning OTDOA reference cell info for UE-based

This IE defines the cell used for time references in all OTDOA measurements for UE-based methods.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE positioning OTDOA reference cell info	MP		UE positioning OTDOA reference cell info 10.3.7.108	
CHOICE <i>Cell Position</i>	OP			The position of the antenna that defines the cell. Used for the UE based method.
>Ellipsoid				
>>Ellipsoid point	MP		Ellipsoid point 10.3.8.4a	
>Ellipsoid with altitude				
>>Ellipsoid point with altitude	MP		Ellipsoid point with altitude 10.3.8.4b	
Round Trip Time	OP		Real(876.00 .. 2923.875) in steps of 0.0625	In chips.

### 10.3.7.109 UE positioning position estimate info

The purpose of this IE is to provide the position 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
CHOICE <i>Reference Time</i>	MP			
>UTRAN GPS reference time				
>>UE GPS timing of cell frames	MP		Integer(0..371589119999)	GPS Time of Week in units of 1/16 <sup>th</sup> UMTS chips according to [19]. <u>33209832177664 spare values are needed.</u>
>>>CHOICE <i>mode</i>	MP			
>>>>FDD				
>>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for the GPS TOW-SFN relationship
>>>>>TDD				
>>>>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies the reference cell for the GPS TOW-SFN relationship.
>>>>>Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid and which the UTRAN GPS timing of cell frames time stamps.
>GPS reference time only				
>>GPS TOW msec	MP		Integer(0..6.048*10 <sup>8</sup> -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
>Cell timing				
>>SFN	MP		Integer(0..4095)	SFN during which the position was calculated.
>>>CHOICE <i>mode</i>	MP			
>>>>FDD				
>>>>>Primary CPICH Info	MP		Primary CPICH Info 10.3.6.60	Identifies the reference cell for SFN
>>>>>TDD				

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
>>cell parameters id	MP		Cell parameters id 10.3.6.9	Identifies reference cell for SFN
CHOICE <i>Position estimate</i>	MP			
>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	

### 10.3.7.109a UE positioning Relative Time Difference quality

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Relative Time Difference Std Resolution	MP		Bit string(2)	Std Resolution field includes the resolution used in Std of Relative Time Difference field. Encoding on two bits as follows: '00' 10 meters '01' 20 meters '10' 30 meters '11' Reserved
Std of Relative Time Difference	MP		Bit string(5)	Std of Relative Time difference field includes standard deviation of (SFN-SFN relative time difference + Fine SFN-SFN). Following linear 5 bit encoding is used: '00000' 0 - (R*1-1) meters '00001' R*1 - (R*2-1) meters '00010' R*2 - (R*3-1) meters ... '11111' R*31 meters or more where R is the resolution defined by Std Resolution field. E.g. R=20 m corresponds to 0-19 m, 20-39 m,...,620+ m.

### 10.3.7.110 UE positioning reporting criteria

The triggering of the event-triggered reporting for an UE positioning measurement.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>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, 60,300,900,1 800,3600,72 00)	Indicates how often the UE should make the measurement In seconds
>CHOICE <i>Event ID</i>	MP			
>>7a				
>>>Threshold Position Change	MP		Integer(10,2 0,30,40,50,1 00,200,300,5 00,1000,200 0,5000,1000 0,20000,500 00,100000)	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. 5,1,2,3,4,5,1 0,20,50,100, 200,500,100 0,2000,5000 )	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 ,5,10,20,50,1 00)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

### 10.3.7.111 UE positioning reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information desired 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, Cell ID)	
Response Time	MP		Integer(1,2,4	This IE shall be ignored.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			, 8, 16, 32, 64, 128)	
Horizontal Accuracy	CV- MethodType		Bit string(7)	The uncertainty is derived from the "uncertainty code" k by $r = 10*(1.1^k-1)$
Vertical Accuracy	CV- MethodType		Bit string(7)	The uncertainty is derived from the "uncertainty code" k by $r = 45*(1.025^k-1)$
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 IE shall be ignored.
Additional Assistance Data Request	MP		Boolean	TRUE indicates that the UE is requested to send the IE "Additional assistance Data Request" when the IE "UE positioning Error" is present in the UE positioning measured results.
Environment Characterisation	OP		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	<u>One spare value is needed.</u>

Condition	Explanation
<i>Method Type</i>	The IE is optional if the IE "Method Type" is "UE assisted"; otherwise it is mandatory present.

## 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 10.3.8.9	
BCCH modification time	OP		Integer (0.. 4088 in 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			[11]



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

#### 10.3.8.4a Ellipsoid point

This IE contains the description of an ellipsoid point as in [24].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Latitude sign	MP		Enumerated (North, South)	
Degrees Of Latitude	MP		Integer (0... $2^{23}$ -1)	The IE value (N) is derived by this formula: $N \leq 2^{23} \times /90 < N+1$ X being the latitude in degree (0°.. 90°)
Degrees Of Longitude	MP		Integer (- $2^{23}$ ... $2^{23}$ -1)	The IE value (N) is derived by this formula: $N \leq 2^{24} \times /360 < N+1$ X being the longitude in degree (-180°..+180°)

#### 10.3.8.4b Ellipsoid point with Altitude

This IE contains the description of an ellipsoid point with altitude as in [24].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Latitude sign	MP		Enumerated (North, South)	
Degrees Of Latitude	MP		Integer (0... $2^{23}$ -1)	The IE value (N) is derived by this formula: $N \leq 2^{23} \times /90 < N+1$ X being the latitude in degree (0°.. 90°)

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Degrees Of Longitude	MP		Integer (- $2^{23}$ ... $2^{23}$ -1)	The IE value ( $N$ ) is derived by this formula: $N \leq 2^{24} X / 360 < N+1$ $X$ being the longitude in degree (-180°..+180°)
Altitude Direction	MP		Enumerated (Height, Depth)	
Altitude	MP		Integer ( $0..2^{15}$ -1)	The IE value ( $N$ ) is derived by this formula: $N \leq a < N+1$ $a$ being the altitude in metres

### 10.3.8.4c Ellipsoid point with Altitude and uncertainty ellipsoid

This IE contains the description of an ellipsoid point with altitude and uncertainty ellipsoid as in [24].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Latitude sign	MP		Enumerated (North, South)	
Degrees Of Latitude	MP		Integer ( $0..2^{23}$ -1)	The IE value ( $N$ ) is derived by this formula: $N \leq 2^{23} X / 90 < N+1$ $X$ being the latitude in degree ( $0^\circ..90^\circ$ )
Degrees Of Longitude	MP		Integer (- $2^{23}$ ... $2^{23}$ -1)	The IE value ( $N$ ) is derived by this formula: $N \leq 2^{24} X / 360 < N+1$ $X$ being the longitude in degree (-180°..+180°)
Altitude Direction	MP		Enumerated (Height, Depth)	
Altitude	MP		Integer ( $0..2^{15}$ -1)	The IE value ( $N$ ) is derived by this formula: $N \leq a < N+1$ $a$ being the altitude in metres
Uncertainty semi-major	MP		Integer ( $0..127$ )	The uncertainty $r$ is derived from the "uncertainty code" $k$ by $r = 10x(1.1^k - 1)$
Uncertainty semi-minor	MP		Integer ( $0..127$ )	The uncertainty $r$ is derived from the "uncertainty code" $k$ by $r = 10x(1.1^k - 1)$
Orientation of major axis	MP		Integer ( $0..179$ by step of 2)	The IE value ( $N$ ) is derived by this formula: $N \leq a / 2 < N+1$ $a$ being the orientation in degree ( $0^\circ..360^\circ$ )
Uncertainty Altitude	MP		Integer ( $0..127$ )	The uncertainty in altitude, $h$ , expressed in metres is mapped from the IE value ( $K$ ), with the following formula: $h = C \left( (1 + x)^K - 1 \right)$ with $C = 45$ and $x = 0.025$ .
Confidence	MP		Integer ( $0..100$ )	in percentage

### 10.3.8.4d Ellipsoid point with uncertainty Circle

This IE contains the description of an ellipsoid point with an uncertainty circle as in [24].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Latitude sign	MP		Enumerated (North, South)	
Degrees Of Latitude	MP		Integer (0...2 <sup>23</sup> -1)	The IE value (N) is derived by this formula: $N \leq 2^{23} X / 90 < N+1$ X being the latitude in degree (0°.. 90°)
Degrees Of Longitude	MP		Integer (-2 <sup>23</sup> ...2 <sup>23</sup> -1)	The IE value (M) is derived by this formula: $N \leq 2^{24} X / 360 < N+1$ X being the longitude in degree (-180°..+180°)
Uncertainty Code	MP		Integer (0...127)	The uncertainty <i>r</i> is derived from the "uncertainty code" <i>k</i> by $r = 10x(1.1^k - 1)$

### 10.3.8.4e Ellipsoid point with uncertainty Ellipse

This IE contains the description of an ellipsoid point with an uncertainty ellipse as in [24].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Latitude sign	MP		Enumerated (North, South)	
Degrees Of Latitude	MP		Integer (0...2 <sup>23</sup> -1)	The IE value (N) is derived by this formula: $N \leq 2^{23} X / 90 < N+1$ X being the latitude in degree (0°.. 90°)
Degrees Of Longitude	MP		Integer (-2 <sup>23</sup> ...2 <sup>23</sup> -1)	The IE value (N) is derived by this formula: $N \leq 2^{24} X / 360 < N+1$ X being the longitude in degree (-180°..+180°)
Uncertainty semi-major	MP		Integer (0...127)	The uncertainty <i>r</i> is derived from the "uncertainty code" <i>k</i> by $r = 10x(1.1^k - 1)$
Uncertainty semi-minor	MP		Integer (0...127)	The uncertainty <i>r</i> is derived from the "uncertainty code" <i>k</i> by $r = 10x(1.1^k - 1)$
Orientation of major axis	MP		Integer (0..179 by step of 2)	The IE value (M) is derived by this formula: $N \leq a / 2 < N+1$ a being the orientation in degree (0°.. 360°)
Confidence	MP		Integer (0..100)	in percentage

### 10.3.8.5 Inter-RAT change failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT change failure cause	MP		Enumerated( Configuration unacceptable, physical channel failure, protocol error, unspecified)	At least 3 spare values, criticality = default, are required. Four spare values are needed.
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	The IE is mandatory present if the IE "Inter-RAT handover change failure cause" has the value "Protocol error" and not needed otherwise.

### 10.3.8.6 Inter-RAT handover failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT handover failure cause	MD		Enumerated( Configuration unacceptable, physical channel failure, protocol error, inter-RAT protocol error, unspecified)	Default value is "unspecified". <u>Eleven</u> At least one spare values are needed.
Protocol error information	CV-ProtErr		Protocol error information 10.3.8.12	

Condition	Explanation
<i>ProtErr</i>	The IE is mandatory present if the IE "Inter-RAT handover failure cause" has the value "Protocol error" and not needed otherwise.

### 10.3.8.7 Inter-RAT UE radio access capability

This Information Element contains the inter-RAT UE radio access capability that is structured and coded according to the specification used for the corresponding system type.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE system	MP			
>GSM				
>>Mobile Station Classmark 2	MP		Octet string (5)	Defined in [5]

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Mobile Station Classmark 3	MP		Octet string (1..32)	Defined in [5]
>cdma2000				
>>cdma2000Message	MP	1.to.<maxlnterSysMessages>		
>>>MSG_TYPE(s)	MP		Bit string (8)	Formatted and coded according to cdma2000 specifications
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications

### 10.3.8.8 Void

#### 10.3.8.8a Inter-RAT UE security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>system</i>	MP			
>GSM				
>>GSM security capability	MP			The value TRUE means that the indicated ciphering algorithm is supported.
>>>A5/7 supported	MP		Boolean	
>>>A5/6 supported	MP		Boolean	
>>>A5/5 supported	MP		Boolean	
>>>A5/4 supported	MP		Boolean	
>>>A5/3 supported	MP		Boolean	
>>>A5/2 supported	MP		Boolean	
>>>A5/1 supported	MP		Boolean	

### 10.3.8.9 MIB Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		Integer (1..8)	

### 10.3.8.10 PLMN Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Value tag	MP		Integer (1..256)	

### 10.3.8.11 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	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			value tag 10.3.4.6	

### 10.3.8.12 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 <i>diagnostics type</i>	MP			At least one spare choice value is needed.
>Protocol error cause			Protocol error cause 10.3.3.26	

### 10.3.8.13 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, 10.3.8.16	
>SIB type SIBs only	MP		SIB Type SIBs only, 10.3.8.22	

### 10.3.8.14 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, 10.3.8.16	
>SIB type	MP		SIB Type, 10.3.8.21	

### 10.3.8.15 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 maxNumG SMFreqRan ges		GSM BA Range
>GSM Lower Range (UARFCN)	MP		Integer(0..16 383)	Lower bound for range of GSM BA freqs
>GSM Upper Range (UARFCN)	MP		Integer(0..16	Upper bound for range of GSM

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			383)	BA freqs
FDD UMTS Frequency list	OP	1 to maxNumF DDFreqs		
>UARFCN (Nlow)	MP		Integer(0..16 383)	[21]
>UARFCN (Nupper)	OP		Integer(0..16 383)	[21] This IE is only needed when the FDD frequency list is specifying a range.
TDD UMTS Frequency list	OP	1 to maxNumT DDFreqs		
>UARFCN	MP		Integer(0..16 383)	[22]
CDMA2000 UMTS Frequency list	OP	1 to maxNumC DMA200Freqs		
>BAND_CLASS	MP		Bit string(5 bits)	TIA/EIA/IS-2000. The BAND_CLASS bits are numbered b0 to b4, where b0 is the least significant bit.
>CDMA_FREQ	MP		Bit string (11 bits)	TIA/EIA/IS-2000. The CDMA_FREQ bits are numbered b0 to b10, where b0 is the least significant bit.

### 10.3.8.16 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Value tag</i>	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.10	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 10.3.8.11	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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>SIB occurrence identity and value tag			SIB occurrence identity and value tag 10.3.8.20b	This IE is included if the following conditions are fulfilled: the SIB type equals system information block types 15.2 and 15.3
Scheduling	MP			
>SEG_COUNT	MD		SEG COUNT 10.3.8.17	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.

### 10.3.8.17 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

### 10.3.8.18 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 (1..15)	Segments of a system information block are numbered starting with 0 for the first segment and 1 for the next segment, which can be the first subsequent segment or a last segment.

### 10.3.8.19 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)	The first bit contains the first bit of the segment.

### 10.3.8.20 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 10.2.48.8.1 to 10.2.48.8.18.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data variable	MP		Bit string ( 1..214)	The first bit contains the first bit of the segment.

### 10.3.8.20a SIB occurrence identity

This information element identifies a SIB occurrence for System Information Block types 15.2 and 15.3. For System Information Block type 15.2, this identity is assigned to the visible satellite only. Unused identities are claimed by newly rising satellites.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB occurrence identity	MP		Integer (0..15)	

### 10.3.8.20b SIB occurrence identity and value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB occurrence identity	MP		SIB occurrence identity 10.3.8.20a	
SIB occurrence value tag	MP		SIB occurrence value tag 10.3.8.20c	

### 10.3.8.20c SIB occurrence value tag

This information element is used to identify different versions of SIB occurrence for System Information Block types 15.2 and 15.3.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SIB occurrence value tag	MP		Integer(0..15 )	

### 10.3.8.21 SIB type

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP		Enumerated, see below	

The list of values to encode is:

- Master information block,
- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,
- System Information Type 15,
- System Information Type 15.1,
- System Information Type 15.2,
- System Information Type 15.3,
- System Information Type 15.4,
- System Information Type 15.5,
- System Information Type 16,
- System Information Type 17,
- System Information Type 18,
- Scheduling Block 1,
- Scheduling Block 2.

In addition, at least one two spare values, criticality: ignore, is are needed.

### 10.3.8.22 SIB type SIBs only

The SIB type identifies a specific system information block.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type SIBs only	MP		Enumerated, see below	

The list of values to encode is:

- System Information Type 1,
- System Information Type 2,
- System Information Type 3,
- System Information Type 4,
- System Information Type 5,
- System Information Type 6,
- System Information Type 7,
- System Information Type 8,
- System Information Type 9,
- System Information Type 10,
- System Information Type 11,
- System Information Type 12,
- System Information Type 13,
- System Information Type 13.1,
- System Information Type 13.2,
- System Information Type 13.3,
- System Information Type 13.4,
- System Information Type 14,
- System Information Type 15,
- System Information Type 15.1,
- System Information Type 15.2,
- System Information Type 15.3,
- System Information Type 15.4,
- System Information Type 15.5,
- System Information Type 16,
- System Information Type 17,
- System Information Type 18.

In addition, at least one five spare values, ~~criticality: ignore, are~~ 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))	The first bit contains the first bit of the ANSI-41 information.

### 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 Neighbour List information

This Information Element contains ANSI-41 Private Neighbour List information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Private 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		Bit string (8)	Minimum protocol revision level. The MIN_P_REV bits are numbered b0 to b7, where b0 is the least significant bit.

### 10.3.9.9 NID

This Information Element contains Network identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NID	MP		Bit string (16)	Network identification. The NID bits are numbered b0 to b15, where b0 is the least significant bit.

### 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		Bit string (8)	Protocol revision level. The P_REV bits are numbered b0 to b7, where b0 is the least significant bit.

### 10.3.9.11 SID

This Information Element contains System identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SID	MP		Bit string (15)	System identification. The SID bits are numbered b0 to b14, where b0 is the least significant bit.

### 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
<b>CN information</b>		
maxCNdomains	Maximum number of CN domains	4
<b>UTRAN mobility information</b>		
maxRAT	Maximum number of Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number of other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
<b>UE information</b>		
maxtransactions	Maximum number of parallel RRC transactions in downlink	25
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
maxFreqBandsFDD	Maximum number of frequency bands supported by the UE as defined in [21]	8
maxFreqBandsTDD	Maximum number of frequency bands supported by the UE as defined in [22]	4
maxFreqBandsGSM	Maximum number of frequency bands supported by the UE as defined in [45]	16
maxPage1	Number of UEs paged in the Paging Type 1 message	8
maxSystemCapability	Maximum number of system specific capabilities that can be requested in one message.	16
<b>RB information</b>		
maxPredefConfig	Maximum number of predefined configurations	16
maxRB	Maximum number of RBs	32
maxSRBsetup	Maximum number of signalling RBs to be established	8
maxRBperRAB	Maximum number of RBs per RAB	8
maxRBallRABs	Maximum number of non signalling RBs	27
maxRBMuxOptions	Maximum number of RB multiplexing options	8
maxLoCHperRLC	Maximum number of logical channels per RLC entity	2
<b>TrCH information</b>		
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	32

Constant	Explanation	Value
	blocks.	
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
<b>PhyCH information</b>		
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16
maxAC	Maximum number of access classes	16
maxASC	Maximum number of access service classes	8
maxASCmap	Maximum number of access class to access service classes mappings	7
maxASCpersist	Maximum number of access service classes for which persistence scaling factors are specified	6
maxPRACH	Maximum number of PRACHs in a cell	16
maxFACHPCH	Maximum number of FACHs and PCHs mapped onto one secondary CCPCHs	8
maxRL	Maximum number of radio links	8
maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
maxPUSCH	Maximum number of PUSCHs	(8)
maxPDSCH	Maximum number of PDSCHs	8
maxPDSCHcodes	Maximum number of codes for PDSCH	16
maxPDSCH-TFCIgroups	Maximum number of TFCI groups for PDSCH	256
maxPDSCHcodeGroups	Maximum number of code groups for PDSCH	256
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 PUSCH Identities	64
hiPDSCHidentities	Maximum number of PDSCH Identities	64
<b>Measurement information</b>		
maxTGPS	Maximum number of transmission gap pattern sequences	6
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	1
maxCellMeas	Maximum number of cells to measure	32
maxReportedGSMCells	Maximum number of GSM cells to be reported	6
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
<b>Frequency information</b>		
maxFDDFreqList	Maximum number of FDD carrier frequencies to be stored in USIM	4
maxTDDFreqList	Maximum number of TDD carrier frequencies to be stored in USIM	4
maxFDDFreqCellList	Maximum number of neighbouring FDD cells to be stored in USIM	32
maxTDDFreqCellList	Maximum number of neighbouring TDD cells to be stored in USIM	32
maxGSMCellList	Maximum number of GSM cells to be stored in USIM	32
<b>Other information</b>		

<b>Constant</b>	<b>Explanation</b>	<b>Value</b>
maxNumGSMFreqRanges	Maximum number of GSM Frequency Ranges to store	32
maxNumFDDFreqs	Maximum number of FDD centre frequencies to store	8
maxNumTDDFreqs	Maximum number of TDD centre frequencies to store	8
maxNumCDMA200Freqs	Maximum number of CDMA2000 centre frequencies to store	8



---

# 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 [14]. PDU and IE definitions are grouped into separate ASN.1 modules.

## 11.0 General

Some messages and/or IEs may include one or more IEs with name "dummy" that are included only in the ASN.1. The UE should avoid sending information elements that are named "dummy" to UTRAN. Likewise, UTRAN should avoid sending IEs with name "dummy" to the UE. If the UE anyhow receives an information element named "dummy", it shall ignore the IE and process the rest of the message as if the IE was not included.

NOTE: An IE with name "dummy" concerns an information element that was (erroneously) included in a previous version of the specification and has been removed by replacing it with a dummy with same type.

If the abstract syntax of an IE is defined using the ASN.1 type "BIT STRING", and this IE corresponds to a functional IE definition in tabular format, in which the significance of bits is semantically defined, the following general rule shall be applied:

The bits in the ASN.1 bit string shall represent the semantics of the functional IE definition in decreasing order of bit significance;

- with the first (or leftmost) bit in the bit string representing the most significant bit; and
- with the last (or rightmost) bit in the bit string representing the least significant bit.

## 11.1 General message structure

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

```
BEGIN
```

```
IMPORTS
```

```
    ActiveSetUpdate,  
    ActiveSetUpdateComplete,  
    ActiveSetUpdateFailure,  
    AssistanceDataDelivery,  
    CellChangeOrderFromUTRAN,  
    CellChangeOrderFromUTRANFailure,  
    CellUpdate,  
    CellUpdateConfirm-CCCH,  
    CellUpdateConfirm,  
    CounterCheck,  
    CounterCheckResponse,  
    DownlinkDirectTransfer,  
    HandoverToUTRANComplete,  
    InitialDirectTransfer,  
    HandoverFromUTRANCommand-GSM,  
    HandoverFromUTRANCommand-CDMA2000,  
    HandoverFromUTRANFailure,  
    MeasurementControl,  
    MeasurementControlFailure,  
    MeasurementReport,  
    PagingType1,  
    PagingType2,  
    PhysicalChannelReconfiguration,  
    PhysicalChannelReconfigurationComplete,  
    PhysicalChannelReconfigurationFailure,  
    PhysicalSharedChannelAllocation,  
    PUSCHCapacityRequest,  
    RadioBearerReconfiguration,  
    RadioBearerReconfigurationComplete,  
    RadioBearerReconfigurationFailure,  
    RadioBearerRelease,
```

```

RadioBearerReleaseComplete,
RadioBearerReleaseFailure,
RadioBearerSetup,
RadioBearerSetupComplete,
RadioBearerSetupFailure,
RRCConnectionReject,
RRCConnectionRelease,
RRCConnectionRelease-CCCH,
RRCConnectionReleaseComplete,
RRCConnectionRequest,
RRCConnectionSetup,
RRCConnectionSetupComplete,
RRCStatus,
SecurityModeCommand,
SecurityModeComplete,
SecurityModeFailure,
SignallingConnectionRelease,
SignallingConnectionReleaseIndication,
SystemInformation-BCH,
SystemInformation-FACH,
SystemInformationChangeIndication,
TransportChannelReconfiguration,
TransportChannelReconfigurationComplete,
TransportChannelReconfigurationFailure,
TransportFormatCombinationControl,
TransportFormatCombinationControlFailure,
UECapabilityEnquiry,
UECapabilityInformation,
UECapabilityInformationConfirm,
UplinkDirectTransfer,
UplinkPhysicalChannelControl,
URAUpdate,
URAUpdateConfirm,
URAUpdateConfirm-CCCH,
UTRANMobilityInformation,
UTRANMobilityInformationConfirm,
UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
  IntegrityCheckInfo
FROM InformationElements;

--*****
--
-- Downlink DCCH messages
--
--*****

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

DL-DCCH-MessageType ::= CHOICE {
  activeSetUpdate          ActiveSetUpdate,
  assistanceDataDelivery  AssistanceDataDelivery,
  cellChangeOrderFromUTRAN CellChangeOrderFromUTRAN,
  cellUpdateConfirm       CellUpdateConfirm,
  counterCheck            CounterCheck,
  downlinkDirectTransfer  DownlinkDirectTransfer,
  handoverFromUTRANCommand-GSM HandoverFromUTRANCommand-GSM,
  handoverFromUTRANCommand-CDMA2000 HandoverFromUTRANCommand-CDMA2000,
  measurementControl      MeasurementControl,
  pagingType2             PagingType2,
  physicalChannelReconfiguration PhysicalChannelReconfiguration,
  physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
  radioBearerReconfiguration RadioBearerReconfiguration,
  radioBearerRelease      RadioBearerRelease,
  radioBearerSetup        RadioBearerSetup,
  rrcConnectionRelease    RRCConnectionRelease,
  securityModeCommand     SecurityModeCommand,
  signallingConnectionRelease SignallingConnectionRelease,
  transportChannelReconfiguration TransportChannelReconfiguration,
  transportFormatCombinationControl TransportFormatCombinationControl,
  ueCapabilityEnquiry      UECapabilityEnquiry,
  ueCapabilityInformationConfirm UECapabilityInformationConfirm,
  uplinkPhysicalChannelControl UplinkPhysicalChannelControl,

```

```

uraUpdateConfirm          URAUpdateConfirm,
utranMobilityInformation  UTRANMobilityInformation,
extensionspare7           NULL,
spare6                    NULL,
spare5                    NULL,
spare4                    NULL,
spare3                    NULL,
spare2                    NULL,
spare1                    NULL
}

```

```

--*****
--
-- Uplink DCCH messages
--
--*****

```

```

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

```

```

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete      ActiveSetUpdateComplete,
    activeSetUpdateFailure       ActiveSetUpdateFailure,
    cellChangeOrderFromUTRANFailure CellChangeOrderFromUTRANFailure,
    counterCheckResponse         CounterCheckResponse,
    handoverToUTRANComplete      HandoverToUTRANComplete,
    initialDirectTransfer        InitialDirectTransfer,
    handoverFromUTRANFailure     HandoverFromUTRANFailure,
    measurementControlFailure    MeasurementControlFailure,
    measurementReport            MeasurementReport,
    physicalChannelReconfigurationComplete PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete   RadioBearerReleaseComplete,
    radioBearerReleaseFailure    RadioBearerReleaseFailure,
    radioBearerSetupComplete     RadioBearerSetupComplete,
    radioBearerSetupFailure      RadioBearerSetupFailure,
    rrcConnectionReleaseComplete RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete   RRCConnectionSetupComplete,
    rrcStatus                     RRCStatus,
    securityModeComplete         SecurityModeComplete,
    securityModeFailure          SecurityModeFailure,
    signallingConnectionReleaseIndication SignallingConnectionReleaseIndication,
    transportChannelReconfigurationComplete TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure TransportFormatCombinationControlFailure,
    ueCapabilityInformation       UECapabilityInformation,
    uplinkDirectTransfer          UplinkDirectTransfer,
    utranMobilityInformationConfirm UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure UTRANMobilityInformationFailure,
    extensionspare2              NULL,
    spare1                       NULL
}

```

```

--*****
--
-- Downlink CCCH messages
--
--*****

```

```

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

```

```

DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm          CellUpdateConfirm-CCCH,
    rrcConnectionReject        RRCConnectionReject,
    rrcConnectionRelease       RRCConnectionRelease-CCCH,
}

```

```

rrcConnectionSetup          RRCCConnectionSetup,
uraUpdateConfirm            URAUpdateConfirm-CCCH,
extensionspare3           NULL,
spare2                      NULL,
spare1                      NULL
}

--*****
--
-- Uplink CCCH messages
--
--*****

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

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate              CellUpdate,
    rrcConnectionRequest   RRCCConnectionRequest,
    uraUpdate               URAUpdate,
    extensionspare        NULL
}

--*****
--
-- PCCH messages
--
--*****

PCCH-Message ::= SEQUENCE {
    message                 PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1            PagingType1,
    extensionspare        NULL
}

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

DL-SHCCH-Message ::= SEQUENCE {
    message                 DL-SHCCH-MessageType
}

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

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

UL-SHCCH-Message ::= SEQUENCE {
    message                 UL-SHCCH-MessageType
}

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

--*****
--
-- BCCH messages sent on FACH
--
--*****

BCCH-FACH-Message ::= SEQUENCE {

```

```

    message                BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation        SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    extension spare2        NULL,
    spare1                   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,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IES :
    URA-Identity,
-- User Equipment IES :
    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    EstablishmentCause,
    FailureCauseWithProtErr,
    FailureCauseWithProtErrTrId,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    N-308,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithMoreInfo,
    Rb-timer-indicator,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-StateIndicator,
    RRC-TransactionIdentifier,

```

```

SecurityCapability,
START-Value,
STARTList,
U-RNTI,
U-RNTI-Short,
UE-RadioAccessCapability,
UE-RadioAccessCapability-v370ext,
UE-RadioAccessCapability-v380ext,
DL-PhysChCapabilityFDD-v380ext,
UE-ConnTimersAndConstants,
UE-SecurityInformation,
URA-UpdateCause,
UTRAN-DRX-CycleLengthCoefficient,
WaitTime,
-- Radio Bearer IEs :
DefaultConfigIdentity,
DefaultConfigMode,
DL-CounterSynchronisationInfo,
PredefinedConfigIdentity,
PredefinedConfigStatusList,
RAB-Info,
RAB-Info-Post,
RAB-InformationList,
RAB-InformationReconfigList,
RAB-InformationSetupList,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
SRB-InformationSetupList,
SRB-InformationSetupList2,
UL-CounterSynchronisationInfo,
-- 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,
-- Physical Channel IEs :
Alpha,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
MaxAllowedUL-TX-Power,
PDSCH-CapacityAllocationInfo,
PDSCH-Identity,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
PUSCH-Identity,
RL-AdditionInformationList,
RL-RemovalInformationList,
SpecialBurstScheduling,
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,
-- Measurement IEs :
    AdditionalMeasurementID-List,
    Frequency-Band,
    EventResults,
    InterRAT-TargetCellDescription,
    MeasuredResults,
    MeasuredResults-v390ext,
    MeasuredResultsList,
    MeasuredResultsOnRACH,
    MeasurementCommand,
    MeasurementIdentity,
    MeasurementReportingMode,
    PrimaryCCPCH-RSCP,
    TimeslotListWithISCP,
    TrafficVolumeMeasuredResultsList,
    UE-Positioning-GPS-AssistanceData,
    UE-Positioning-Measurement-v390ext,
    UE-Positioning-OTDOA-AssistanceData,
    UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterRAT-ChangeFailureCause,
    InterRAT-HO-FailureCause,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-SecurityCapList,
    IntraDomainNasNodeSelector,
    ProtocolErrorMoreInformation,
    Rplmn-Information,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements

    maxSIBperMsg
FROM Constant-definitions;

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

ActiveSetUpdate ::= CHOICE {
    r3                               SEQUENCE {
        activeSetUpdate-r3           ActiveSetUpdate-r3-IEs,
        nonCriticalExtensions         SEQUENCE {} OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

ActiveSetUpdate-r3-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
    dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo    OPTIONAL,
-- Physical channel IEs
    maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power          OPTIONAL,
    r1-AdditionInformationList       RL-AdditionInformationList      OPTIONAL,
    r1-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,
    ul-CounterSynchronisationInfo       UL-CounterSynchronisationInfo     OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {} OPTIONAL
}
-- *****
--
-- 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 {} OPTIONAL
}
-- *****
--
-- Assistance Data Delivery
--
-- *****

AssistanceDataDelivery ::= CHOICE {
    r3                                    SEQUENCE {
        assistanceDataDelivery-r3       AssistanceDataDelivery-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                        SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier            RRC-TransactionIdentifier,
    -- Measurement Information Elements
    ue-positioning-GPS-AssistanceData    UE-Positioning-GPS-AssistanceData
    OPTIONAL,
    ue-positioning-OTDOA-AssistanceData-UEB UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}
-- *****
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- *****

CellChangeOrderFromUTRAN ::= CHOICE {
    r3                                    SEQUENCE {
        cellChangeOrderFromUTRAN-IEs   CellChangeOrderFromUTRAN-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                        SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

```



```

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    -- not used in this release of the specification
    dummy                        IntegrityProtectionModeInfo    OPTIONAL,
    activationTime                ActivationTime                OPTIONAL,
    rab-InformationList            RAB-InformationList            OPTIONAL,
    interRAT-TargetCellDescription InterRAT-TargetCellDescription
}

-- *****
--
-- CELL CHANGE ORDER FROM UTRAN FAILURE
--
-- *****

CellChangeOrderFromUTRANFailure ::= CHOICE {
    r3                            SEQUENCE {
        cellChangeOrderFromUTRANFailure-r3
        nonCriticalExtensions      CellChangeOrderFromUTRANFailure-r3-IEs,
        dummy                      SEQUENCE {
            rrc-TransactionIdentifier    RRC-TransactionIdentifier,
            criticalExtensions            SEQUENCE {
        }
    }
}

CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    -- not used in this release of the specification
    dummy                        IntegrityProtectionModeInfo    OPTIONAL,
    interRAT-ChangeFailureCause  InterRAT-ChangeFailureCause
}

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                        U-RNTI,
    startList                      STARTList,
    am-RLC-ErrorIndicationRb2-3or4  BOOLEAN,
    am-RLC-ErrorIndicationRb5orAbove  BOOLEAN,
    cellUpdateCause                CellUpdateCause,
    failureCause                    FailureCauseWithProtErrTrId    OPTIONAL,
    -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
    rb-timer-indicator              Rb-timer-indicator,
    -- Measurement IEs
    measuredResultsOnRACH            MeasuredResultsOnRACH        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE { } OPTIONAL
}

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

CellUpdateConfirm ::= CHOICE {
    r3                            SEQUENCE {
        cellUpdateConfirm-r3        CellUpdateConfirm-r3-IEs,
        nonCriticalExtensions        SEQUENCE { } OPTIONAL
    },
    later-than-r3                  SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {
    }
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs

```

```

rrc-TransactionIdentifier      RRC-TransactionIdentifier,
integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
cipheringModeInfo              CipheringModeInfo                OPTIONAL,
activationTime                  ActivationTime                    OPTIONAL,
new-U-RNTI                     U-RNTI                          OPTIONAL,
new-C-RNTI                     C-RNTI                          OPTIONAL,
rrc-StateIndicator             RRC-StateIndicator,
utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
rlc-Re-establishIndicatorRb2-3or4  BOOLEAN,
rlc-Re-establishIndicatorRb5orAbove  BOOLEAN,
-- CN information elements
  cn-InformationInfo           CN-InformationInfo              OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                 URA-Identity                    OPTIONAL,
-- Radio bearer IEs
  rb-InformationReleaseList     RB-InformationReleaseList       OPTIONAL,
  rb-InformationReconfigList    RB-InformationReconfigList      OPTIONAL,
  rb-InformationAffectedList     RB-InformationAffectedList      OPTIONAL,
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo         UL-CommonTransChInfo           OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList      OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                         SEQUENCE {
      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
}

```

```

-- *****
--
-- CELL UPDATE CONFIRM for CCCH
--
-- *****

```

```

CellUpdateConfirm-CCCH ::= 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 {} OPTIONAL
  },
  later-than-r3                     SEQUENCE {
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    criticalExtensions              SEQUENCE {}
  }
}

```

```

-- *****
--
-- COUNTER CHECK
--
-- *****

```

```

CounterCheck ::= CHOICE {
  r3                               SEQUENCE {
    counterCheck-r3                CounterCheck-r3-IEs,
    nonCriticalExtensions            SEQUENCE {} OPTIONAL
  }
}

```

```

    },
    later-than-r3          SEQUENCE {
        rrc-TransactionIdentifier  RRC-TransactionIdentifier,
        criticalExtensions          SEQUENCE {}
    }
}

CounterCheck-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    -- Radio bearer IEs
    rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList
}

-- *****
--
-- COUNTER CHECK RESPONSE
--
-- *****

CounterCheckResponse ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    -- Radio bearer IEs
    rb-COUNT-C-InformationList  RB-COUNT-C-InformationList          OPTIONAL,
    -- Extension mechanism for non-release99 information
    nonCriticalExtensions      SEQUENCE {} OPTIONAL
}

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= CHOICE {
    r3          SEQUENCE {
        downlinkDirectTransfer-r3  DownlinkDirectTransfer-r3-IEs,
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    later-than-r3          SEQUENCE {
        rrc-TransactionIdentifier  RRC-TransactionIdentifier,
        criticalExtensions          SEQUENCE {}
    }
}

DownlinkDirectTransfer-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    -- Core network IEs
    cn-DomainIdentity          CN-DomainIdentity,
    nas-Message                NAS-Message
}

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

HandoverToUTRANCommand ::= CHOICE {
    r3          SEQUENCE {
        handoverToUTRANCommand-r3  HandoverToUTRANCommand-r3-IEs,
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    new-U-RNTI          U-RNTI-Short,
    -- Activation time is not used in this version of specification.
    dummy              ActivationTime          OPTIONAL,
    cipheringAlgorithm  CipheringAlgorithm    OPTIONAL,
    -- Radio bearer IEs
    -- Specification mode information
    specificationMode  CHOICE {

```

```

complete
  srb-InformationSetupList      SEQUENCE {
  rab-InformationSetupList      SRB-InformationSetupList,
                                RAB-InformationSetupList      OPTIONAL,
  ul-CommonTransChInfo         UL-CommonTransChInfo,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo         DL-CommonTransChInfo,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
  ul-DPCH-Info                 UL-DPCH-Info,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information      DL-PDSCH-Information OPTIONAL,
      cpch-SetInfo              CPCH-SetInfo          OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation          DL-CommonInformation,
  dl-InformationPerRL-List      DL-InformationPerRL-List,
  frequencyInfo                FrequencyInfo
},
preconfiguration                SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
  preConfigMode                 CHOICE {
    predefinedConfigIdentity     PredefinedConfigIdentity,
    defaultConfig                SEQUENCE {
      defaultConfigMode         DefaultConfigMode,
      defaultConfigIdentity     DefaultConfigIdentity
    }
  },
  rab-Info                       RAB-Info-Post      OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      ul-DPCH-Info              UL-DPCH-InfoPostFDD,
      dl-CommonInformationPost   DL-CommonInformationPost,
      dl-InformationPerRL-List   DL-InformationPerRL-ListPostFDD,
      frequencyInfo              FrequencyInfoFDD
    },
    tdd                          SEQUENCE {
      ul-DPCH-Info              UL-DPCH-InfoPostTDD,
      dl-CommonInformationPost   DL-CommonInformationPost,
      dl-InformationPerRL-List   DL-InformationPerRL-ListPostTDD,
      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,
  -- Radio bearer IEs
  count-C-ActivationTime         ActivationTime                OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

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

InitialDirectTransfer ::= SEQUENCE {
  -- Core network IEs

```

```

        cn-DomainIdentity          CN-DomainIdentity,
        intraDomainNasNodeSelector IntraDomainNasNodeSelector,
        nas-Message                NAS-Message,
-- Measurement IEs
        measuredResultsOnRACH      MeasuredResultsOnRACH          OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions      SEQUENCE {}                    OPTIONAL
    }

-- *****
--
-- HANDBOOK FROM UTRAN COMMAND
--
-- *****

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                               SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
        nonCriticalExtensions        SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions           SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    activationTime                   ActivationTime                OPTIONAL,
-- Radio bearer IEs
    toHandoverRAB-Info              RAB-Info                    OPTIONAL,
-- Measurement IEs
    frequency-band                   Frequency-Band,
-- Other IEs
    gsm-message                      CHOICE {
        single-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
        gsm-MessageList             SEQUENCE {
            gsm-Messages             GSM-MessageList
        }
    }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                               SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
        nonCriticalExtensions        SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions           SEQUENCE {}
    }
}

HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    activationTime                   ActivationTime                OPTIONAL,
-- Radio bearer IEs
    toHandoverRAB-Info              RAB-Info                    OPTIONAL,
-- Other IEs
    cdma2000-MessageList            CDMA2000-MessageList
}

-- *****
--
-- HANDBOOK FROM UTRAN FAILURE
--
-- *****

HandoverFromUTRANFailure ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,

```

```

-- Other IEs
interRAT-HO-FailureCause      InterRAT-HO-FailureCause      OPTIONAL,
interRATMessage               CHOICE {
    gsm                        SEQUENCE {
        gsm-MessageList      GSM-MessageList
    },
    cdma2000                   SEQUENCE {
        cdma2000-MessageList CDMA2000-MessageList
    }
}
OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions         SEQUENCE {}      OPTIONAL
}

-- *****
--
-- INTER RAT HANDOVER INFO
--
-- *****

InterRATHandoverInfo ::= SEQUENCE {
-- This structure is defined for historical reasons, backward compatibility with 04.18
predefinedConfigStatusList   CHOICE {
    absent                     NULL,
    present                    PredefinedConfigStatusList
},
ue-SecurityInformation        CHOICE {
    absent                     NULL,
    present                    UE-SecurityInformation
},
ue-CapabilityContainer        CHOICE {
    absent                     NULL,
    present                    OCTET STRING (SIZE (0..63))
    -- octet aligned string containing IE UE-RadioAccessCapabilityInfo
},
-- Non critical extensions
v390NonCriticalExtensions     CHOICE {
    absent                     NULL,
    present                    SEQUENCE {
        interRATHandoverInfo-v390ext  InterRATHandoverInfo-v390ext-IEs,
        -- Reserved for future non critical extension
        nonCriticalExtensions         SEQUENCE {} OPTIONAL
    }
}
}

InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
-- User equipment IEs
ue-RadioAccessCapability-v380ext  UE-RadioAccessCapability-v380ext      OPTIONAL,
dl-PhysChCapabilityFDD-v380ext    DL-PhysChCapabilityFDD-v380ext
}

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

MeasurementControl ::= CHOICE {
    r3                            SEQUENCE {
        measurementControl-r3      MeasurementControl-r3-IEs,
        v390nonCriticalExtensions   SEQUENCE {
            measurementControl-v390ext  MeasurementControl-v390ext,
            nonCriticalExtensions       SEQUENCE {}
        }
    } OPTIONAL,
    later-than-r3                 SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

MeasurementControl-r3-IEs ::= SEQUENCE {
-- User equipment IEs
rrc-TransactionIdentifier        RRC-TransactionIdentifier,
-- Measurement IEs
measurementIdentity              MeasurementIdentity,
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
}

MeasurementControl-v390ext ::= SEQUENCE {
    ue-Positioning-Measurement-v390ext      UE-Positioning-Measurement-v390ext      OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

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

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
    measurementIdentity      MeasurementIdentity,
    measuredResults            MeasuredResults            OPTIONAL,
    measuredResultsOnRACH      MeasuredResultsOnRACH      OPTIONAL,
    additionalMeasuredResults    MeasuredResultsList      OPTIONAL,
    eventResults                EventResults            OPTIONAL,
    -- Extension mechanism for non- release99 information
    v390nonCriticalExtensions    SEQUENCE {
        measurementReport-v390ext      MeasurementReport-v390ext,
        nonCriticalExtensions            SEQUENCE {}      OPTIONAL
    }
}

MeasurementReport-v390ext ::= SEQUENCE{
    measuredResults-v390ext      MeasuredResults-v390ext      OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
    pagingRecordList            PagingRecordList      OPTIONAL,
    -- Other IEs
    bcch-ModificationInfo        BCCH-ModificationInfo      OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}      OPTIONAL
}

-- *****
--
-- PAGING TYPE 2
--
-- *****

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    pagingCause                    PagingCause,
    -- Core network IEs
    cn-DomainIdentity            CN-DomainIdentity,
    pagingRecordTypeID            PagingRecordTypeID,
    -- Extension mechanism for non- release99 information
}

```

```

        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    }
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

PhysicalChannelReconfiguration ::= CHOICE {
    r3                               SEQUENCE {
        physicalChannelReconfiguration-r3
        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    integrityProtectionModeInfo        IntegrityProtectionModeInfo          OPTIONAL,
    cipheringModeInfo                  CipheringModeInfo                      OPTIONAL,
    activationTime                      ActivationTime                          OPTIONAL,
    new-U-RNTI                          U-RNTI                                  OPTIONAL,
    new-C-RNTI                          C-RNTI                                  OPTIONAL,
    rrc-StateIndicator                  RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff          UTRAN-DRX-CycleLengthCoefficient        OPTIONAL,
-- Core network IEs
    cn-InformationInfo                  CN-InformationInfo                      OPTIONAL,
-- UTRAN mobility IEs
    ura-Identity                        URA-Identity                            OPTIONAL,
-- Radio bearer IEs
    dl-CounterSynchronisationInfo       DL-CounterSynchronisationInfo          OPTIONAL,
-- Physical channel IEs
    frequencyInfo                       FrequencyInfo                            OPTIONAL,
    maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power                  OPTIONAL,
    ul-ChannelRequirement                 UL-ChannelRequirementWithCPCH-SetID    OPTIONAL,
-- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
-- between UL DPCH info, 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
    count-C-ActivationTime                ActivationTime                          OPTIONAL,
    rb-UL-CiphActivationTimeInfo          RB-ActivationTimeInfoList             OPTIONAL,
    ul-CounterSynchronisationInfo         UL-CounterSynchronisationInfo         OPTIONAL,
-- Extension mechanism for non-release99 information
    nonCriticalExtensions                  SEQUENCE {}          OPTIONAL
}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

```



```

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

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

PhysicalSharedChannelAllocation ::= CHOICE {
    r3                             SEQUENCE {
        physicalSharedChannelAllocation-r3
        nonCriticalExtensions      PhysicalSharedChannelAllocation-r3-IEs,
        SEQUENCE {} OPTIONAL
    },
    later-than-r3                 SEQUENCE {
        rrc-TransactionIdentifier  RRC-TransactionIdentifier,
        criticalExtensions         SEQUENCE {}
    }
}

PhysicalSharedChannelAllocation-r3-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 10.2.25.
    trafficVolumeReportRequest    INTEGER (0..255)              OPTIONAL,
    iscpTimeslotList              TimeslotList                    OPTIONAL,
    requestPCCPCHRSCP             BOOLEAN
}

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

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
    c-RNTI                        C-RNTI                        OPTIONAL,
    -- Measurement IEs
    trafficVolume                  TrafficVolumeMeasuredResultsList  OPTIONAL,
    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 {}      OPTIONAL
}

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

RadioBearerReconfiguration ::= CHOICE {
    r3                             SEQUENCE {
        radioBearerReconfiguration-r3  RadioBearerReconfiguration-r3-IEs,
        nonCriticalExtensions          SEQUENCE {}      OPTIONAL
    },
}

```

```

    later-than-r3
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions SEQUENCE {}
    }
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo CipheringModeInfo OPTIONAL,
    activationTime ActivationTime OPTIONAL,
    new-U-RNTI U-RNTI OPTIONAL,
    new-C-RNTI C-RNTI OPTIONAL,
    rrc-StateIndicator RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo CN-InformationInfo OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity URA-Identity OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList RAB-InformationReconfigList OPTIONAL,
    rb-InformationReconfigList RB-InformationReconfigList,
    -- NOTE: IE rb-InformationReconfigList should be optional in later versions of this message
    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
    -- NOTE: IE dl-InformationPerRL-List should be optional in later versions of this message
}

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

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance UL-TimingAdvance OPTIONAL,
    -- Radio bearer IEs
    count-C-ActivationTime ActivationTime OPTIONAL,
    rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfoList OPTIONAL,
    ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions SEQUENCE {} OPTIONAL
}

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

```

```

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

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

RadioBearerRelease ::= CHOICE {
  r3                             SEQUENCE {
    radioBearerRelease-r3        RadioBearerRelease-r3-IEs,
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
  },
  later-than-r3                  SEQUENCE {
    rrc-TransactionIdentifier     RRC-TransactionIdentifier,
    criticalExtensions            SEQUENCE {}
  }
}

RadioBearerRelease-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo             CipheringModeInfo                OPTIONAL,
  activationTime                 ActivationTime                    OPTIONAL,
  new-U-RNTI                    U-RNTI                          OPTIONAL,
  new-C-RNTI                    C-RNTI                          OPTIONAL,
  rrc-StateIndicator            RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IEs
  cn-InformationInfo            CN-InformationInfo                OPTIONAL,
  signallingConnectionRelIndication CN-DomainIdentity          OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                  URA-Identity                    OPTIONAL,
  -- Radio bearer IEs
  rab-InformationReconfigList    RAB-InformationReconfigList    OPTIONAL,
  rb-InformationReleaseList      RB-InformationReleaseList,
  rb-InformationAffectedList     RB-InformationAffectedList     OPTIONAL,
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      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
  count-C-ActivationTime        ActivationTime                      OPTIONAL,
  rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList        OPTIONAL,
  ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo    OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions         SEQUENCE {}          OPTIONAL
}

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

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

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

RadioBearerSetup ::= CHOICE {
  r3                            SEQUENCE {
    radioBearerSetup-r3        RadioBearerSetup-r3-IEs,
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
  },
  later-than-r3                SEQUENCE {
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    criticalExtensions         SEQUENCE {}
  }
}

RadioBearerSetup-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo   IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo            CipheringModeInfo                OPTIONAL,
  activationTime               ActivationTime                    OPTIONAL,
  new-U-RNTI                   U-RNTI                          OPTIONAL,
  new-C-RNTI                   C-RNTI                          OPTIONAL,
  rrc-StateIndicator           RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff   UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                 URA-Identity                      OPTIONAL,
  -- Core network IEs
  cn-InformationInfo           CN-InformationInfo                OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList     SRB-InformationSetupList        OPTIONAL,
  rab-InformationSetupList     RAB-InformationSetupList        OPTIONAL,
  rb-InformationAffectedList   RB-InformationAffectedList        OPTIONAL,
  dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo    OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo        UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList    UL-DeletedTransChInfoList        OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList        OPTIONAL,
  modeSpecificTransChInfo      CHOICE {
    fdd                        SEQUENCE {
      cpch-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
}

-- *****
--
-- 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
    count-C-ActivationTime             ActivationTime                  OPTIONAL,
    rb-UL-CiphActivationTimeInfo       RB-ActivationTimeInfoList     OPTIONAL,
    ul-CounterSynchronisationInfo     UL-CounterSynchronisationInfo OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}                   OPTIONAL
}

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

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

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

RRCConnectionReject ::= CHOICE {
    r3                                  SEQUENCE {
        rrcConnectionReject-r3        RRCConnectionReject-r3-IEs,
        nonCriticalExtensions         SEQUENCE {}                   OPTIONAL
    },
    later-than-r3                      SEQUENCE {
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        criticalExtensions             SEQUENCE {}
    }
}

RRCConnectionReject-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs

```

```

        initialUE-Identity          InitialUE-Identity,
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        rejectionCause              RejectionCause,
        waitTime                    WaitTime,
        redirectionInfo              RedirectionInfo
    }

```

```

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

```

```

RRCConnectionRelease ::= CHOICE {
    r3
        rrcConnectionRelease-r3
        nonCriticalExtensions
    },
    later-than-r3
        rrc-TransactionIdentifier
        criticalExtensions
}

```

```

RRCConnectionRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    n-308                        N-308
    -- The IE above is conditional on the UE state.
    releaseCause                ReleaseCause,
    rplmn-information            Rplmn-Information
}

```

```

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

```

```

RRCConnectionRelease-CCCH ::= CHOICE {
    r3
        rrcConnectionRelease-CCCH-r3
        nonCriticalExtensions
    },
    later-than-r3
        rrc-TransactionIdentifier
        criticalExtensions
}

```

```

RRCConnectionRelease-CCCH-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                        U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionRelease          RRCConnectionRelease-r3-IEs
}

```

```

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

```

```

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    errorIndication              FailureCauseWithProtErr
    -- Extension mechanism for non-release99 information
    nonCriticalExtensions        SEQUENCE {
        OPTIONAL
    }
}

```

```

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

```

```

RRCConnectionRequest ::= SEQUENCE {

```

```

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

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

RRCConnectionSetup ::= CHOICE {
  r3                          SEQUENCE {
    rrcConnectionSetup-r3     RRCConnectionSetup-r3-IEs,
    nonCriticalExtensions      SEQUENCE {} OPTIONAL
  },
  later-than-r3               SEQUENCE {
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    criticalExtensions         SEQUENCE {}
  }
}

RRCConnectionSetup-r3-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,
  rrc-StateIndicator          RRC-StateIndicator,
  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,
-- NOTE: IE ul-AddReconfTransChInfoList should be optional in later versions of this message
  dl-CommonTransChInfo       DL-CommonTransChInfo          OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- NOTE: IE dl-AddReconfTransChInfoList should be optional in later versions of this message
-- 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,
-- Other IEs
  ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
-- Non critical extensions
  v370NonCriticalExtensions    SEQUENCE {
    rrcConnectionSetupComplete-v370ext RRCConnectionSetupComplete-v370ext,
    v380NonCriticalExtensions         SEQUENCE {

```

```

        rrcConnectionSetupComplete-v380ext RRCConnectionSetupComplete-v380ext-IEs,
        -- Reserved for future non critical extension
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    }
    OPTIONAL
}

RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext OPTIONAL
}

RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext OPTIONAL,
    dl-PhysChCapabilityFDD-v380ext DL-PhysChCapabilityFDD-v380ext
}

-- *****
--
-- RRC FAILURE INFO
--
-- *****

RRC-FailureInfo ::= CHOICE {
    r3 SEQUENCE {
        rRC-FailureInfo-r3 RRC-FailureInfo-r3-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    criticalExtensions SEQUENCE {}
}

RRC-FailureInfo-r3-IEs ::= SEQUENCE {
    -- Non-RRC IEs
    failureCauseWithProtErr FailureCauseWithProtErr
}

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

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

SecurityModeCommand ::= CHOICE {
    r3 SEQUENCE {
        securityModeCommand-r3 SecurityModeCommand-r3-IEs,
        nonCriticalExtensions SEQUENCE {} OPTIONAL
    },
    later-than-r3 SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions SEQUENCE {}
    }
}

SecurityModeCommand-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    securityCapability SecurityCapability,
    cipheringModeInfo CipheringModeInfo OPTIONAL,
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    -- Core network IEs
    cn-DomainIdentity CN-DomainIdentity,
}

```



```

-- Other IEs
  ue-SystemSpecificSecurityCap      InterRAT-UE-SecurityCapList      OPTIONAL
}
-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.

  -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList      OPTIONAL,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
}
-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    failureCause                   FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
}
-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= CHOICE {
  r3                               SEQUENCE {
    signallingConnectionRelease-r3 SignallingConnectionRelease-r3-IEs,
    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
  },
  later-than-r3                   SEQUENCE {
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    criticalExtensions             SEQUENCE {}
  }
}

SignallingConnectionRelease-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  -- Core network IEs
    cn-DomainIdentity             CN-DomainIdentity
}
-- *****
--
-- SIGNALLING CONNECTION RELEASE INDICATION
--
-- *****

SignallingConnectionReleaseIndication ::= SEQUENCE {
  -- Core network IEs
    cn-DomainIdentity             CN-DomainIdentity,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
}
-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

```

```

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  sfn-Prime          SFN-Prime,
  payload            CHOICE {
    noSegment        NULL,
    firstSegment     FirstSegment,
    subsequentSegment SubsequentSegment,
    lastSegmentShort LastSegmentShort,
    lastAndFirst     SEQUENCE {
      lastSegmentShort LastSegmentShort,
      firstSegment      FirstSegmentShort
    },
    lastAndComplete  SEQUENCE {
      lastSegmentShort LastSegmentShort,
      completeSIB-List CompleteSIB-List
    },
    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,
    spare5           NULL,
    spare4           NULL,
    spare3           NULL,
    spare2           NULL,
    spare1           NULL
  }
}

```

```

-- *****
--
-- 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
    },
    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,
    spare5           NULL,
    spare4           NULL,
    spare3           NULL,
    spare2           NULL,
    spare1           NULL
  }
}

```

```

-- *****
--
-- 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    BIT STRING (SIZE (226))
        -- In case the SIB data is less than 226 bits, padding shall be used
        -- The same padding bits shall be used as defined in clause 12.1
    }

```

```

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 {} OPTIONAL
}

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

TransportChannelReconfiguration ::= CHOICE {
  r3          SEQUENCE {
    transportChannelReconfiguration-r3
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
  },
  later-than-r3 SEQUENCE {
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    criticalExtensions             SEQUENCE {}
  }
}

TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo          OPTIONAL,
  cipheringModeInfo             CipheringModeInfo                    OPTIONAL,
  activationTime                 ActivationTime                       OPTIONAL,
  new-U-RNTI                     U-RNTI                             OPTIONAL,
  new-C-RNTI                     C-RNTI                             OPTIONAL,
  rrc-StateIndicator             RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo                  OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                   URA-Identity                       OPTIONAL,
  -- Radio bearer IEs
  dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo           UL-CommonTransChInfo          OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd          SEQUENCE {
      cpch-SetID          CPCH-SetID          OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd          NULL
  },
  dl-CommonTransChInfo           DL-CommonTransChInfo          OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList    OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement          OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd          SEQUENCE {
      dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL
    },
    tdd          NULL
  },
  dl-CommonInformation           DL-CommonInformation          OPTIONAL,
  dl-InformationPerRL-List       DL-InformationPerRL-List      OPTIONAL
}

```

```

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

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo      OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance               UL-TimingAdvance                OPTIONAL,
    -- Radio bearer IEs
    count-C-ActivationTime         ActivationTime                OPTIONAL,
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList    OPTIONAL,
    ul-CounterSynchronisationInfo  UL-CounterSynchronisationInfo  OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL
}

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

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

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

TransportFormatCombinationControl ::= SEQUENCE {
    rrc-TransactionIdentifier      RRC-TransactionIdentifier      OPTIONAL,
    -- The information element is always included
    modeSpecificInfo              CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
            tfcs-ID               TFCS-Identity    OPTIONAL
        }
    },
    dpch-TFCS-InUplink            TFC-Subset,
    activationTimeForTFCSubset     ActivationTime                OPTIONAL,
    tfc-ControlDuration            TFC-ControlDuration          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                OPTIONAL
}

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

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

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

UECapabilityEnquiry ::= CHOICE {

```

```

    r3                SEQUENCE {
        ueCapabilityEnquiry-r3    UECapabilityEnquiry-r3-IEs,
        nonCriticalExtensions     SEQUENCE {}          OPTIONAL
    },
    later-than-r3     SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions        SEQUENCE {}
    }
}

UECapabilityEnquiry-r3-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-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
    -- Non critical extensions
    v370NonCriticalExtensions    SEQUENCE {
        ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
        v380NonCriticalExtensions    SEQUENCE {
            ueCapabilityInformation-v380ext UECapabilityInformation-v380ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions     SEQUENCE {}          OPTIONAL
        }
        OPTIONAL
    }
    OPTIONAL
}

UECapabilityInformation-v370ext ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext    OPTIONAL
}

UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
    ue-RadioAccessCapability-v380ext UE-RadioAccessCapability-v380ext    OPTIONAL,
    dl-PhysChCapabilityFDD-v380ext   DL-PhysChCapabilityFDD-v380ext
}

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

UECapabilityInformationConfirm ::= CHOICE {
    r3                SEQUENCE {
        ueCapabilityInformationConfirm-r3
        nonCriticalExtensions    UECapabilityInformationConfirm-r3-IEs,
        SEQUENCE {}          OPTIONAL
    },
    later-than-r3     SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        criticalExtensions        SEQUENCE {}
    }
}

UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier
}

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

```

```

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

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

UplinkPhysicalChannelControl ::= CHOICE {
  r3                          SEQUENCE {
    uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
    nonCriticalExtensions            SEQUENCE {}          OPTIONAL
  },
  later-than-r3                SEQUENCE {
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    criticalExtensions                SEQUENCE {}
  }
}

UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
-- User equipment IEs
  rrc-TransactionIdentifier        RRC-TransactionIdentifier,
-- Physical channel IEs
  ccTrCH-PowerControlInfo          CCTrCH-PowerControlInfo          OPTIONAL,
  timingAdvance                    UL-TimingAdvanceControl          OPTIONAL,
  alpha                             Alpha                          OPTIONAL,
  specialBurstScheduling            SpecialBurstScheduling          OPTIONAL,
  prach-ConstantValue              ConstantValue                  OPTIONAL,
  pusch-ConstantValue              ConstantValue                  OPTIONAL
}

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
-- User equipment IEs
  u-RNTI                          U-RNTI,
  ura-UpdateCause                  URA-UpdateCause,
  protocolErrorIndicator            ProtocolErrorIndicatorWithMoreInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}          OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= CHOICE {
  r3                          SEQUENCE {
    uraUpdateConfirm-r3            URAUpdateConfirm-r3-IEs,
    nonCriticalExtensions            SEQUENCE {}          OPTIONAL
  },
  later-than-r3                SEQUENCE {
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    criticalExtensions                SEQUENCE {}
  }
}

URAUUpdateConfirm-r3-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,
        rrc-StateIndicator          RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- CN information elements
        cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- UTRAN mobility IEs
        ura-Identity                URA-Identity              OPTIONAL,
-- Radio bearer IEs
        dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo  OPTIONAL
    }
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= CHOICE {
    r3                               SEQUENCE {
        uraUpdateConfirm-CCCH-r3    URAUpdateConfirm-CCCH-r3-IEs,
        nonCriticalExtensions        SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

URAUUpdateConfirm-CCCH-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    u-RNTI                          U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    uraUpdateConfirm                URAUpdateConfirm-r3-IEs
}

-- *****
--
-- UTRAN MOBILITY INFORMATION
--
-- *****

UTRANMobilityInformation ::= CHOICE {
    r3                               SEQUENCE {
        utranMobilityInformation-r3  UTRANMobilityInformation-r3-IEs,
        nonCriticalExtensions        SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

UTRANMobilityInformation-r3-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,
    ue-ConnTimersAndConstants       UE-ConnTimersAndConstants    OPTIONAL,
    -- CN information elements
    cn-InformationInfo              CN-InformationInfoFull       OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                  OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo  OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {} OPTIONAL
}

-- *****
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- *****

```



```

UTRANMobilityInformationConfirm ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo      OPTIONAL,
    -- Radio bearer IEs
    count-C-ActivationTime        ActivationTime                        OPTIONAL,
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList       OPTIONAL,
    ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo   OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions         SEQUENCE {}          OPTIONAL
}

-- *****
--
-- UTRAN MOBILITY INFORMATION FAILURE
--
-- *****

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    failureCause                  FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions         SEQUENCE {}          OPTIONAL
}

END

```

## 11.3 Information element definitions

InformationElements DEFINITIONS AUTOMATIC TAGS ::=

```

-- *****
--
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)
--
-- *****

```

BEGIN

IMPORTS

```

    hiPDSCHidentities,
    hiPUSCHidentities,
    hiRM,
    maxAC,
    maxAdditionalMeas,
    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxCNdomains,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPCH-UL,
    maxDRACclasses,
    maxFACHPCH,
    maxFreq,
    maxFreqBandsFDD,
    maxFreqBandsTDD,
    maxFreqBandsGSM,
    maxInterSysMessages,
    maxLoCHperRLC,
    maxMeasEvent,
    maxMeasIntervals,
    maxMeasParEvent,
    maxNumCDMA2000Freqs,
    maxNumFDDFreqs,
    maxNumGSMFreqRanges,
    maxNumTDDFreqs,
    maxOtherRAT,
    maxPage1,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,

```

```

maxPCPCH-SF,
maxPCPCHs,
maxPDCPAlgoType,
maxPDSCH,
maxPDSCH-TFCIgroups,
maxPRACH,
maxPredefConfig,
maxPUSCH,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxSRBsetup,
maxRL,
maxRL-1,
maxSCCPCH,
maxSat,
maxSIB,
maxSIB-FACH,
maxSystemCapability,
maxTF,
maxTF-CPCH,
maxTFC,
maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
maxTrCHpreconf,
maxTS,
maxTS-1,
maxURA
FROM Constant-definitions;

Ansi-41-IDNNS ::=                                BIT STRING (SIZE (14))

CN-DomainIdentity ::=                             ENUMERATED {
                                                    cs-domain,
                                                    ps-domain }

CN-DomainInformation ::=                          SEQUENCE {
  cn-DomainIdentity                               CN-DomainIdentity,
  cn-DomainSpecificNAS-Info                       NAS-SystemInformationGSM-MAP
}

CN-DomainInformationFull ::=                      SEQUENCE {
  cn-DomainIdentity                               CN-DomainIdentity,
  cn-DomainSpecificNAS-Info                       NAS-SystemInformationGSM-MAP,
  cn-DRX-CycleLengthCoeff                        CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList ::=                     SEQUENCE (SIZE (1..maxCNdomains)) OF
  CN-DomainInformation

CN-DomainInformationListFull ::=                 SEQUENCE (SIZE (1..maxCNdomains)) OF
  CN-DomainInformationFull

CN-DomainSysInfo ::=                             SEQUENCE {
  cn-DomainIdentity                               CN-DomainIdentity,
  cn-Type                                          CHOICE {
    gsm-MAP                                       NAS-SystemInformationGSM-MAP,
    ansi-41                                       NAS-SystemInformationANSI-41
  },
  cn-DRX-CycleLengthCoeff                        CN-DRX-CycleLengthCoefficient
}

CN-DomainSysInfoList ::=                         SEQUENCE (SIZE (1..maxCNdomains)) OF
  CN-DomainSysInfo

CN-InformationInfo ::=                           SEQUENCE {
  plmn-Identity                                   PLMN-Identity                               OPTIONAL,
  cn-CommonGSM-MAP-NAS-SysInfo                   NAS-SystemInformationGSM-MAP                 OPTIONAL,
  cn-DomainInformationList                       CN-DomainInformationList                     OPTIONAL
}

CN-InformationInfoFull ::=                       SEQUENCE {
  plmn-Identity                                   PLMN-Identity                               OPTIONAL,

```

cn-CommonGSM-MAP-NAS-SysInfo	NAS-SystemInformationGSM-MAP	OPTIONAL,
cn-DomainInformationListFull	CN-DomainInformationListFull	OPTIONAL
}		
Digit ::=	INTEGER (0..9)	
Gsm-map-IDNNS ::=	SEQUENCE {	
routingbasis	CHOICE {	
localPTMSI	SEQUENCE {	
routingparameter	RoutingParameter	
},		
tMSIofsamePLMN	SEQUENCE {	
routingparameter	RoutingParameter	
},		
tMSIofdifferentPLMN	SEQUENCE {	
routingparameter	RoutingParameter	
},		
iMSIresponsetopaging	SEQUENCE {	
routingparameter	RoutingParameter	
},		
iMSIcauseUEinitiatedEvent	SEQUENCE {	
routingparameter	RoutingParameter	
},		
IMEI	SEQUENCE {	
routingparameter	RoutingParameter	
},		
spare2 <del>1</del>	SEQUENCE {	
routingparameter	RoutingParameter	
},		
spare1 <del>2</del>	SEQUENCE {	
routingparameter	RoutingParameter	
}		
},		
enteredparameter	BOOLEAN	
}		
IMEI ::=	SEQUENCE (SIZE (15)) OF	
	IMEI-Digit	
IMEI-Digit ::=	INTEGER (0..15)	
IMSI-GSM-MAP ::=	SEQUENCE (SIZE (6.. <del>15</del> 21)) OF	
	Digit	
IntraDomainNasNodeSelector ::=	SEQUENCE {	
version	CHOICE {	
release99	SEQUENCE {	
cn-Type	CHOICE {	
gsm-Map-IDNNS	Gsm-map-IDNNS,	
ansi-41-IDNNS	Ansi-41-IDNNS	
}		
},		
later	SEQUENCE {	
futurecoding	BIT STRING (SIZE (15))	
}		
}		
}		
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 ::=
    mcc
    mnc
}
SEQUENCE {
    MCC,
    MNC
}

PLMN-Type ::=
    gsm-MAP
        plmn-Identity
    },
    ansi-41
        p-REV
        min-P-REV
        sid
        nid
    },
    gsm-MAP-and-ANSI-41
        plmn-Identity
        p-REV
        min-P-REV
        sid
        nid
    }_L
    spare
}
CHOICE {
    SEQUENCE {
        PLMN-Identity
    }
    SEQUENCE {
        P-REV,
        Min-P-REV,
        SID,
        NID
    }
    SEQUENCE {
        PLMN-Identity,
        P-REV,
        Min-P-REV,
        SID,
        NID
    }
    NULL
}

RAB-Identity ::=
    gsm-MAP-RAB-Identity
    ansi-41-RAB-Identity
}
CHOICE {
    BIT STRING (SIZE (8)),
    BIT STRING (SIZE (8))
}

RAI ::=
    lai
    rac
}
SEQUENCE {
    LAI,
    RoutingAreaCode
}

RoutingAreaCode ::=
    BIT STRING (SIZE (8))

RoutingParameter ::=
    BIT STRING (SIZE (10))

TMSI-GSM-MAP ::=
    BIT STRING (SIZE (32))

-- *****
--
--     UTRAN MOBILITY INFORMATION ELEMENTS (10.3.2)
--
-- *****

AccessClassBarred ::=
    ENUMERATED {
        barred, notBarred }

AccessClassBarredList ::=
    SEQUENCE (SIZE (maxAC)) OF
        AccessClassBarred

AllowedIndicator ::=
    ENUMERATED {
        allowed, notAllowed }

CellAccessRestriction ::=
    cellBarred
    cellReservedForOperatorUse
    cellReservationExtension
    accessClassBarredList
}
SEQUENCE {
    CellBarred,
    ReservedIndicator,
    ReservedIndicator,
    AccessClassBarredList
}
OPTIONAL

CellBarred ::=
    barred
        intraFreqCellReselectionInd
        t-Barred
    },
    notBarred
}
CHOICE {
    SEQUENCE {
        AllowedIndicator,
        T-Barred
    }
    NULL
}

CellIdentity ::=
    BIT STRING (SIZE (28))

```

```

CellSelectReselectInfoSIB-3-4 ::= SEQUENCE {
    mappingInfo MappingInfo OPTIONAL,
    cellSelectQualityMeasure CHOICE {
        cpich-Ec-N0 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-1-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 {
    ultra-FDD,
    ultra-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 }

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

-- *****
--
--     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-RadioCapabilityFDDUpdateRequirement  BOOLEAN,
        ue-RadioCapabilityTDDUpdateRequirement  BOOLEAN,
        systemSpecificCapUpdateReqList         SystemSpecificCapUpdateReqList  OPTIONAL
    }

CellUpdateCause ::=
    ENUMERATED {
        cellReselection,
        periodicalCellUpdate,
        uplinkDataTransmission,
        utran-pagingResponse,
        re-enteredServiceArea,
        radiolinkFailure,
        rlc-unrecoverableError,
        spare1 }

ChipRateCapability ::=
    ENUMERATED {
        mcps3-84, mcps1-28 }

CipheringAlgorithm ::=
    ENUMERATED {

```

```

        uea0, uea1 }

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..9)

CN-PagedUE-Identity ::=          CHOICE {
    imsi-GSM-MAP                  IMSI-GSM-MAP,
    tmsi-GSM-MAP                  TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                P-TMSI-GSM-MAP,
    imsi-DS-41                    IMSI-DS-41,
    tmsi-DS-41                    TMSI-DS-41,
    spare3                          NULL,
    spare2                          NULL,
    spare1                          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
}

CompressedModeMeasCapabFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    CompressedModeMeasCapabFDD

CompressedModeMeasCapabFDD ::=   SEQUENCE {
    radioFrequencyBandFDD        RadioFrequencyBandFDD  OPTIONAL,
    dl-MeasurementsFDD           BOOLEAN,
    ul-MeasurementsFDD           BOOLEAN
}

CompressedModeMeasCapabTDDList ::= SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
    CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::=   SEQUENCE {
    radioFrequencyBandTDD        RadioFrequencyBandTDD,
    dl-MeasurementsTDD           BOOLEAN,
    ul-MeasurementsTDD           BOOLEAN
}

CompressedModeMeasCapabGSMList ::= SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
    CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::=   SEQUENCE {
    radioFrequencyBandGSM        RadioFrequencyBandGSM,
    dl-MeasurementsGSM           BOOLEAN,
    ul-MeasurementsGSM           BOOLEAN
}

CompressedModeMeasCapabMC ::=    SEQUENCE {
    dl-MeasurementsMC            BOOLEAN,
    ul-MeasurementsMC            BOOLEAN
}

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 {
    maxNoDPCH-PDSCH-Codes INTEGER (1..8),
    maxNoPhysChBitsReceived MaxNoPhysChBitsReceived,
    supportForSF-512 BOOLEAN,
    supportOfPDSCH BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityFDD-v380ext ::= SEQUENCE {
    supportOfDedicatedPilotsForChEstimation SupportOfDedicatedPilotsForChEstimation OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::= ENUMERATED { true }

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame MaxTS-PerFrame,
    maxPhysChPerFrame MaxPhysChPerFrame,
    minimumSF MinimumSF-DL,
    supportOfPDSCH BOOLEAN,
    maxPhysChPerTS MaxPhysChPerTS
}

DL-TransChCapability ::= SEQUENCE {
    maxNoBitsReceived MaxNoBits,
    maxConvCodeBitsReceived MaxNoBits,
    turboDecodingSupport TurboSupport,
    maxSimultaneousTransChs MaxSimultaneousTransChsDL,
    maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
    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

ESN-DS-41 ::= BIT STRING (SIZE (32))

EstablishmentCause ::= ENUMERATED {
    originatingConversationalCall,
    originatingStreamingCall,
    originatingInteractiveCall,
    originatingBackgroundCall,
    originatingSubscribedTrafficCall,
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    emergencyCall,
    interRAT-CellReselection,
    interRAT-CellChangeOrder,
    registration,
    detach,
    originatingHighPrioritySignalling,
    originatingLowPrioritySignalling,
    callRe-establishment,
    terminatingHighPrioritySignalling,
    terminatingLowPrioritySignalling,
    terminatingCauseUnknown,
    spare12,
    spare11,
    spare10,
    spare9,
    spare8,
    spare7,
    spare6,
    spare5,
    spare4,
    spare3,
    spare2,
    spare1 }

```



```

FailureCauseWithProtErr ::= CHOICE {
    configurationUnsupported          NULL,
    physicalChannelFailure            NULL,
    incompatibleSimultaneousReconfiguration
                                     NULL,
    compressedModeRuntimeError       TGPSI,
    protocolError                     ProtocolErrorInformation,
    cellUpdateOccurred               NULL,
    invalidConfiguration              NULL,
    configurationIncomplete           NULL,
    unsupportedMeasurement            NULL,
    spare17                           NULL,
    spare62                           NULL,
    spare53                           NULL,
    spare4                            NULL,
    spare35                           NULL,
    spare26                           NULL,
    spare17                           NULL
}

FailureCauseWithProtErrTrId ::= SEQUENCE {
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    failureCause                     FailureCauseWithProtErr
}

GSM-Measurements ::= SEQUENCE {
    gsm900                           BOOLEAN,
    dcs1800                          BOOLEAN,
    gsm1900                          BOOLEAN
}

ICS-Version ::= ENUMERATED {
    r99 }

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41                       IMSI-DS-41,
    esn-DS-41                        ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (1..maxASC)) OF
    NS-IP

InitialUE-Identity ::= CHOICE {
    imsi                             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
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode        MessageAuthenticationCode,
    rrc-MessageSequenceNumber        RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList    RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    uia1 }

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection         SEQUENCE {
        integrityProtInitNumber     IntegrityProtInitNumber
    },
    modify                           SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    }
}

```

```

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))

MaxHcContextSpace ::= ENUMERATED {
    by512, by1024, by2048, by4096,
    by8192 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am3, am4, am5, am6,
    am8, am16, am30 }

-- 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 }

MaxNoBits ::= ENUMERATED {
    b640, b1280, b2560, b3840, b5120,
    b6400, b7680, b8960, b10240,
    b20480, b40960, b81920, b163840 }

MaxNoPhysChBitsReceived ::= ENUMERATED {
    b600, b1200, b2400, b3600,
    b4800, b7200, b9600, b14400,
    b19200, b28800, b38400, b48000,
    b57600, b67200, b76800 }

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11 }

MaxNumberOfTF ::= ENUMERATED {
    tf32, tf64, tf128, tf256,
    tf512, tf1024 }

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024 }

MaxNumberOfTFC-InTFCS-UL ::= ENUMERATED {
    tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
    tfc96, tfc128, tfc256, tfc512, tfc1024 }

MaxPhysChPerFrame ::= INTEGER (1..224)

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 }

MaxTransportBlocksDL ::= ENUMERATED {
    tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::= ENUMERATED {
    tb2, tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

```

```

MaxTS-PerFrame ::=                               INTEGER (1..14)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=                       SEQUENCE {
    downlinkCompressedMode                      CompressedModeMeasCapability,
    uplinkCompressedMode                       CompressedModeMeasCapability
}

MeasurementCapabilityExt ::=                   SEQUENCE{
    compressedModeMeasCapabFDDList            CompressedModeMeasCapabFDDList,
    compressedModeMeasCapabTDDList            CompressedModeMeasCapabTDDList OPTIONAL,
    compressedModeMeasCapabGSMList           CompressedModeMeasCapabGSMList OPTIONAL,
    compressedModeMeasCapabMC                 CompressedModeMeasCapabMC           OPTIONAL
}

MessageAuthenticationCode ::=                 BIT STRING (SIZE (32))

MinimumSF-DL ::=                              ENUMERATED {
    sf1, sf16 }

MinimumSF-UL ::=                              ENUMERATED {
    sf1, sf2, sf4, sf8, sf16 }

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-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,
                        terminatingHighPrioritySignalling,
                        terminatingLowPrioritySignalling,
                        terminatingCauseUnknown,
                        spare
}

PagingRecord ::=        CHOICE {
    cn-Identity          SEQUENCE {
        pagingCause      PagingCause,
        cn-DomainIdentity CN-DomainIdentity,
        cn-pagedUE-Identity CN-PagedUE-Identity
    },
    utran-Identity      SEQUENCE {
        u-RNTI           U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
            pagingCause      PagingCause,
            cn-DomainIdentity CN-DomainIdentity,
            pagingRecordTypeID PagingRecordTypeID
        }
    }
}
OPTIONAL

PagingRecordList ::=    SEQUENCE (SIZE (1..maxPage1)) OF
                        PagingRecord

PDCP-Capability ::=    SEQUENCE {
    losslessSRNS-RelocationSupport BOOLEAN,
    supportForRfc2507      CHOICE {
        notSupported      NULL,
        supported         MaxHcContextSpace
    }
}

PhysicalChannelCapability ::= SEQUENCE {
    fddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityFDD,
        uplinkPhysChCapability   UL-PhysChCapabilityFDD
    }
    tddPhysChCapability SEQUENCE {
        downlinkPhysChCapability DL-PhysChCapabilityTDD,
        uplinkPhysChCapability   UL-PhysChCapabilityTDD
    }
}

ProtocolErrorCause ::=  ENUMERATED {
                        asnl-ViolationOrEncodingError,
                        messageTypeNonexistent,
                        messageNotCompatibleWithReceiverState,
                        ie-ValueNotComprehended,
                        informationElementMissing,
                        messageExtensionNotComprehended,
                        spare12, spare21 }

ProtocolErrorIndicator ::= ENUMERATED {
                        noError, errorOccurred }

ProtocolErrorIndicatorWithMoreInfo ::= CHOICE {
    noError          NULL,
    errorOccurred    SEQUENCE {
        rrc-TransactionIdentifier RRC-TransactionIdentifier,
        protocolErrorInformation  ProtocolErrorInformation
    }
}

ProtocolErrorMoreInformation ::= SEQUENCE {
    diagnosticsType CHOICE {
        type1 CHOICE {
            asnl-ViolationOrEncodingError NULL,

```

```

        messageTypeNonexistent          NULL,
        messageNotCompatibleWithReceiverState
        ie-ValueNotComprehended         IdentificationOfReceivedMessage,
        conditionalInformationElementError IdentificationOfReceivedMessage,
        messageExtensionNotComprehended IdentificationOfReceivedMessage,
        spare1                           NULL,
        spare2                           NULL
    },
    spare                                NULL
}
}

RadioFrequencyBandFDD ::=          ENUMERATED {
    fdd2100,
    fdd1900,
    spare61, spare52, spare43, spare34, spare25, spare16}

RadioFrequencyBandTDDList ::=     ENUMERATED {
    a, b, c, ab, ac, bc, abc, spare }

RadioFrequencyBandTDD ::=         ENUMERATED {a, b, c, spare}

RadioFrequencyBandGSM ::=         ENUMERATED {
    gsm450,
    gsm480,
    gsm850,
    gsm900P,
    gsm900E,
    gsm1800,
    gsm1900,
    spare91, spare82, spare73, spare64, spare5,
    spare46, spare37, spare28, spare19}

Rb-timer-indicator ::=           SEQUENCE {
    t314-expired                     BOOLEAN,
    t315-expired                     BOOLEAN }

Re-EstablishmentTimer ::=        ENUMERATED {
    useT314, useT315
}

RedirectionInfo ::=             CHOICE {
    frequencyInfo                   FrequencyInfo,
    interRATInfo                    InterRATInfo
}

RejectionCause ::=              ENUMERATED {
    congestion,
    unspecified }

ReleaseCause ::=                 ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    directedsignallingconnectionre-establishment,
    userInactivity,
    spare }

RF-Capability ::=                SEQUENCE {
    fddRF-Capability                 SEQUENCE {
        ue-PowerClass               UE-PowerClass,
        txRxFrequencySeparation     TxRxFrequencySeparation
    }
    tddRF-Capability                 SEQUENCE {
        ue-PowerClass               UE-PowerClass,
        radioFrequencyTDDBandList   RadioFrequencyBandTDDList,
        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-StateIndicator ::=              ENUMERATED {
                                     cell-DCH, cell-FACH, cell-PCH, ura-PCH }

RRC-TransactionIdentifier ::=       INTEGER (0..3)

S-RNTI ::=                           BIT STRING (SIZE (20))

S-RNTI-2 ::=                          BIT STRING (SIZE (10))

SecurityCapability ::=               SEQUENCE {
    cipheringAlgorithmCap             BIT STRING {
                                        spare15(0),
                                        spare14(1),
                                        spare13(2),
                                        spare12(3),
                                        spare11(4),
                                        spare10(5),
                                        spare9(6),
                                        spare8(7),
                                        spare7(8),
                                        spare6(9),
                                        spare5(10),
                                        spare4(11),
                                        spare3(12),
                                        spare2(13),
                                        ueal(14),
                                        uea0(15)
                                    } (SIZE (16)),
    integrityProtectionAlgorithmCap   BIT STRING {
                                        spare15(0),
                                        spare14(1),
                                        spare13(2),
                                        spare12(3),
                                        spare11(4),
                                        spare10(5),
                                        spare9(6),
                                        spare8(7),
                                        spare7(8),
                                        spare6(9),
                                        spare5(10),
                                        spare4(11),
                                        spare3(12),
                                        spare2(13),
                                        uial(14),
                                        spare0(15)
                                    } (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 }

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, spare }

T-302 ::=      ENUMERATED {
                    ms100, ms200, ms400, ms600, ms800,
                    ms1000, ms1200, ms1400, ms1600,
                    ms1800, ms2000, ms3000, ms4000,
                    ms6000, ms8000, spare }

T-304 ::=      ENUMERATED {
                    ms100, ms200, ms400,
                    ms1000, ms2000, spare13, spare2, spare13 }

T-305 ::=      ENUMERATED {
                    noUpdate, m5, m10, m30,
                    m60, m120, m360, m720 }

T-307 ::=      ENUMERATED {
                    s5, s10, s15, s20,
                    s30, s40, s50, spare }

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)
-- The value 0 for T-312 is not used in this version of the specification

T-313 ::=      INTEGER (0..15)

T-314 ::=      ENUMERATED {
                    s0, s2, s4, s6, s8,
                    s12, s16, s20 }

T-315 ::=      ENUMERATED {
                    s0, s10, s30, s60, s180,
                    s600, s1200, s1800 }

T-316 ::=      ENUMERATED {
                    s0, s10, s20, s30, s40,
                    s50, s-inf, spare }

T-317 ::=      ENUMERATED {
                    s0, s10, s30, s60, s180,
                    s600, s1200, s1800 }

T-CPCH ::=      ENUMERATED {
                    ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=      SEQUENCE {
                    tmsi
                    lai
                    TMSI-GSM-MAP,
                    LAI

```

```

}
| TMSI-DS-41 ::= OCTET STRING (SIZE (2..172))
TotalRLC-AM-BufferSize ::= ENUMERATED {
    kb2, kb10, kb50, kb100,
    kb150, kb500, kb1000, spare }
-- 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 }
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 and n-301 should not be used by the UE in this release of the protocol
    t-301 T-301 DEFAULT ms2000,
    n-301 N-301 DEFAULT 2,
    t-302 T-302 DEFAULT ms4000,
    n-302 N-302 DEFAULT 3,
    t-304 T-304 DEFAULT ms2000,
    n-304 N-304 DEFAULT 2,
    t-305 T-305 DEFAULT m30,
    t-307 T-307 DEFAULT s30,
    t-308 T-308 DEFAULT ms160,
    t-309 T-309 DEFAULT 5,
    t-310 T-310 DEFAULT ms160,
    n-310 N-310 DEFAULT 4,
    t-311 T-311 DEFAULT ms2000,
    t-312 T-312 DEFAULT 1,
    n-312 N-312 DEFAULT s1,
    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,
    t-316 T-316 DEFAULT s30,
    t-317 T-317 DEFAULT s180
}
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-PowerClassExt ::= ENUMERATED {class1, class2, class3, class4, spare41, spare32,
    spare23, spare14}

```



```

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,
    ue-positioning-Capability UE-Positioning-Capability,
    measurementCapability     MeasurementCapability     OPTIONAL
}

UE-RadioAccessCapabilityInfo ::= SEQUENCE {
    ue-RadioAccessCapability UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext UE-RadioAccessCapability-v370ext
}

UE-RadioAccessCapability-v370ext ::= SEQUENCE {
    ue-RadioAccessCapabBandFDDList UE-RadioAccessCapabBandFDDList
}

UE-RadioAccessCapability-v380ext ::= SEQUENCE {
    ue-PositioningCapabilityExt UE-PositioningCapabilityExt
}

UE-PositioningCapabilityExt ::= SEQUENCE {
    rx-tx-TimeDifferenceType2Capable BOOLEAN
}

UE-RadioAccessCapabBandFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
    UE-RadioAccessCapabBandFDD

UE-RadioAccessCapabBandFDD ::= SEQUENCE {
    radioFrequencyBandFDD      RadioFrequencyBandFDD,
    fddRF-Capability           SEQUENCE {
        ue-PowerClass          UE-PowerClassExt,
        txRxFrequencySeparation TxRxFrequencySeparation
    }
    measurementCapability     MeasurementCapabilityExt     OPTIONAL,
}

UL-PhysChCapabilityFDD ::= SEQUENCE {
    maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH             BOOLEAN
}

UL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame             MaxTS-PerFrame,
    maxPhysChPerTimeslot       MaxPhysChPerTimeslot,
    minimumSF                   MinimumSF-UL,
    supportOfPUSCH             BOOLEAN
}

UL-TransChCapability ::= SEQUENCE {
    maxNoBitsTransmitted       MaxNoBits,
    maxConvCodeBitsTransmitted MaxNoBits,
    turboDecodingSupport       TurboSupport,
    maxSimultaneousTransChsUL  MaxSimultaneousTransChsUL,
    modeSpecificInfo           CHOICE {
        fdd                     NULL,
        tdd                     SEQUENCE {
            maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count
        }
    },
    maxTransportedBlocks        MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS      MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF               MaxNumberOfTF
}

UE-Positioning-Capability ::= SEQUENCE {
    standaloneLocMethodsSupported BOOLEAN,
    ue-BasedOTDOA-Supported      BOOLEAN,
    networkAssistedGPS-Supported NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames BOOLEAN,
    supportForIPDL               BOOLEAN
}

```

```

}
UE-SecurityInformation ::= SEQUENCE {
    start-CS START-Value
}
URA-UpdateCause ::= ENUMERATED {
    changeOfURA,
    periodicURAUpdate,
    dummy,
    spare1 }
UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..9)
WaitTime ::= INTEGER (0..15)
-- *****
--
-- RADIO BEARER INFORMATION ELEMENTS (10.3.4)
--
-- *****
AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info RFC2507-Info
}
-- Upper limit is 2^32 - 1
COUNT-C ::= INTEGER (0..4294967295)
-- Upper limit is 2^25 - 1
COUNT-C-MSB ::= INTEGER (0..33554431)
DefaultConfigIdentity ::= INTEGER (0..9)
DefaultConfigMode ::= ENUMERATED {
    fdd,
    tdd }
DL-AM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery BOOLEAN,
    receivingWindowSize ReceivingWindowSize,
    dl-RLC-StatusInfo DL-RLC-StatusInfo
}
DL-CounterSynchronisationInfo ::= SEQUENCE {
    rB-WithPDCP-InfoList RB-WithPDCP-InfoList OPTIONAL
}
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
}
DL-RLC-StatusInfo ::= SEQUENCE {
    timerStatusProhibit TimerStatusProhibit OPTIONAL,
    timerEPC TimerEPC OPTIONAL,
    missingPDU-Indicator BOOLEAN,
    timerStatusPeriodic TimerStatusPeriodic OPTIONAL
}
DL-TM-RLC-Mode ::= SEQUENCE {
    segmentationIndication BOOLEAN
}
DL-TransportChannelType ::= CHOICE {
    dch TransportChannelIdentity,
    fach NULL,
    dsch TransportChannelIdentity,
}

```

```

    dch-and-dsch                TransportChannelIdentityDCHandDSCH
}

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)

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

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

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

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

PDCP-Info ::=                  SEQUENCE {
    losslessSRNS-RelocSupport   LosslessSRNS-RelocSupport           OPTIONAL,
    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,
    -- dummy is not used in this version of the protocol
    dummy                       INTEGER (0..65535)
}

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

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

Poll-PDU ::=                   ENUMERATED {
    pdu1, pdu2, pdu4, pdu8, pdu16,
    pdu32, pdu64, pdu128 }

```

```

Poll-SDU ::=                               ENUMERATED {
                                           sdu1, sdu4, sdu16, sdu64 }

PollingInfo ::=                             SEQUENCE {
    timerPollProhibit                       TimerPollProhibit           OPTIONAL,
    timerPoll                               TimerPoll                   OPTIONAL,
    poll-PDU                               Poll-PDU                   OPTIONAL,
    poll-SDU                               Poll-SDU                   OPTIONAL,
    lastTransmissionPDU-Poll               BOOLEAN,
    lastRetransmissionPDU-Poll             BOOLEAN,
    pollWindow                             PollWindow                 OPTIONAL,
    timerPollPeriodic                      TimerPollPeriodic          OPTIONAL
}

PollWindow ::=                             ENUMERATED {
                                           pw50, pw60, pw70, pw80, pw85,
                                           pw90, pw95, pw99 }

PredefinedConfigIdentity ::=               INTEGER (0..15)

PredefinedConfigValueTag ::=               INTEGER (0..15)

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

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

PredefinedConfigStatusList ::=             SEQUENCE (SIZE (maxPredefConfig)) OF
                                           PredefinedConfigStatusInfo

PredefinedConfigStatusInfo ::=             CHOICE {
    storedWithValueTagSameAsPrevious       NULL,
    other                                   CHOICE {
        notStored                          NULL,
        storedWithDifferentValueTag         PredefinedConfigValueTag
    }
}

RAB-Info ::=                               SEQUENCE {
    rab-Identity                           RAB-Identity,
    cn-DomainIdentity                       CN-DomainIdentity,
    nas-Synchronisation-Indicator          NAS-Synchronisation-Indicator  OPTIONAL,
    re-EstablishmentTimer                  Re-EstablishmentTimer
}

RAB-InformationList ::=                     SEQUENCE (SIZE (1..maxRABsetup)) OF
                                           RAB-Info

RAB-InformationReconfigList ::=             SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                           RAB-InformationReconfig

RAB-InformationReconfig ::=                 SEQUENCE {
    rab-Identity                           RAB-Identity,
    cn-DomainIdentity                       CN-DomainIdentity,
    nas-Synchronisation-Indicator          NAS-Synchronisation-Indicator
}

RAB-Info-Post ::=                          SEQUENCE {
    rab-Identity                           RAB-Identity,
    cn-DomainIdentity                       CN-DomainIdentity,
    nas-Synchronisation-Indicator          NAS-Synchronisation-Indicator  OPTIONAL
}

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

```

```

RAB-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 (1..32)

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,
    pdcp-SN-Info               PDCP-SN-Info             OPTIONAL,
    rlc-Info                    RLC-Info                 OPTIONAL,
    rb-MappingInfo              RB-MappingInfo           OPTIONAL,
    rb-StopContinue             RB-StopContinue          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            OPTIONAL,
    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-StopContinue ::= ENUMERATED {
    stopRB, continueRB }

```

```

RB-WithPDCP-Info ::=
    rb-Identity
    pdcpc-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 ::=
    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 ::=
    ul-RLC-Mode          UL-RLC-Mode                OPTIONAL,
    dl-RLC-Mode          DL-RLC-Mode                OPTIONAL
}

RLC-InfoChoice ::=
    rlc-Info             RLC-Info,
    same-as-RB           RB-Identity
}

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

RLC-SizeInfo ::=
    rlc-SizeIndex        INTEGER (1..maxTF)
}

RLC-SizeExplicitList ::=
    SEQUENCE (SIZE (1..maxTF)) OF
        RLC-SizeInfo

SRB-InformationSetup ::=
    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 }

TimerMRW ::=
    ENUMERATED {
        te50, te60, te70, te80, te90, te100,
        te120, te140, te160, te180, te200,
        te300, te400, te500, te700, te900 }

TimerPoll ::=
    ENUMERATED {
        tp10, tp20, tp30, tp40, tp50,
        tp60, tp70, tp80, tp90, tp100,
        tp110, tp120, tp130, tp140, tp150,
        tp160, tp170, tp180, tp190, tp200,

```

```

        tp210, tp220, tp230, tp240, tp250,
        tp260, tp270, tp280, tp290, tp300,
        tp310, tp320, tp330, tp340, tp350,
        tp360, tp370, tp380, tp390, tp400,
        tp410, tp420, tp430, tp440, tp450,
        tp460, tp470, tp480, tp490, tp500,
        tp510, tp520, tp530, tp540, tp550,
        tp600, tp650, tp700, tp750, tp800,
        tp850, tp900, tp950, tp1000 }

TimerPollPeriodic ::=          ENUMERATED {
        tper100, tper200, tper300, tper400,
        tper500, tper750, tper1000, tper2000 }

TimerPollProhibit ::=        ENUMERATED {
        tpp10, tpp20, tpp30, tpp40, tpp50,
        tpp60, tpp70, tpp80, tpp90, tpp100,
        tpp110, tpp120, tpp130, tpp140, tpp150,
        tpp160, tpp170, tpp180, tpp190, tpp200,
        tpp210, tpp220, tpp230, tpp240, tpp250,
        tpp260, tpp270, tpp280, tpp290, tpp300,
        tpp310, tpp320, tpp330, tpp340, tpp350,
        tpp360, tpp370, tpp380, tpp390, tpp400,
        tpp410, tpp420, tpp430, tpp440, tpp450,
        tpp460, tpp470, tpp480, tpp490, tpp500,
        tpp510, tpp520, tpp530, tpp540, tpp550,
        tpp600, tpp650, tpp700, tpp750, tpp800,
        tpp850, tpp900, tpp950, tpp1000 }

TimerRST ::=                  ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000 }

TimerStatusPeriodic ::=      ENUMERATED {
        tsp100, tsp200, tsp300, tsp400, tsp500,
        tsp750, tsp1000, tsp2000 }

TimerStatusProhibit ::=      ENUMERATED {
        tsp10, tsp20, tsp30, tsp40, tsp50,
        tsp60, tsp70, tsp80, tsp90, tsp100,
        tsp110, tsp120, tsp130, tsp140, tsp150,
        tsp160, tsp170, tsp180, tsp190, tsp200,
        tsp210, tsp220, tsp230, tsp240, tsp250,
        tsp260, tsp270, tsp280, tsp290, tsp300,
        tsp310, tsp320, tsp330, tsp340, tsp350,
        tsp360, tsp370, tsp380, tsp390, tsp400,
        tsp410, tsp420, tsp430, tsp440, tsp450,
        tsp460, tsp470, tsp480, tsp490, tsp500,
        tsp510, tsp520, tsp530, tsp540, tsp550,
        tsp600, tsp650, tsp700, tsp750, tsp800,
        tsp850, tsp900, tsp950, tsp1000 }

TransmissionRLC-Discard ::=  CHOICE {
        timerBasedExplicit
        timerBasedNoExplicit
        maxDAT-Retransmissions
        noDiscard
}

TransmissionWindowSize ::=   ENUMERATED {
        tw1, tw8, tw16, tw32, tw64, tw128, tw256,
        tw512, tw768, tw1024, tw1536, tw2047,
        tw2560, tw3072, tw3584, tw4095 }

UL-AM-RLC-Mode ::=          SEQUENCE {
        transmissionRLC-Discard
        transmissionWindowSize
        timerRST
        max-RST
        pollingInfo
}

UL-CounterSynchronisationInfo ::= SEQUENCE {
        rB-WithPDCP-InfoList OPTIONAL,
        startList
}

```

```

UL-LogicalChannelMapping ::=          SEQUENCE {
  -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
  ul-TransportChannelType             UL-TransportChannelType,
  logicalChannelIdentity               LogicalChannelIdentity           OPTIONAL,
  rlc-SizeList                         CHOICE {
    allSizes                           NULL,
    configured                          NULL,
    explicitList                        RLC-SizeExplicitList
  },
  mac-LogicalChannelPriority           MAC-LogicalChannelPriority
}

UL-LogicalChannelMappingList ::=      SEQUENCE {
  rlc-LogicalChannelMappingIndicator  BOOLEAN,      -- NOTE: This parameter shall be set to TRUE in
this release
  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                                  TransportChannelIdentity
}

-- *****
--
--      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 (0..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
}

```



```

-- Actual value = IE value * 0.1
BLER-QualityValue ::= INTEGER (-63..0)

ChannelCodingType ::= CHOICE {
    noCoding          NULL,
    convolutional     CodingRate,
    turbo            NULL
}

CodingRate ::= ENUMERATED {
    half,
    third }

CommonDynamicTF-Info ::= SEQUENCE {
    rlc-Size          CHOICE {
        fdd          SEQUENCE {
            octetModeRLC-SizeInfoType2  OctetModeRLC-SizeInfoType2
        },
        tdd          SEQUENCE {
            commonTDD-Choice             CHOICE {
                bitModeRLC-SizeInfo      BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
            }
        }
    },
    numberOfTbSizeList SEQUENCE (SIZE (1..maxTF)) OF
        NumberOfTransportBlocks,
    logicalChannelList LogicalChannelList
}

CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    commonTDD-Choice CHOICE {
        bitModeRLC-SizeInfo      BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
    },
    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 {
    rlc-Size          CHOICE {
        bitMode      BitModeRLC-SizeInfo,
        octetModeType1 OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeList SEQUENCE (SIZE (1..maxTF)) OF
        NumberOfTransportBlocks,
    logicalChannelList LogicalChannelList
}

DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    rlc-Size          CHOICE {
        bitMode      BitModeRLC-SizeInfo,
        octetModeType1 OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeAndTTIList      NumberOfTbSizeAndTTIList,
    logicalChannelList            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
}

-- The maximum allowed size of this sequence is 16
DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
    DL-AddReconfTransChInformation2

-- The maximum allowed size of this sequence is 16
DL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) 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-TransportChannelType DL-TrCH-Type,
    dl-transportChannelIdentity TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit-config TransportFormatSet,
        sameAsULTrCH UL-TransportChannelIdentity
    },
    dch-QualityTarget QualityTarget OPTIONAL,
    -- This IE is not used in this version of the specification and should be ignored.
    dummy 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 {
    dl-TransportChannelType DL-TrCH-Type,
    transportChannelIdentity TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit-config TransportFormatSet,
        sameAsULTrCH UL-TransportChannelIdentity
    },
    qualityTarget QualityTarget OPTIONAL
}

DL-CommonTransChInfo ::= SEQUENCE {
    sccpch-TFCS TFCS OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            dl-Parameters CHOICE {
                dl-DCH-TFCS TFCS,
                sameAsUL NULL
            } OPTIONAL
        },
        tdd SEQUENCE {
            individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList OPTIONAL
        }
    }
}

-- NOTE: CHOICE modeSpecificInfo should be optional. A new version of this IE
-- should be defined to be used in later versions of messages using this IE
}

DL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    DL-TransportChannelIdentity

DL-TransportChannelIdentity ::= SEQUENCE {
    dl-TransportChannelType DL-TrCH-Type,

```

```

    dl-TransportChannelIdentity      TransportChannelIdentity
}
DL-TrCH-Type ::= ENUMERATED {dch, dsch}
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-config             TFCS,
        sameAsUL                    TFCS-Identity
    }
}
IndividualDL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualDL-CCTrCH-Info
IndividualUL-CCTrCH-Info ::=        SEQUENCE {
    ul-TFCS-Identity                TFCS-Identity,
    ul-TFCS                          TFCS,
    tfc-Subset                       TFC-Subset
}
IndividualUL-CCTrCH-InfoList ::=    SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualUL-CCTrCH-Info
LogicalChannelByRB ::=              SEQUENCE {
    rb-Identity                      RB-Identity,
    logChOfRb                         INTEGER (0..1)
}
LogicalChannelList ::=              CHOICE {
    allSizes                          NULL,
    configured                         NULL,
    explicitList                       SEQUENCE (SIZE (1..15)) OF
        LogicalChannelByRB
}
NumberOfTbSizeAndTTIList ::=        SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
    numberOfTransportBlocks           NumberOfTransportBlocks,
    transmissionTimeInterval          TransmissionTimeInterval
}
MessType ::=                        ENUMERATED {
    transportFormatCombinationControl
}
Non-allowedTFC-List ::=             SEQUENCE (SIZE (1..maxTFC)) OF
    TFC-Value
NumberOfTransportBlocks ::=         CHOICE {
    zero                               NULL,
}

```

```

    one                NULL,
    small              INTEGER (2..17),
    large              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 {
    ul-TransportChannelType    UL-TrCH-Type,
    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 ::=
    splitType
    tfci-Field2-Length
    tfci-Field1-Information
    tfci-Field2-Information
}

SplitType ::=
    ENUMERATED {
        hardSplit, logicalSplit }

TFC-Subset ::=
    minimumAllowedTFC-Number
    allowedTFC-List
    non-allowedTFC-List
    restrictedTrChInfoList
    fullTFCS
}

TFC-Value ::=
    INTEGER (0..1023)

TFCI-Field2-Information ::=
    tfci-Range
    explicit-config
}

TFCI-Range ::=
    maxTFCIField2Value
    tfcs-InfoForDSCH
}

TFCI-RangeList ::=
    SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
        TFCI-Range

TFCS ::=
    normalTFCI-Signalling
    splitTFCI-Signalling
}

TFCS-Identity ::=
    tfcs-ID
    sharedChannelIndicator
}

TFCS-IdentityPlain ::=
    INTEGER (1..8)

TFCS-InfoForDSCH ::=
    ctfc2bit
    ctfc4bit
    ctfc6bit
    ctfc8bit
    ctfc12bit
    ctfc16bit
    ctfc24bit
}

TFCS-ReconfAdd ::=
    ctfcSize
        ctfc2Bit
            ctfc2
            powerOffsetInformation
        },
        ctfc4Bit
            ctfc4
            powerOffsetInformation
        },
        ctfc6Bit
            ctfc6
            powerOffsetInformation
        },
        ctfc8Bit
            ctfc8
            powerOffsetInformation
        },
        ctfc12Bit
            ctfc12
            powerOffsetInformation
}

SEQUENCE {
    SplitType
    INTEGER (1..10)
    ExplicitTFCS-Configuration
    TFCI-Field2-Information
    OPTIONAL,
    OPTIONAL,
    OPTIONAL,
    OPTIONAL
}

CHOICE {
    TFC-Value,
    AllowedTFC-List,
    Non-allowedTFC-List,
    RestrictedTrChInfoList,
    NULL
}

INTEGER (0..1023)

CHOICE {
    TFCI-RangeList,
    ExplicitTFCS-Configuration
}

SEQUENCE {
    INTEGER (1..1023),
    TFCS-InfoForDSCH
}

SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
    TFCI-Range

CHOICE {
    ExplicitTFCS-Configuration,
    SplitTFCI-Signalling
}

SEQUENCE {
    TFCS-IdentityPlain
    BOOLEAN
    DEFAULT 1,
}

INTEGER (1..8)

CHOICE {
    INTEGER (0..3),
    INTEGER (0..15),
    INTEGER (0..63),
    INTEGER (0..255),
    INTEGER (0..4095),
    INTEGER (0..65535),
    INTEGER (0..16777215)
}

SEQUENCE {
    CHOICE {
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..3),
            PowerOffsetInformation
            OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..15),
            PowerOffsetInformation
            OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..63),
            PowerOffsetInformation
            OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..255),
            PowerOffsetInformation
            OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..4095),
            PowerOffsetInformation
            OPTIONAL
        }
    }
}

```

```

    },
    ctfc16Bit                SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc16                INTEGER(0..65535),
        powerOffsetInformation PowerOffsetInformation            OPTIONAL
    },
    ctfc24Bit                SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc24                INTEGER(0..16777215),
        powerOffsetInformation PowerOffsetInformation            OPTIONAL
    }
}

TFCS-Removal ::=
    tfci                    SEQUENCE {
        INTEGER (0..1023)
    }

TFCS-RemovalList ::=
    SEQUENCE (SIZE (1..maxTFC)) OF
    TFCS-Removal

TimeDurationBeforeRetry ::=
    INTEGER (1..256)

TM-SignallingInfo ::=
    messType                MessType,
    tm-SignallingMode        CHOICE {
        model                NULL,
        mode2                SEQUENCE {
            --TrCH-Type is always DCH
            ul-controlledTrChList UL-ControlledTrChList
        }
    }
}

TransmissionTimeInterval ::=
    ENUMERATED {
        tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::=
    INTEGER (1..256)

TransportChannelIdentity ::=
    INTEGER (1..32)

TransportChannelIdentityDCHandDSCH ::= SEQUENCE {
    dch-transport-ch-id    TransportChannelIdentity,
    dsch-transport-ch-id  TransportChannelIdentity
}

TransportFormatSet ::=
    CHOICE {
        dedicatedTransChTFS DedicatedTransChTFS,
        commonTransChTFS    CommonTransChTFS
    }

-- The maximum allowed size of this sequence is 16
UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
    UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {
    ul-TransportChannelType    UL-TrCH-Type,
    transportChannelIdentity    TransportChannelIdentity,
    transportFormatSet          TransportFormatSet
}

UL-CommonTransChInfo ::=
    SEQUENCE {
        tfc-Subset                TFC-Subset                OPTIONAL,
        -- TABULAR: this tfc-subset IE is applicable to FDD only, TDD specifies tfc-subset
        -- in individual CCTrCH Info.
        prach-TFCS                TFCS                OPTIONAL,
        modeSpecificInfo            CHOICE {
            fdd                    SEQUENCE {
                ul-TFCS                TFCS
            },
            tdd                    SEQUENCE {
                individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList
            }
        }
    }
}

-- TrCH-Type is always DCH
UL-ControlledTrChList ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF

```

```

TransportChannelIdentity
UL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-TransportChannelIdentity
UL-TransportChannelIdentity ::= SEQUENCE {
    ul-TransportChannelType    UL-TrCH-Type,
    ul-TransportChannelIdentity TransportChannelIdentity
}
UL-TrCH-Type ::= ENUMERATED {dch, usch}
-- *****
--
--     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-FDD ::= SEQUENCE {
    availableSignatureStartIndex    INTEGER (0..15),
    availableSignatureEndIndex      INTEGER (0..15),
    assignedSubChannelNumber        BIT STRING {
        b3(0),
        b2(1),
        b1(2),
        b0(3)
    } (SIZE(4))
}
AccessServiceClass-TDD ::= SEQUENCE {
    channelisationCodeIndices      BIT STRING {
        chCodeIndex7(0),
        chCodeIndex6(1),
        chCodeIndex5(2),
        chCodeIndex4(3),
        chCodeIndex3(4),
        chCodeIndex2(5),
        chCodeIndex1(6),
        chCodeIndex0(7)
    } (SIZE(8)) OPTIONAL,
    subchannelSize                 CHOICE {
        size1                       NULL,
        size2, subch0 means bitstring '01' in the tabular, subch1 means bitstring '10'.
        size2                       SEQUENCE {
            subchannels              ENUMERATED { subch0, subch1 } OPTIONAL
        },
        size4                       SEQUENCE {
            subchannels              BIT STRING {
                subCh3(0),
                subCh2(1),
                subCh1(2),
                subCh0(3)
            } (SIZE(4)) OPTIONAL
        },
        size8                       SEQUENCE {
            subchannels              BIT STRING {
                subCh7(0),
                subCh6(1),
                subCh5(2),
                subCh4(3),
                subCh3(4),
                subCh2(5),
                subCh1(6),
                subCh0(7)
            } (SIZE(8)) OPTIONAL
        }
    }
}
AICH-Info ::= SEQUENCE {
    channelisationCode256          ChannelisationCode256,
    sttd-Indicator                 BOOLEAN,
}

```

```

    aich-TransmissionTiming          AICH-TransmissionTiming
}

AICH-PowerOffset ::=                INTEGER (-22..5)

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

AllocationPeriodInfo ::=            SEQUENCE {
    allocationActivationTime         INTEGER (0..255),
    allocationDuration               INTEGER (1..256)
}
-- Actual value = IE value * 0.125
Alpha ::=                            INTEGER (0..8)

AP-AICH-ChannelisationCode ::=     INTEGER (0..255)

AP-PreambleScramblingCode ::=     INTEGER (0..79)

AP-Signature ::=                    INTEGER (0..15)

AP-Signature-VCAM ::=              SEQUENCE {
    ap-Signature                     AP-Signature,
    availableAP-SubchannelList       AvailableAP-SubchannelList OPTIONAL
}

AP-Subchannel ::=                  INTEGER (0..11)

ASCSetting-FDD ::=                 SEQUENCE {
    -- TABULAR: 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-FDD           AccessServiceClass-FDD OPTIONAL
}

ASCSetting-TDD ::=                 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 channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD           AccessServiceClass-TDD OPTIONAL
}

AvailableAP-Signature-VCAMList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature-VCAM

AvailableAP-SignatureList ::=      SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature

AvailableAP-SubchannelList ::=     SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
    AP-Subchannel

AvailableMinimumSF-ListVCAM ::=    SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
    AvailableMinimumSF-VCAM

AvailableMinimumSF-VCAM ::=        SEQUENCE {
    minimumSpreadingFactor           MinimumSpreadingFactor,
    nf-Max                           NF-Max,
    maxAvailablePCPCH-Number         MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList   AvailableAP-Signature-VCAMList
}

AvailableSignatures ::=            BIT STRING {
    signature15(0),
    signature14(1),
    signature13(2),
    signature12(3),
    signature11(4),
    signature10(5),
    signature9(6),
    signature8(7),
    signature7(8),
    signature6(9),
    signature5(10),
    signature4(11),
    signature3(12),
    signature2(13),
    signature1(14),
}

```



```

signature0(15)
} (SIZE(16))

AvailableSubChannelNumbers ::= BIT STRING {
    subCh11(0),
    subCh10(1),
    subCh9(2),
    subCh8(3),
    subCh7(4),
    subCh6(5),
    subCh5(6),
    subCh4(7),
    subCh3(8),
    subCh2(9),
    subCh1(10),
    subCh0(11)
} (SIZE(12))

BurstType ::= ENUMERATED {
    type1, type2 }

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity                                OPTIONAL,
    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

CellAndChannelIdentity ::= SEQUENCE {
    burstType
    midambleShift
    timeslot
    cellParametersID
}

CellParametersID ::= INTEGER (0..127)

Cfntargetsfnframeoffset ::= INTEGER(0..255)

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

ChannelisationCode256 ::= INTEGER (0..255)

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

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList
}

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
}

ConstantValue ::=                                   INTEGER (-35..-10)

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

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

CPCH-SetInfo ::=                                   SEQUENCE {
  cpch-SetID                       CPCH-SetID,
  transportFormatSet                TransportFormatSet,
  tfcs                              TFCS,
  ap-PreambleScramblingCode         AP-PreambleScramblingCode,
  ap-AICH-ChannelisationCode        AP-AICH-ChannelisationCode,
  cd-PreambleScramblingCode         CD-PreambleScramblingCode,
  cd-CA-ICH-ChannelisationCode      CD-CA-ICH-ChannelisationCode,
  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 {
  pa-mode,
  pamsf-mode }

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
DefaultDPCH-OffsetValueFDD ::=                    INTEGER (0..599)

DefaultDPCH-OffsetValueTDD ::=                    INTEGER (0..7)

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

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

DL-CCTrCh ::=                                      SEQUENCE {
  tfcs-ID                            TFCS-IdentityPlain                DEFAULT 1,
  timeInfo                            TimeInfo,
  commonTimeslotInfo                  CommonTimeslotInfo                OPTIONAL,
  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
}

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommon DL-DPCH-InfoCommonPredef OPTIONAL
}

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

DL-DPCH-InfoCommon ::= SEQUENCE {
    cfnHandling CHOICE {
        maintain NULL,
        initialise SEQUENCE {
            cfnTargetsfnframeoffset CfnTargetsfnframeoffset OPTIONAL
        }
    },
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL,
            powerOffsetPilot-pdpch PowerOffsetPilot-pdpch,
            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 {
            dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL
        }
    }
}

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

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

```

```

}
DL-DPCH-InfoPerRL ::= CHOICE {
    fdd SEQUENCE {
        pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst,
        dpch-FrameOffset DPCH-FrameOffset,
        secondaryCPICH-Info SecondaryCPICH-Info OPTIONAL,
        dl-ChannelisationCodeList DL-ChannelisationCodeList,
        tpc-CombinationIndex TPC-CombinationIndex,
        ssdt-CellIdentity SSDT-CellIdentity OPTIONAL,
        closedLoopTimingAdjMode ClosedLoopTimingAdjMode OPTIONAL
    },
    tdd DL-CCTrChList
}
DL-DPCH-InfoPerRL-PostFDD ::= SEQUENCE {
    pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst,
    dl-ChannelisationCode DL-ChannelisationCode,
    tpc-CombinationIndex TPC-CombinationIndex
}
DL-DPCH-InfoPerRL-PostTDD ::= SEQUENCE {
    dl-DPCH-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,
    sccpch-InfoForFACH SCCPCH-InfoForFACH 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-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 {
            chCode16-SF16(0),
            chCode15-SF16(1),
            chCode14-SF16(2),
            chCode13-SF16(3),
            chCode12-SF16(4),
            chCode11-SF16(5),
            chCode10-SF16(6),
            chCode9-SF16(7),
            chCode8-SF16(8),
            chCode7-SF16(9),
            chCode6-SF16(10),
            chCode5-SF16(11),
            chCode4-SF16(12),
            chCode3-SF16(13),
            chCode2-SF16(14),
            chCode1-SF16(15)
        } (SIZE (16))
    }
}

DownlinkAdditionalTimeslots ::= SEQUENCE {
    parameters CHOICE {
        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)

-- The actual value of DPCCH power offset is the value of this (2 + IE * 4).
DPCCH-PowerOffset2 ::= INTEGER (-28..-13)

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

DPCH-CompressedModeStatusInfo ::= SEQUENCE {
    tgps-Reconfiguration-CFN TGPS-Reconfiguration-CFN,
    tgp-SequenceShortList SEQUENCE (SIZE (1..maxTGPS)) OF
        TGP-SequenceShort
}

```

```

TGPS-Reconfiguration-CFN ::=          INTEGER (0..255)

-- 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..maxFACHPCH)) OF
    FACH-PCH-Information

FrequencyInfo ::=                    SEQUENCE {
    modeSpecificInfo                  CHOICE {
        fdd                           FrequencyInfoFDD,
        tdd                            FrequencyInfoTDD    }
}

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

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 }

NidentifyAbort ::=                   INTEGER (1..128)

MaxAllowedUL-TX-Power ::=            INTEGER (-50..33)

```

```

MaxAvailablePCPCH-Number ::=      INTEGER (1..64)
MaxTFCI-Field2Value ::=          INTEGER (1..1023)
MidambleConfigurationBurstTypeLand3 ::= ENUMERATED {ms4, ms8, ms16}
MidambleConfigurationBurstType2 ::=  ENUMERATED {ms3, ms6}
MidambleShiftAndBurstType ::=      SEQUENCE {
    burstType                       CHOICE {
        type1                       SEQUENCE {
            midambleConfigurationBurstTypeLand3 MidambleConfigurationBurstTypeLand3,
            midambleAllocationMode             CHOICE {
                defaultMidamble             NULL,
                commonMidamble             NULL,
                ueSpecificMidamble         SEQUENCE {
                    midambleShift             MidambleShiftLong
                }
            }
        },
        type2                       SEQUENCE {
            midambleConfigurationBurstType2 MidambleConfigurationBurstType2,
            midambleAllocationMode             CHOICE {
                defaultMidamble             NULL,
                commonMidamble             NULL,
                ueSpecificMidamble         SEQUENCE {
                    midambleShift             MidambleShiftShort
                }
            }
        },
        type3                       SEQUENCE {
            midambleConfigurationBurstTypeLand3 MidambleConfigurationBurstTypeLand3,
            midambleAllocationMode             CHOICE {
                defaultMidamble             NULL,
                ueSpecificMidamble         SEQUENCE {
                    midambleShift             MidambleShiftLong
                }
            }
        }
    }
}

MidambleShiftLong ::=            INTEGER (0..15)

MidambleShiftShort ::=          INTEGER (0..5)

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

MultiCodeInfo ::=              INTEGER (1..16)

N-EOT ::=                      INTEGER (0..7)

N-GAP ::=                      ENUMERATED {
    f2, f4, f8 }

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

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

NB01 ::=                      INTEGER (0..50)

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

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

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

OpenLoopPowerControl-TDD ::=  SEQUENCE {
    primaryCCPCH-TX-Power         PrimaryCCPCH-TX-Power,
    alpha                        Alpha                                OPTIONAL,
    prach-ConstantValue          ConstantValue,
    dpch-ConstantValue           ConstantValue,
    pusch-ConstantValue          ConstantValue                                OPTIONAL
}

```

```

PagingIndicatorLength ::=          ENUMERATED {
                                     pi4, pi8, pi16 }

PC-Preamble ::=                    INTEGER (0..7)

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-PowerControlInfo is conditional on new-configuration branch below, if this
    -- selected the IE is OPTIONAL otherwise it should not be sent
    pdsch-AllocationPeriodInfo      AllocationPeriodInfo,
    tfcs-ID                          TFCS-IdentityPlain             DEFAULT 1,
    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,
    codeNumberStart                  CodeNumberDSCH,
    codeNumberStop                   CodeNumberDSCH
}

PDSCH-CodeMapList ::=             SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                     PDSCH-CodeMap

PDSCH-CodeMapping ::=             SEQUENCE {
    dl-ScramblingCode                SecondaryScramblingCode           OPTIONAL,
    signallingMethod                  CHOICE {
        codeRange                    CodeRange,
        tfci-Range                   DSCH-MappingList,
        explicit-config               PDSCH-CodeInfoList,
        replace                       ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Identity ::=                INTEGER (1..hiPDSCHidentities)

PDSCH-Info ::=                    SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain             DEFAULT 1,
    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,	
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 {	
channelisationCode256	ChannelisationCode256,	
pi-CountPerFrame	PI-CountPerFrame,	
sttd-Indicator	BOOLEAN	
},		
tdd	SEQUENCE {	
channelisationCode	TDD-PICH-CCode	OPTIONAL,
timeslot	TimeslotNumber	OPTIONAL,
midambleShiftAndBurstType	MidambleShiftAndBurstType,	
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	
}		
PowerOffsetPilot-pdpdch ::=	INTEGER (0..24)	
PowerRampStep ::=	INTEGER (1..8)	
PRACH-Midamble ::=	ENUMERATED {	
	direct,	
	direct-Inverted }	

```

PRACH-Partitioning ::=
    fdd
    tdd
}

PRACH-PowerOffset ::=
    powerRampStep
    preambleRetransMax
}

PRACH-RACH-Info ::=
    modeSpecificInfo
    fdd
        availableSignatures
        availableSF
        preambleScramblingCodeWordNumber
        puncturingLimit
        availableSubChannelNumbers
    },
    tdd
        timeslot
        channelisationCodeList
        prach-Midamble
    }
}

PRACH-SystemInformation ::=
    prach-RACH-Info
    transportChannelIdentity
    rach-TransportFormatSet
    rach-TFCS
    prach-Partitioning
    persistenceScalingFactorList
    ac-To-ASC-MappingTable
    modeSpecificInfo
    fdd
        primaryCPICH-TX-Power
        constantValue
        prach-PowerOffset
        rach-TransmissionParameters
        aich-Info
    },
    tdd
}

PRACH-SystemInformationList ::=
    SEQUENCE (SIZE (1..maxPRACH)) OF
        PRACH-SystemInformation

PreambleRetransMax ::=
    INTEGER (1..64)

PreambleScramblingCodeWordNumber ::=
    INTEGER (0..15)

PreDefPhyChConfiguration ::=
    ul-DPCH-InfoPredef
    dl-CommonInformationPredef
}

PrimaryCCPCH-Info ::=
    fdd
        tx-DiversityIndicator
    },
    tdd
        syncCase
            syncCase1
                timeslot
            },
            syncCase2
                timeslotSync2
            }
        }
    cellParametersID
    sctd-Indicator
}
}

```

```

PrimaryCCPCH-InfoPost ::= SEQUENCE {
    syncCase CHOICE {
        syncCase1 SEQUENCE {
            timeslot TimeslotNumber
        },
        syncCase2 SEQUENCE {
            timeslotSync2 TimeslotSync2
        }
    },
    cellParametersID CellParametersID,
    sctd-Indicator BOOLEAN
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::= INTEGER (-10..50)

PrimaryScramblingCode ::= INTEGER (0..511)

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 {
            pusch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo UL-TargetSIR OPTIONAL,
            tfcs-ID TFCS-IdentityPlain DEFAULT 1,
            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-ID TFCS-IdentityPlain DEFAULT 1,
    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..maxPUSCH)) 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 {
    dl-restrictedTrCh-Type            DL-TrCH-Type,
    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)) OF
                               PrimaryCPICH-Info
RPP ::= ENUMERATED {
         mode0, mode1 }
S-Field ::= ENUMERATED {
             elbit, e2bits }
SCCPCH-ChannelisationCode ::= ENUMERATED {
                                cc16-1, cc16-2, cc16-3, cc16-4,
                                cc16-5, cc16-6, cc16-7, cc16-8,
                                cc16-9, cc16-10, cc16-11, cc16-12,
                                cc16-13, cc16-14, cc16-15, cc16-16 }
SCCPCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..16)) OF
                                   SCCPCH-ChannelisationCode
SCCPCH-InfoForFACH ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                     TFCS,
    modeSpecificInfo        CHOICE {
        fdd                  SEQUENCE {
            fach-PCH-InformationList      FACH-PCH-InformationList,
            sib-ReferenceListFACH         SIB-ReferenceListFACH
        },
        tdd                    SEQUENCE {
            fach-PCH-InformationList      FACH-PCH-InformationList
        }
    }
}
SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                     TFCS,
    fach-PCH-InformationList FACH-PCH-InformationList,
    pich-Info                PICH-Info
}
SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                   SCCPCH-SystemInformation
ScramblingCodeChange ::= ENUMERATED {
                           codeChange, noCodeChange }
ScramblingCodeType ::= ENUMERATED {
                         shortSC,
                         longSC }
SecondaryCCPCH-Info ::= SEQUENCE {
    modeSpecificInfo        CHOICE {
        fdd                  SEQUENCE {
            -- This IE is not used in this version of the specification and should be ignored.
            dummy1           PCPICH-UsageForChannelEst,
            -- This IE is not used in this version of the specification. It should not
            -- be sent and if received it should be ignored.
            dummy2           SecondaryCPICH-Info,
            secondaryScramblingCode SecondaryScramblingCode,
            sttd-Indicator   BOOLEAN,
            sf-AndCodeNumber SF256-AndCodeNumber,
            pilotSymbolExistence BOOLEAN,
            tfci-Existence  BOOLEAN,
            positionFixedOrFlexible PositionFixedOrFlexible,
            timingOffset     TimingOffset
        },
        tdd                    SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo CommonTimeslotInfoSCCPCH,
            individualTimeslotInfo IndividualTimeslotInfo,
            channelisationCode  SCCPCH-ChannelisationCodeList
        }
    }
}

```

```

    }
}

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

SecondaryScramblingCode ::=
    INTEGER (1..15)

SecondInterleavingMode ::=
    ENUMERATED {
        frameRelated, timeslotRelated }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::=
    CHOICE {
        sf4           INTEGER (0..3),
        sf8           INTEGER (0..7),
        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 }

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

SFN-TimeInfo ::=
    SEQUENCE {
        activationTimeSFN    INTEGER (0..4095),
        physChDuration       DurationTimeInfo
    }

SpecialBurstScheduling ::=
    INTEGER (0..7)

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

SRB-delay ::=
    INTEGER (0..7)

SSDT-CellIdentity ::=
    ENUMERATED {
        ssdt-id-a, ssdt-id-b, ssdt-id-c,
        ssdt-id-d, ssdt-id-e, ssdt-id-f,
        ssdt-id-g, ssdt-id-h }

SSDT-Information ::=
    SEQUENCE {
        s-Field              S-Field,
        codeWordSet          CodeWordSet
    }
}

```

```

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 }

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

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-CarrierRSSIMeasurement,
        gsm-initialBSICIdentification, gsmBSICReconfirmation,
        multi-carrier }

TGP-Sequence ::=
    SEQUENCE {
        tgpsi
            TGPSI,
        tgps-Status
            CHOICE {
                activate
                    SEQUENCE {
                        tgcfn
                            TGCFN
                    }
                deactivate
                    NULL
            },
        tgps-ConfigurationParams
            TGPS-ConfigurationParams
    }
    OPTIONAL

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

TGP-SequenceShort ::=
    SEQUENCE {
        tgpsi
            TGPSI,
        tgps-Status
            CHOICE {
                activate
                    SEQUENCE {
                        tgcfn
                            TGCFN
                    }
                deactivate
                    NULL
            }
    }

TGPL ::=
    INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=
    INTEGER (0..511)

TGPS-ConfigurationParams ::=
    SEQUENCE {
        tgmp
            TGMP,
        tgprc
            TGPRC,
    }

```

```

    tgsn                TGSN,
    tg11                TGL,
    tg12                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,
    nidentifyAbort      NidentifyAbort,         OPTIONAL,
    treconfirmAbort     TreconfirmAbort,        OPTIONAL
}

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)

-- Actual value = IE value * 256
TimingOffset ::=     INTEGER (0..149)

TPC-CombinationIndex ::= INTEGER (0..5)

TPC-StepSizeFDD ::=   INTEGER (0..1)

-- Actual value = IE value + 1
TPC-StepSizeTDD ::=   INTEGER (1..3)

-- Actual value = IE value * 0.5 seconds
TreconfirmAbort ::=  INTEGER (1..20)

TX-DiversityMode ::=  ENUMERATED {
    noDiversity,
    sttd,
    closedLoopModel1,
    closedLoopMode2 }

UARFCN ::=            INTEGER (0..16383)

UCSM-Info ::=         SEQUENCE {
    minimumSpreadingFactor MinimumSpreadingFactor,
    nf-Max               NF-Max,
    channelReqParamsForUCSM ChannelReqParamsForUCSM
}

UL-CCTrCH ::=         SEQUENCE {
    tfcs-ID              TFCS-IdentityPlain    DEFAULT 1,
    ul-TargetSIR         UL-TargetSIR,
    timeInfo             TimeInfo,
    commonTimeslotInfo   CommonTimeslotInfo    OPTIONAL,
    ul-CCTrCH-TimeslotsCodes UplinkTimeslotsCodes OPTIONAL
}

UL-CCTrCHList ::=     SEQUENCE (SIZE (1..maxCCTrCH)) OF
    UL-CCTrCH

-- The size of UL-CCTrChTPCList should be from 1..maxCCTrCH
-- This should be corrected in a later release of the specification
UL-CCTrChTPCList ::=  SEQUENCE (SIZE (0..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,
    cpch-SetInfo         CPCH-SetInfo,
    cpch-SetID           CPCH-SetID
}

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

UL-DL-Mode ::= CHOICE {
    ul                    UL-CompressedModeMethod,
    dl                    DL-CompressedModeMethod,
    ul-and-dl            SEQUENCE {
        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,
    srb-delay                  SRB-delay,
    powerControlAlgorithm      PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
},
tdd                            SEQUENCE {
    ul-TargetSIR                UL-TargetSIR                OPTIONAL,
    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
        }
    }
}
}
}
}

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    dpcch-PowerOffset          DPCCH-PowerOffset2, -- smaller range to save bits
    pc-Preamble                PC-Preamble,
    srb-delay                  SRB-delay
}

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR                UL-TargetSIR,
    ul-TimeslotInterference      UL-Interference
}

UL-DPCH-PowerControlInfoPredef ::= CHOICE {
    fdd                            SEQUENCE {
        powerControlAlgorithm      PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                            SEQUENCE {
        dpch-ConstantValue          ConstantValue
    }
}

UL-Interference ::= INTEGER (-110..-70)

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 {
    dynamicSFusage                 BOOLEAN,
    firstIndividualTimeslotInfo    IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList  UL-TS-ChannelisationCodeList,
    moreTimeslots                  CHOICE {
        noMore                     NULL,
        additionalTimeslots        CHOICE {
            consecutive             SEQUENCE {
                numAdditionalTimeslots  INTEGER (1..maxTS-1)
            },
            timeslotList            SEQUENCE (SIZE (1..maxTS-1)) OF
                UplinkAdditionalTimeslots
        }
    }
}

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

AcquisitionSatInfo ::=          SEQUENCE {
    satID                          SatID,
    -- Actual value = IE value * 2.5
    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

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasurementIdentity

AlmanacSatInfo ::=             SEQUENCE {
    dataID                         INTEGER (0..3),
    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, spare12, spare11,
    spare10, spare9, spare8, spare7, spare6,
    spare5, spare4, spare3, spare2, spare1 }

AzimuthAndElevation ::=        SEQUENCE {
    -- Actual value = IE value * 11.25
    azimuth                        INTEGER (0..31),
    -- Actual value = IE value * 11.25
    elevation                      INTEGER (0..7)
}

```

```

BadSatList ::= SEQUENCE (SIZE (1..maxSat)) OF
                INTEGER (0..63)

Frequency-Band ::= ENUMERATED {
                    dcs1800BandUsed, pcs1900BandUsed }

BCCH-ARFCN ::= INTEGER (0..1023)

BLER-MeasurementResults ::= 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 }

BSICReported ::= CHOICE {
    -- Value maxCellMeas is not allowed for verifiedBSIC
    verifiedBSIC INTEGER (0..maxCellMeas),
    nonVerifiedBSIC BCCH-ARFCN
}

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,
            readSFN-Indicator BOOLEAN
        }
    }
}

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,
            readSFN-Indicator BOOLEAN
        }
    }
}

```

```

    },
    cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-RSCP          OPTIONAL
}

CellInfoSI-ECN0 ::=
cellIndividualOffset                    SEQUENCE {
referenceTimeDifferenceToCell            CellIndividualOffset                    DEFAULT 0,
modeSpecificInfo                        ReferenceTimeDifferenceToCell            OPTIONAL,
    CHOICE {
        fdd                               SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info                      OPTIONAL,
            primaryCPICH-TX-Power          PrimaryCPICH-TX-Power                  OPTIONAL,
            readSFN-Indicator               BOOLEAN,
            tx-DiversityIndicator          BOOLEAN
        },
        tdd                               SEQUENCE {
            primaryCCPCH-Info              PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power                  OPTIONAL,
            timeslotInfoList               TimeslotInfoList                       OPTIONAL,
            readSFN-Indicator               BOOLEAN
        }
    }
},
cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-ECN0    OPTIONAL
}

CellInfoSI-HCS-RSCP ::=
cellIndividualOffset                    SEQUENCE {
referenceTimeDifferenceToCell            CellIndividualOffset                    DEFAULT 0,
modeSpecificInfo                        ReferenceTimeDifferenceToCell            OPTIONAL,
    CHOICE {
        fdd                               SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info                      OPTIONAL,
            primaryCPICH-TX-Power          PrimaryCPICH-TX-Power                  OPTIONAL,
            readSFN-Indicator               BOOLEAN,
            tx-DiversityIndicator          BOOLEAN
        },
        tdd                               SEQUENCE {
            primaryCCPCH-Info              PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power                  OPTIONAL,
            timeslotInfoList               TimeslotInfoList                       OPTIONAL,
            readSFN-Indicator               BOOLEAN
        }
    }
},
cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-HCS-RSCP  OPTIONAL
}

CellInfoSI-HCS-ECN0 ::=
cellIndividualOffset                    SEQUENCE {
referenceTimeDifferenceToCell            CellIndividualOffset                    DEFAULT 0,
modeSpecificInfo                        ReferenceTimeDifferenceToCell            OPTIONAL,
    CHOICE {
        fdd                               SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info                      OPTIONAL,
            primaryCPICH-TX-Power          PrimaryCPICH-TX-Power                  OPTIONAL,
            readSFN-Indicator               BOOLEAN,
            tx-DiversityIndicator          BOOLEAN
        },
        tdd                               SEQUENCE {
            primaryCCPCH-Info              PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power                  OPTIONAL,
            timeslotInfoList               TimeslotInfoList                       OPTIONAL,
            readSFN-Indicator               BOOLEAN
        }
    }
},
cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-HCS-ECN0  OPTIONAL
}

CellMeasuredResults ::=
cellIdentity                            SEQUENCE {
sfn-SFN-ObsTimeDifference                CellIdentity                            OPTIONAL,
cellSynchronisationInfo                  SFN-SFN-ObsTimeDifference                OPTIONAL,
modeSpecificInfo                        CellSynchronisationInfo                  OPTIONAL,
    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,

```

```

        proposedTGSN                TGSN                OPTIONAL,
        primaryCCPCH-RSCP            PrimaryCCPCH-RSCP    OPTIONAL,
        pathloss                      Pathloss           OPTIONAL,
        timeslotISCP-List             TimeslotISCP-List  OPTIONAL
    }
}

CellMeasurementEventResults ::= CHOICE {
    fdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCPICH-Info,
    tdd          SEQUENCE (SIZE (1..maxCellMeas)) OF
                PrimaryCCPCH-Info
}

CellReportingQuantities ::= SEQUENCE {
    sfn-SFN-OTD-Type          SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator    BOOLEAN,
    cellSynchronisationInfoReportingIndicator    BOOLEAN,
    modeSpecificInfo          CHOICE {
        fdd          SEQUENCE {
            cpich-Ec-N0-reportingIndicator    BOOLEAN,
            cpich-RSCP-reportingIndicator      BOOLEAN,
            pathloss-reportingIndicator        BOOLEAN
        },
        tdd          SEQUENCE {
            timeslotISCP-reportingIndicator    BOOLEAN,
            proposedTGSN-ReportingRequired    BOOLEAN,
            primaryCCPCH-RSCP-reportingIndicator    BOOLEAN,
            pathloss-reportingIndicator        BOOLEAN
        }
    }
}

CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-Offset1S-N              Q-OffsetS-N                DEFAULT 0,
    q-Offset2S-N              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-ECNO ::= 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-ECNO HCS-NeighbouringCellInformation-ECNO
    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
        }
    }
}

CellsForInterFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterFreqCellID
CellsForInterRATMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterRATCellID
CellsForIntraFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    IntraFreqCellID

CellSynchronisationInfo ::= SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference OPTIONAL,
            tm                        INTEGER(0..38399)
        },
        tdd                        SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference OPTIONAL
        }
    }
}

CellToReport ::= SEQUENCE {
    bsicReported                  BSICReported
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToReport

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
}

```

w12, w16, w24, w32, w48, w64,  
w96, w128, w192 }

```
CountC-SFN-Frame-difference ::= SEQUENCE {  
    countC-SFN-High    INTEGER(0..15),    -- Actual value = IE value * 256  
    off                INTEGER(0..255)  
}
```

~~It is not allowed to send value 50 in this version of the specification~~

```
-- SPARE: CPICH-Ec-No, Max= 49  
-- Values above Max are spare  
CPICH-Ec-NO ::=                INTEGER (0..5063)
```

```
-- SPARE: CPICH- RSCP, Max= 91  
-- Values above Max are spare  
CPICH-RSCP ::=                INTEGER (0..91127)
```

```
DeltaPRC ::=                INTEGER (-127..127)
```

-- Actual value = IE value \* 0.032

```
DeltaRRC ::=                INTEGER (-7..7)
```

```
DGPS-CorrectionSatInfo ::=    SEQUENCE {  
    satID              SatID,  
    iode              IODE,  
    udre              UDRE,  
    prc              PRC,  
    rrc              RRC,  
    deltaPRC2        DeltaPRC,  
    deltaRRC2        DeltaRRC,  
    deltaPRC3        DeltaPRC            OPTIONAL,  
    deltaRRC3        DeltaRRC            OPTIONAL  
}
```

```
DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF  
    DGPS-CorrectionSatInfo
```

```
DiffCorrectionStatus ::=      ENUMERATED {  
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,  
    udre-0-2, udre-0-1, noData, invalidData }
```

```
DL-TransportChannelBLER ::=  INTEGER (0..63)
```

```
DopplerUncertainty ::=      ENUMERATED {  
    hz12-5, hz25, hz50, hz100, hz200,  
    spare3, spare2, spare1 }
```

```
EllipsoidPoint ::=          SEQUENCE {  
    latitudeSign      ENUMERATED { north, south },  
    latitude          INTEGER (0..8388607),  
    longitude         INTEGER (-8388608..8388607)  
}
```

```
EllipsoidPointAltitude ::=  SEQUENCE {  
    latitudeSign      ENUMERATED { north, south },  
    latitude          INTEGER (0..8388607),  
    longitude         INTEGER (-8388608..8388607),  
    altitudeDirection ENUMERATED {height, depth},  
    altitude          INTEGER (0..32767)  
}
```

```
EllipsoidPointAltitudeEllipsoide ::= SEQUENCE {  
    latitudeSign      ENUMERATED { north, south },  
    latitude          INTEGER (0..8388607),  
    longitude         INTEGER (-8388608..8388607),  
    altitudeDirection ENUMERATED {height, depth},  
    altitude          INTEGER (0..32767),  
    uncertaintySemiMajor    INTEGER (0..127),  
    uncertaintySemiMinor    INTEGER (0..127),  
    orientationMajorAxis    INTEGER (0..89),  
    uncertaintyAltitude     INTEGER (0..127),  
    confidence            INTEGER (0..100)  
}
```



```

EllipsoidPointUncertCircle ::= SEQUENCE {
    latitudeSign      ENUMERATED { north, south },
    latitude          INTEGER (0..8388607),
    longitude         INTEGER (-8388608..8388607),
    uncertaintyCode   INTEGER (0..127)
}

EllipsoidPointUncertEllipse ::= SEQUENCE {
    latitudeSign      ENUMERATED { north, south },
    latitude          INTEGER (0..8388607),
    longitude         INTEGER (-8388608..8388607),
    uncertaintySemiMajor  INTEGER (0..127),
    uncertaintySemiMinor  INTEGER (0..127),
    orientationMajorAxis  INTEGER (0..89),
    confidence         INTEGER (0..100)
}

EnvironmentCharacterisation ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined,
    spare }

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
}

Event1e ::= SEQUENCE {
    triggeringCondition      TriggeringCondition2,
    thresholdUsedFrequency   ThresholdUsedFrequency
}

Event1f ::= SEQUENCE {
    triggeringCondition      TriggeringCondition1,
    thresholdUsedFrequency   ThresholdUsedFrequency
}

Event2a ::= SEQUENCE {
    dummy                Threshold,
    -- IE "dummy" shall not be sent and shall be ignored if received.
    -- IE "dummy" should be removed in later versions of the message including this IE
    usedFreqW            W,
    hysteresis           HysteresisInterFreq,
    timeToTrigger        TimeToTrigger,
    reportingCellStatus  ReportingCellStatus OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList OPTIONAL
}

Event2b ::= SEQUENCE {
    usedFreqThreshold      Threshold,
    usedFreqW              W,
    hysteresis            HysteresisInterFreq,
    timeToTrigger         TimeToTrigger,
    reportingCellStatus   ReportingCellStatus OPTIONAL,
    nonUsedFreqParameterList NonUsedFreqParameterList OPTIONAL
}

```

```

Event2c ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    NonUsedFreqParameterList
    OPTIONAL,
    OPTIONAL
}

Event2d ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event2e ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    NonUsedFreqParameterList
    OPTIONAL,
    OPTIONAL
}

Event2f ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event3a ::=
    thresholdOwnSystem
    w
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    W,
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event3b ::=
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event3c ::=
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event3d ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Hysteresis,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

EventIDInterFreq ::=
|
ENUMERATED {
    e2a, e2b, e2c, e2d, e2e, e2f , spare2, spare1 }

EventIDInterRAT ::=
ENUMERATED {
    e3a, e3b, e3c, e3d }

EventIDIntraFreq ::=
|
ENUMERATED {
    e1a, e1b, e1c, e1d, e1e,
    e1f, e1g, e1h, e1i, spare7,
    spare6, spare5, spare4, spare3, spare2,
    spare1 }

EventResults ::=
CHOICE {
    intraFreqEventResults
    interFreqEventResults
    interRATEventResults
    trafficVolumeEventResults
    qualityEventResults
    IntraFreqEventResults,
    InterFreqEventResults,
    InterRATEventResults,
    TrafficVolumeEventResults,
    QualityEventResults,
}

```

```

    ue-InternalEventResults          UE-InternalEventResults,
    ue-positioning-MeasurementEventResults  UE-Positioning-MeasurementEventResults,
    spare                            NULL
}

ExtraDopplerInfo ::=                SEQUENCE {
    -- Actual value = IE value * 0.023
    doppler1stOrder                  INTEGER (-42..21),
    dopplerUncertainty               DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::=    SEQUENCE {
    fACH-meas-occasion-coeff         INTEGER (1..12)                OPTIONAL,
    inter-freq-FDD-meas-ind         BOOLEAN,
    inter-freq-TDD-meas-ind         BOOLEAN,
    inter-RAT-meas-ind              SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                     RAT-Type                OPTIONAL
}

FilterCoefficient ::=               ENUMERATED {
    fc0, fc1, fc2, fc3, fc4, fc5,
    fc6, fc7, fc8, fc9, fc11, fc13,
    fc15, fc17, fc19, spare1 }

-- Actual value = IE value * 0.0625
FineSFN-SFN ::=                    INTEGER (0..15)

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 }

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

GSM-CarrierRSSI ::=                BIT STRING (SIZE (6))

GSM-MeasuredResults ::=            SEQUENCE {
    gsm-CarrierRSSI                  GSM-CarrierRSSI                OPTIONAL,
    dummy                            INTEGER (46..458173)            OPTIONAL,
    bsicReported                     BSICReported,
    observedTimeDifferenceToGSM       ObservedTimeDifferenceToGSM    OPTIONAL
}

GSM-MeasuredResultsList ::=        SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
    GSM-MeasuredResults

GPS-TOW-1msec ::=                  INTEGER (0..604799999)

GPS-TOW-Assist ::=                 SEQUENCE {
    satID                            SatID,
    tlm-Message                       BIT STRING (SIZE (14)),
    tlm-Reserved                       BIT STRING (SIZE (2)),
    alert                              BOOLEAN,
    antiSpoof                          BOOLEAN
}

```

```

GPS-TOW-AssistList ::=                               SEQUENCE (SIZE (1..maxSat)) OF
                                                       GPS-TOW-Assist

HCS-CellReselectInformation-RSCP ::=                SEQUENCE {
  penaltyTime                                         PenaltyTime-RSCP
  -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-CellReselectInformation-ECNO ::=                SEQUENCE {
  penaltyTime                                         PenaltyTime-ECNO
  -- 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-ECNO ::= SEQUENCE {
  hcs-PRIO                                           HCS-PRIO                                     DEFAULT 0,
  q-HCS                                              Q-HCS                                        DEFAULT 0,
  hcs-CellReselectInformation                       HCS-CellReselectInformation-ECNO
}

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,
  cellsForInterFreqMeasList                        CellsForInterFreqMeasList                 OPTIONAL
}

InterFreqCellInfoSI-List-RSCP ::=                  SEQUENCE {
  removedInterFreqCellList                          RemovedInterFreqCellList                   OPTIONAL,
  newInterFreqCellList                             NewInterFreqCellSI-List-RSCP              OPTIONAL
}

InterFreqCellInfoSI-List-ECNO ::=                  SEQUENCE {
  removedInterFreqCellList                          RemovedInterFreqCellList                   OPTIONAL,
  newInterFreqCellList                             NewInterFreqCellSI-List-ECNO              OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP ::=              SEQUENCE {
  removedInterFreqCellList                          RemovedInterFreqCellList                   OPTIONAL,
  newInterFreqCellList                             NewInterFreqCellSI-List-HCS-RSCP          OPTIONAL
}

InterFreqCellInfoSI-List-HCS-ECNO ::=              SEQUENCE {
  removedInterFreqCellList                          RemovedInterFreqCellList                   OPTIONAL,
  newInterFreqCellList                             NewInterFreqCellSI-List-HCS-ECNO          OPTIONAL
}

InterFreqCellList ::=                              SEQUENCE (SIZE (1..maxFreq)) OF
                                                       InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                       CellMeasuredResults

InterFreqEvent ::=                                 CHOICE {

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```

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,
    ultra-CarrierRSSI  UTRA-CarrierRSSI      OPTIONAL,
    interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList  OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxFreq)) OF
                                InterFreqMeasuredResults

InterFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-RSCP          OPTIONAL
}

InterFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-ECN0          OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP          OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECN0 ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-ECN0          OPTIONAL
}

InterFreqReportCriteria ::=     CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    interFreqReportingCriteria InterFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalWithReportingCellStatus,
    noReporting                ReportingCellStatusOpt
}

InterFreqReportingCriteria ::=  SEQUENCE {
    interFreqEventList InterFreqEventList          OPTIONAL
}

InterFreqReportingQuantity ::=  SEQUENCE {
    ultra-Carrier-RSSI      BOOLEAN,
    frequencyQualityEstimate BOOLEAN,
    nonFreqRelatedQuantities CellReportingQuantities
}

```

```

}

InterFrequencyMeasurement ::=          SEQUENCE {
    interFreqCellInfoList              InterFreqCellInfoList,
    interFreqMeasQuantity               InterFreqMeasQuantity          OPTIONAL,
    interFreqReportingQuantity          InterFreqReportingQuantity    OPTIONAL,
    measurementValidity                 MeasurementValidity            OPTIONAL,
    interFreqSetUpdate                  UE-AutonomousUpdateMode      OPTIONAL,
    reportCriteria                       InterFreqReportCriteria
}

InterRAT-TargetCellDescription ::=     SEQUENCE {
    technologySpecificInfo               CHOICE {
        gsm                             SEQUENCE {
            bsic                         BSIC,
            frequency-band                Frequency-Band,
            bcch-ARFCN                   BCCH-ARFCN,
            ncMode                         NC-Mode                          OPTIONAL
        },
        is-2000                           NULL,
        spare2                             NULL,
        spare1                             NULL
    }
}

InterRATCellID ::=                     INTEGER (0..maxCellMeas-1)

InterRATCellInfoList ::=               SEQUENCE {
    removedInterRATCellList             RemovedInterRATCellList,
    newInterRATCellList                 NewInterRATCellList,
    -- NOTE: Future revisions of dedicated message(s) including IE newInterRATCellList
    -- should use a corrected version of this IE
    cellsForInterRATMeasList            CellsForInterRATMeasList          OPTIONAL
}

InterRATCellInfoList-B ::=             SEQUENCE {
    removedInterRATCellList             RemovedInterRATCellList,
    newInterRATCellList                 NewInterRATCellList-B
    -- NOTE: IE newInterRATCellList should be optional.
    -- However, system information does not support message versions
    -- Hence, this can not be corrected
}

InterRATCellIndividualOffset ::=       INTEGER (-50..50)

InterRATEvent ::=                     CHOICE {
    event3a                             Event3a,
    event3b                             Event3b,
    event3c                             Event3c,
    event3d                             Event3d
}

InterRATEventList ::=                 SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        InterRATEvent

InterRATEventResults ::=              SEQUENCE {
    eventID                             EventIDInterRAT,
    cellToReportList                     CellToReportList
}

InterRATInfo ::=                      ENUMERATED {
    gsm }

InterRATMeasQuantity ::=              SEQUENCE {
    measQuantityUTRAN-QualityEstimate    IntraFreqMeasQuantity          OPTIONAL,
    ratSpecificInfo                       CHOICE {
        gsm                               SEQUENCE {
            measurementQuantity            MeasurementQuantityGSM,
            filterCoefficient              FilterCoefficient              DEFAULT fc0,
            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
        }
    }
}
}

```

```

InterRATMeasuredResults ::= CHOICE {
    gsm                GSM-MeasuredResultsList,
    spare              NULL
}

InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT-16)) OF
    InterRATMeasuredResults

InterRATMeasurement ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList            OPTIONAL,
    interRATMeasQuantity      InterRATMeasQuantity            OPTIONAL,
    interRATReportingQuantity InterRATReportingQuantity        OPTIONAL,
    reportCriteria            InterRATReportCriteria
}

InterRATMeasurementSysInfo ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList            OPTIONAL
}

InterRATMeasurementSysInfo-B ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList-B        OPTIONAL
}

InterRATReportCriteria ::= CHOICE {
    interRATReportingCriteria InterRATReportingCriteria,
    periodicalReportingCriteria PeriodicalWithReportingCellStatus,
    noReporting                ReportingCellStatusOpt
}

InterRATReportingCriteria ::= SEQUENCE {
    interRATEventList          InterRATEventList            OPTIONAL
}

InterRATReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality     BOOLEAN,
    ratSpecificInfo            CHOICE {
        gsm                    SEQUENCE {
            dummy                BOOLEAN,
            observedTimeDifferenceGSM BOOLEAN,
            gsm-Carrier-RSSI      BOOLEAN
        }
    }
}

IntraFreqCellID ::= INTEGER (0..maxCellMeas-1)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellList        OPTIONAL,
    cellsForIntraFreqMeasList    CellsForIntraFreqMeasList    OPTIONAL
}

IntraFreqCellInfoSI-List-RSCP ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-RSCP
}

IntraFreqCellInfoSI-List-ECNO ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-ECNO
}

IntraFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-HCS-RSCP
}

IntraFreqCellInfoSI-List-HCS-ECNO ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-HCS-ECNO
}

IntraFreqEvent ::= CHOICE {
    ela                Event1a,
    elb                Event1b,
    elc                Event1c,
    eld                NULL,
}

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    ele          Eventle,
    elf          Eventlf,
    elg          NULL,
    elh          ThresholdUsedFrequency,
    eli          ThresholdUsedFrequency
}

IntraFreqEventCriteria ::=          SEQUENCE {
    event          IntraFreqEvent,
    hysteresis     Hysteresis,
    timeToTrigger  TimeToTrigger,
    reportingCellStatus ReportingCellStatus          OPTIONAL
}

IntraFreqEventCriteriaList ::=      SEQUENCE (SIZE (1..maxMeasEvent)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::=           SEQUENCE {
    eventID        EventIDIntraFreq,
    cellMeasurementEventResults CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=           SEQUENCE {
    filterCoefficient FilterCoefficient          DEFAULT fc0,
    modeSpecificInfo CHOICE {
        fdd          SEQUENCE {
            intraFreqMeasQuantity-FDD IntraFreqMeasQuantity-FDD
        },
        tdd          SEQUENCE {
            intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
        }
    }
}

IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }
-- If used in InterRATMeasQuantity only cpich-Ec-N0 and cpich-RSCP is
-- allowed.
-- If used in InterFreqMeasQuantity ultra-CarrierRSSI is not allowed.
IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
    ultra-CarrierRSSI }
-- If used in InterFreqMeasQuantity ultra-CarrierRSSI is not allowed.
IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-RSCP    OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity              OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH          OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity          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 MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-HCS-RSCP OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity              OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH          OPTIONAL,
}

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    reportingInfoForCellDCH          ReportingInfoForCellDCH          OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-ECNO OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity       OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH      OPTIONAL,
    reportingInfoForCellDCH          ReportingInfoForCellDCH      OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    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      OPTIONAL
}

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

MaxNumberOfReportingCellsType1 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}

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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,
    interRATMeasuredResultsList       InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList  TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults             QualityMeasuredResults,
    ue-InternalMeasuredResults        UE-InternalMeasuredResults,
    ue-positioning-MeasuredResults     UE-Positioning-MeasuredResults,
    spare                             NULL
}

MeasuredResults-v390ext ::= SEQUENCE {
    ue-positioning-MeasuredResults-v390ext  UE-Positioning-MeasuredResults-v390ext
}

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,
                    spare NULL
                }
            },
            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-RSCP
                },
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-RSCP OPTIONAL
            },
            cpich-Ec-N0 SEQUENCE {
                intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-ECNO
                OPTIONAL,
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-ECNO OPTIONAL
            }
        }
    }
}

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    },
    interRATMeasurementSysInfo      InterRATMeasurementSysInfo-B      OPTIONAL
  },
  hcs-used                          SEQUENCE {
    cellSelectQualityMeasure        CHOICE {
      cpich-RSCP                    SEQUENCE {
        intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo-HCS-RSCP
      }
    }
  } OPTIONAL,
  interFreqMeasurementSysInfo      InterFreqMeasurementSysInfo-HCS-RSCP
} OPTIONAL
  },
  cpich-Ec-NO                      SEQUENCE {
    intraFreqMeasurementSysInfo      IntraFreqMeasurementSysInfo-HCS-ECNO
  } OPTIONAL,
  interFreqMeasurementSysInfo      InterFreqMeasurementSysInfo-HCS-ECNO
} OPTIONAL
  }
},
interRATMeasurementSysInfo      InterRATMeasurementSysInfo      OPTIONAL
}
},
trafficVolumeMeasSysInfo          TrafficVolumeMeasSysInfo          OPTIONAL,
ue-InternalMeasurementSysInfo      UE-InternalMeasurementSysInfo      OPTIONAL
}

MeasurementIdentity ::=      INTEGER (1..16)

MeasurementQuantityGSM ::=      ENUMERATED {
    gsm-CarrierRSSI,
    dummy }

MeasurementReportingMode ::=      SEQUENCE {
    measurementReportTransferMode      TransferMode,
    periodicalOrEventTrigger          PeriodicalOrEventTrigger
}

MeasurementType ::=      CHOICE {
    intraFrequencyMeasurement          IntraFrequencyMeasurement,
    interFrequencyMeasurement          InterFrequencyMeasurement,
    interRATMeasurement                InterRATMeasurement,
    ue-positioning-Measurement          UE-Positioning-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

MeasurementValidity ::=      SEQUENCE {
    ue-State                            ENUMERATED {
        cell-DCH, all-But-Cell-DCH, all-States }
}

MonitoredCellRACH-List ::=      SEQUENCE (SIZE (1..78)) 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-NO            CPICH-Ec-NO,
                cpich-RSCP            CPICH-RSCP,
                pathloss                Pathloss,
                spare                    NULL
            }
        }
    } OPTIONAL
  },
  tdd                                  SEQUENCE {
    cellParametersID                  CellParametersID,
    primaryCCPCH-RSCP                  PrimaryCCPCH-RSCP
  }
}

MultipathIndicator ::=      ENUMERATED {
    nm,
    low,
    medium,

```

```

high }

N-CR-T-CRMaxHyst ::= SEQUENCE {
    n-CR INTEGER (1..16) DEFAULT 8,
    t-CRMaxHyst T-CRMaxHyst
}

NavigationModelSatInfo ::= SEQUENCE {
    satID SatID,
    satelliteStatus SatelliteStatus,
    ephemerisParameter EphemerisParameter OPTIONAL
}

NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
    NavigationModelSatInfo

EphemerisParameter ::= 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)),
    sflRevd SubFrameReserved,
    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))
}

NC-Mode ::= BIT STRING (SIZE (3))

Neighbour ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            neighbourIdentity PrimaryCPICH-Info OPTIONAL,
            ue-RX-TX-TimeDifferenceType2Info UE-RX-TX-TimeDifferenceType2Info OPTIONAL
        },
        tdd SEQUENCE {
            neighbourAndChannelIdentity CellAndChannelIdentity OPTIONAL
        }
    },
    neighbourQuality NeighbourQuality,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2
}

Neighbour-v390ext ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            frequencyInfo FrequencyInfo
        },
        tdd NULL
    }
}

NeighbourList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbour

NeighbourList-v390ext ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbour-v390ext
-- The order of the cells in IE NeighbourList-v390ext shall be the

```

```

-- same as the order in IE NeighbourList

NeighbourQuality ::=          SEQUENCE {
    uE-Positioning-OTDOA-Quality    UE-Positioning-OTDOA-Quality
}

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-ECNO ::=    SEQUENCE {
    interFreqCellID                InterFreqCellID                OPTIONAL,
    frequencyInfo                  FrequencyInfo                  OPTIONAL,
    cellInfo                        CellInfoSI-ECNO
}

NewInterFreqCellSI-HCS-RSCP ::= SEQUENCE {
    interFreqCellID                InterFreqCellID                OPTIONAL,
    frequencyInfo                  FrequencyInfo                  OPTIONAL,
    cellInfo                        CellInfoSI-HCS-RSCP
}

NewInterFreqCellSI-HCS-ECNO ::= SEQUENCE {
    interFreqCellID                InterFreqCellID                OPTIONAL,
    frequencyInfo                  FrequencyInfo                  OPTIONAL,
    cellInfo                        CellInfoSI-HCS-ECNO
}

NewInterFreqCellSI-List-ECNO ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-ECNO

NewInterFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECNO ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-HCS-ECNO

NewInterFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-RSCP

NewInterRATCell ::=          SEQUENCE {
    interRATCellID                InterRATCellID                OPTIONAL,
    technologySpecificInfo          CHOICE {
        gsm                        SEQUENCE {
            cellSelectionReselectionInfo    CellSelectReselectInfoSIB-11-12    OPTIONAL,
            interRATCellIndividualOffset    InterRATCellIndividualOffset,
            bsic                        BSIC,
            frequency-band              Frequency-Band,
            bcch-ARFCN                  BCCH-ARFCN,
            dummy                        NULL                                OPTIONAL
        },
        is-2000                      SEQUENCE {
            is-2000SpecificMeasInfo        IS-2000SpecificMeasInfo
        },
        none                            NULL,
        -- ASN.1 inconsistency: NewInterRATCellList should be optional within
        -- InterRATCellInfoList. The UE shall consider IE NewInterRATCell with
        -- technologySpecificInfo set to "none" as valid and handle the message
        -- as if IE NewInterRATCell was absent
        spare1                          NULL
    }
}

NewInterRATCell-B ::=        SEQUENCE {
    interRATCellID                InterRATCellID                OPTIONAL,
    technologySpecificInfo          CHOICE {
        gsm                        SEQUENCE {

```

```

        cellSelectionReselectionInfo      CellSelectReselectInfoSIB-11-12    OPTIONAL,
        interRATCellIndividualOffset      InterRATCellIndividualOffset,
        bsic                               BSIC,
        frequency-band                     Frequency-Band,
        bcch-ARFCN                         BCCH-ARFCN,
        dummy                               NULL                                OPTIONAL
    },
    is-2000                                SEQUENCE {
        is-2000SpecificMeasInfo           IS-2000SpecificMeasInfo
    },
    none                                   NULL,
    -- ASN.1 inconsistency: NewInterRATCellList-B should be optional within
    -- InterRATCellInfoList-B. UE shall consider IE NewInterRATCell-B with
    -- technologySpecificInfo set to "none" as valid and handle the message
    -- as if IE NewInterRATCell-B was absent
    spare1                                 NULL
}
}

NewInterRATCellList ::=                SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterRATCell

NewInterRATCellList-B ::=              SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterRATCell-B

NewIntraFreqCell ::=                  SEQUENCE {
    intraFreqCellID                     IntraFreqCellID                    OPTIONAL,
    cellInfo                             CellInfo
}

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

NonUsedFreqParameter ::=              SEQUENCE {
    nonUsedFreqThreshold                 Threshold,
    -- IE "nonUsedFreqThreshold" is not needed in case of event 2a
    -- In case of event 2a UTRAN should include value 0 within IE "nonUsedFreqThreshold"
    -- In case of event 2a, the UE shall be ignore IE "nonUsedFreqThreshold"
    -- In later versions of the message including this IE, a special version of
    -- IE "NonUsedFreqParameterList" may be defined for event 2a, namely a
    -- version not including IE "nonUsedFreqThreshold"
    nonUsedFreqW                         W
}

NonUsedFreqParameterList ::=          SEQUENCE (SIZE (1..maxFreq)) OF
                                        NonUsedFreqParameter

```

```

ObservedTimeDifferenceToGSM ::= INTEGER (0..4095)

OTDOA-SearchWindowSize ::= ENUMERATED {
    c20, c40, c80, c160, c320,
    c640, c1280, moreThan1280 }

-- SPARE: Pathloss, Max= 158
-- Values above Max are spare
Pathloss ::= INTEGER (46..158173)

PenaltyTime-RSCP ::= CHOICE {
    notUsed
    pt10
    pt20
    pt30
    pt40
    pt50
    pt60
}

PenaltyTime-ECNO ::= CHOICE {
    notUsed
    pt10
    pt20
    pt30
    pt40
    pt50
    pt60
}

PendingTimeAfterTrigger ::= ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::= ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::= SEQUENCE {
    reportingAmount
    reportingInterval
}
                                                                    DEFAULT ra-Infinity,

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria
    reportingCellStatus
}
                                                                    OPTIONAL

PLMNIdentitiesOfNeighbourCells ::= SEQUENCE {
    plmnsOfIntraFreqCellsList
    plmnsOfInterFreqCellsList
    plmnsOfInterRATCellsList
}
                                                                    OPTIONAL,
                                                                    OPTIONAL,
                                                                    OPTIONAL

PLMNsOfInterFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity
    }
                                                                    OPTIONAL

PLMNsOfIntraFreqCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity
    }
                                                                    OPTIONAL

PLMNsOfInterRATCellsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    SEQUENCE {
        plmn-Identity
    }
                                                                    OPTIONAL

PositionEstimate ::= CHOICE {
    ellipsoidPoint
    ellipsoidPointUncertCircle
    ellipsoidPointUncertEllipse
    ellipsoidPointAltitude
    ellipsoidPointAltitudeEllipse
}

PositioningMethod ::= ENUMERATED {

```

```

        otdoa,
        gps,
        otdoaOrGPS, cellID }

-- Actual value = IE value * 0.32
PRC ::= INTEGER (-2047..2047)

-- SPARE: PrimaryCCPCH-RSCP, Max= 91
-- Values above Max are spare
PrimaryCCPCH-RSCP ::= INTEGER (0..91)

Q-HCS ::= INTEGER (0..99)

Q-OffsetS-N ::= INTEGER (-50..50)

Q-QualMin ::= INTEGER (-24..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,
    modeSpecificInfo CHOICE {
        fdd NULL,
        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,
        tdd SEQUENCE {
            sir-TFCS-List SIR-TFCS-List OPTIONAL
        }
    }
}

RAT-Type ::= ENUMERATED {
    gsm, is2000 }

ReferenceCellPosition ::= CHOICE {
    ellipsoidPoint EllipsoidPoint,
    ellipsoidPointWithAltitude EllipsoidPointAltitude
}

-- As defined in 23.032
ReferenceLocation ::= SEQUENCE {
    ellipsoidPointAltitudeEllipsoide EllipsoidPointAltitudeEllipsoide
}

```



```

}

ReferenceSFN ::=                INTEGER (0..4095)

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
}

RemovedInterRATCellList ::=     CHOICE {
  removeAllInterRATCells       NULL,
  removeSomeInterRATCells      SEQUENCE (SIZE (1..maxCellMeas)) OF
                                InterRATCellID,
  removeNoInterRATCells        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,
  withinMonitoredAndOrVirtualActiveSetNonUsedFreq
                                MaxNumberOfReportingCellsType1,
  allVirtualActSetplusMonitoredSetNonUsedFreq
                                MaxNumberOfReportingCellsType3,
  withinActSetOrVirtualActSet-InterRATcells
                                MaxNumberOfReportingCellsType2,
  withinActSetAndOrMonitoredUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreq
                                MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::=      SEQUENCE {
  reportingCellStatus           ReportingCellStatus           OPTIONAL
}

ReportingInfoForCellDCH ::=     SEQUENCE {
  intraFreqReportingQuantity    IntraFreqReportingQuantity,
  measurementReportingMode       MeasurementReportingMode,
  reportCriteria                 CellDCH-ReportCriteria
}

```

```

}

ReportingInterval ::=          ENUMERATED {
                                noPeriodicalreporting, ri0-25,
                                ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::=     ENUMERATED {
                                ril0, ril0-25, ril0-5, ril1,
                                ril2, ril3, ril4, ril6, ril8,
                                ril12, ril16, ril20, ril24,
                                ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::=           INTEGER (0..29)

RL-AdditionInfoList ::=     SEQUENCE (SIZE (1..maxRL)) OF
                                PrimaryCPICH-Info

RL-InformationLists ::=     SEQUENCE {
                                rl-AdditionInfoList          OPTIONAL,
                                rl-RemovalInformationList     OPTIONAL
}

RLC-BuffersPayload ::=     ENUMERATED {
                                p10, p14, p18, p116, p132,
                                -p164, p1128,
                                p1256, p1512, p11024,
                                -p12k, p14k,
                                p18k, p116k, p132k,
                                p164k, p1128k,
                                p1256k, p1512k, p11024k,
                                spare12, spare11, spare10, spare9, spare8,
                                spare7, spare6, spare5, spare4, spare3,
                                spare2, spare1
                                -}

-- Actual value = IE value * 0.032
RRC ::=                     INTEGER (-127..127)

SatData ::=                 SEQUENCE{
                                satID          SatID,
                                iode          IODE
}

SatDataList ::=            SEQUENCE (SIZE (0..maxSat)) OF
                                SatData

SatelliteStatus ::=       ENUMERATED {
                                ns-NN-U,
                                es-SN,
                                es-NN-U,
                                rev2,
                                rev }

SatID ::=                  INTEGER (0..63)

SFN-SFN-Drift ::=         ENUMERATED {
                                sfnsfndrift0, sfnsfndrift1, sfnsfndrift2, sfnsfndrift3,
                                sfnsfndrift4, sfnsfndrift5, sfnsfndrift8, sfnsfndrift10,
                                sfnsfndrift15, sfnsfndrift25, sfnsfndrift35, sfnsfndrift50,
                                sfnsfndrift65, sfnsfndrift80, sfnsfndrift100, sfnsfndrift-1,
                                sfnsfndrift-2, sfnsfndrift-3, sfnsfndrift-4, sfnsfndrift-5,
                                sfnsfndrift-8, sfnsfndrift-10, sfnsfndrift-15, sfnsfndrift-25,
                                sfnsfndrift-35, sfnsfndrift-50, sfnsfndrift-65, sfnsfndrift-80,
                                sfnsfndrift-100}

SFN-SFN-ObsTimeDifference ::= CHOICE {
                                type1          SFN-SFN-ObsTimeDifference1,
                                type2          SFN-SFN-ObsTimeDifference2
}

-- SPARE: SFN-SFN-ObsTimeDifference1, Max= 9830399
-- Values above Max are spare
SFN-SFN-ObsTimeDifference1 ::= INTEGER (0..98303991677215)

-- SPARE: SFN-SFN-ObsTimeDifference2, Max= 40961
-- Values above Max are spare
SFN-SFN-ObsTimeDifference2 ::= INTEGER (0..4096165535)

```

```

SFN-SFN-OTD-Type ::=
    ENUMERATED {
        noReport,
        type1,
        type2 }

SFN-SFN-RelTimeDifference1 ::=
    sfm-Offset
    sfm-sfm-Reltimedifference
    SEQUENCE {
        INTEGER (0 .. 4095),
        INTEGER (0.. 38399)
    }

SFN-TOW-Uncertainty ::=
    ENUMERATED {
        lessThan10,
        moreThan10 }

SIR ::=
    INTEGER (0..63)

SIR-MeasurementList ::=
    SEQUENCE (SIZE (1..maxCCTrCH)) OF
        SIR-MeasurementResults

SIR-MeasurementResults ::=
    tfcs-ID
    sir-TimeslotList
    SEQUENCE {
        TFCS-IdentityPlain,
        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 ::=
    reserved1
    reserved2
    reserved3
    reserved4
    SEQUENCE {
        BIT STRING (SIZE (23)),
        BIT STRING (SIZE (24)),
        BIT STRING (SIZE (24)),
        BIT STRING (SIZE (16))
    }

T-CRMax ::=
    notUsed
    t30
    t60
    t120
    t180
    t240
    CHOICE {
        NULL,
        N-CR-T-CRMaxHyst,
        N-CR-T-CRMaxHyst,
        N-CR-T-CRMaxHyst,
        N-CR-T-CRMaxHyst,
        N-CR-T-CRMaxHyst,
        N-CR-T-CRMaxHyst
    }

T-CRMaxHyst ::=
    ENUMERATED {
        notUsed, t10, t20, t30,
        t40, t50, t60, t70 }

TemporaryOffset1 ::=
    ENUMERATED {
        to3, to6, to9, to12, to15,
        to18, to21, infinite }

TemporaryOffset2 ::=
    ENUMERATED {
        to2, to3, to4, to6, to8,
        to10, to12, infinite }

TemporaryOffsetList ::=
    temporaryOffset1
    temporaryOffset2
    SEQUENCE {
        TemporaryOffset1,
        TemporaryOffset2
    }

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.
TimeInterval ::=                 INTEGER (1..13)

TimeslotInfo ::=                 SEQUENCE {
    timeslotNumber                TimeslotNumber,
    burstType                      BurstType
}

TimeslotInfoList ::=             SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotInfo

-- SPARE: TimeslotISCP, Max= 91
-- Values above Max are spare
TimeslotISCP ::=                 INTEGER (0..91127)

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 UL-TrCH-Identity,
    trafficVolumeEventIdentity      TrafficVolumeEventType
}

TrafficVolumeEventType ::=      ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasQuantity ::=   CHOICE {
    rlc-BufferPayload              NULL,
    averageRLC-BufferPayload        TimeInterval,
    varianceOfRLC-BufferPayload     TimeInterval
}

TrafficVolumeMeasSysInfo ::=    SEQUENCE {
    trafficVolumeMeasurementID      MeasurementIdentity            DEFAULT 4,
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity        TrafficVolumeMeasQuantity      OPTIONAL,
    trafficVolumeReportingQuantity   TrafficVolumeReportingQuantity  OPTIONAL,
    dummy                             TrafficVolumeReportingCriteria  OPTIONAL,
    -- Above IE is not used in this version of protocol
    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
    UL-TrCH-Identity

TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                       NULL
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria
}

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList              TransChCriteriaList          OPTIONAL
--NOTE: IE "transChCriteriaList" should be mandatory in later versions of this message
}

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            UL-TrCH-Identity          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,
        spare                          NULL
}

UE-InternalMeasQuantity ::=         SEQUENCE {
        measurementQuantity            UE-MeasurementQuantity,
        filterCoefficient              FilterCoefficient
}
        DEFAULT fc0

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      MeasurementIdentity      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-TimeDifference  BOOLEAN
        },
        tdd                       SEQUENCE {
            appliedTA                BOOLEAN
        }
    }
}

-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info           PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1 UE-RX-TX-TimeDifferenceType1
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxRL)) OF
    UE-RX-TX-ReportEntry

-- SPARE: UE-RX-TX-TimeDifferenceType1, Max= 1280
-- Values above Max are spare
UE-RX-TX-TimeDifferenceType1 ::= INTEGER (768..12801791)

-- Actual value = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)

UE-RX-TX-TimeDifferenceType2Info ::= SEQUENCE {
    ue-RX-TX-TimeDifferenceType2    UE-RX-TX-TimeDifferenceType2,
    neighbourQuality                NeighbourQuality
}

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

UE-TransmittedPower ::= INTEGER (0..104)

UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    UE-TransmittedPower

UL-TrCH-Identity ::= CHOICE{
    dch                TransportChannelIdentity,
    -- Default transport channel in the UL is either RACH or CPCH, but not both.
    rachorcpch        NULL,
    usch              TransportChannelIdentity
}

UE-Positioning-Accuracy ::= BIT STRING (SIZE (7))

UE-Positioning-CipherParameters ::= SEQUENCE {
    cipheringKeyFlag    BIT STRING (SIZE (1)),
    cipheringSerialNumber  INTEGER (0..65535)
}

UE-Positioning-Error ::= SEQUENCE {
    errorReason        UE-Positioning-ErrorCause,

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    ue-positioning-GPS-additionalAssistanceDataRequest      UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
}

UE-Positioning-ErrorCause ::=                               ENUMERATED {
    notEnoughOTDOA-Cells,
    notEnoughGPS-Satellites,
    assistanceDataMissing,
    methodNotSupported,
    undefinedError,
    requestDeniedByUser,
    notProcessedAndTimeout,
    referenceCellNotServingCell }

UE-Positioning-EventParam ::=                               SEQUENCE {
    reportingAmount      ReportingAmount,
    reportFirstFix       BOOLEAN,
    measurementInterval  UE-Positioning-MeasurementInterval,
    eventSpecificInfo    UE-Positioning-EventSpecificInfo
}

UE-Positioning-EventParamList ::=                           SEQUENCE (SIZE (1..maxMeasEvent)) OF
UE-Positioning-EventParam

UE-Positioning-EventSpecificInfo ::=                       CHOICE {
    e7a      ThresholdPositionChange,
    e7b      ThresholdSFN-SFN-Change,
    e7c      ThresholdSFN-GPS-TOW
}

UE-Positioning-GPS-AcquisitionAssistance ::=              SEQUENCE {
    gps-ReferenceTime      INTEGER (0..604799999),
    utran-GPSReferenceTime UTRAN-GPSReferenceTime          OPTIONAL,
    satelliteInformationList AcquisitionSatInfoList
}

UE-Positioning-GPS-AdditionalAssistanceDataRequest ::=    SEQUENCE {
    almanacRequest      BOOLEAN,
    utcModelRequest     BOOLEAN,
    ionosphericModelRequest BOOLEAN,
    navigationModelRequest BOOLEAN,
    dgpsCorrectionsRequest BOOLEAN,
    referenceLocationRequest BOOLEAN,
    referenceTimeRequest BOOLEAN,
    aquisitionAssistanceRequest BOOLEAN,
    realTimeIntegrityRequest BOOLEAN,
    navModelAddDataRequest UE-Positioning-GPS-NavModelAddDataReq OPTIONAL
}

UE-Positioning-GPS-Almanac ::=                             SEQUENCE {
    wn-a      BIT STRING (SIZE (8)),
    almanacSatInfoList AlmanacSatInfoList,
    sv-GlobalHealth BIT STRING (SIZE (364))                OPTIONAL
}

UE-Positioning-GPS-AssistanceData ::=                     SEQUENCE {
    ue-positioning-GPS-ReferenceTime      UE-Positioning-GPS-ReferenceTime
OPTIONAL,
    ue-positioning-GPS-ReferenceLocation  ReferenceLocation                OPTIONAL,
    ue-positioning-GPS-DGPS-Corrections  UE-Positioning-GPS-DGPS-Corrections
OPTIONAL,
    ue-positioning-GPS-NavigationModel    UE-Positioning-GPS-NavigationModel
OPTIONAL,
    ue-positioning-GPS-IonosphericModel   UE-Positioning-GPS-IonosphericModel
OPTIONAL,
    ue-positioning-GPS-UTC-Model          UE-Positioning-GPS-UTC-Model
OPTIONAL,
    ue-positioning-GPS-Almanac            UE-Positioning-GPS-Almanac
OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance UE-Positioning-GPS-AcquisitionAssistance
OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity BadSatList                        OPTIONAL,
    ue-positioning-GPS-referenceCellInfo  UE-Positioning-GPS-ReferenceCellInfo
OPTIONAL
}

UE-Positioning-GPS-DGPS-Corrections ::=                   SEQUENCE {
    gps-TOW      INTEGER (0..604799),

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    statusHealth                               DiffCorrectionStatus,
    dgps-CorrectionSatInfoList                 DGPS-CorrectionSatInfoList
}

UE-Positioning-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))
}

UE-Positioning-GPS-MeasurementResults ::=     SEQUENCE {
    referenceTime                               CHOICE {
        utran-GPSReferenceTimeResult           UTRAN-GPSReferenceTimeResult,
        gps-ReferenceTimeOnly                   INTEGER (0..604799999)
    },
    gps-MeasurementParamList                   GPS-MeasurementParamList
}

UE-Positioning-GPS-NavModelAddDataReq ::=    SEQUENCE {
    navigationModelSatInfoList                 NavigationModelSatInfoList
}

UE-Positioning-GPS-NavModelAddDataReq ::=    SEQUENCE {
    gps-Week                                    INTEGER (0..1023),
    -- SPARE: gps-Toe, Max= 167
    -- Values above Max are spare
    gps-Toe                                    INTEGER (0..167255),
    -- SPARE: tToeLimit, Max= 10
    -- Values above Max are spare
    tToeLimit                                  INTEGER (0..1015),
    satDataList                                SatDataList
}

UE-Positioning-GPS-ReferenceCellInfo ::=     SEQUENCE{
    modeSpecificInfo                           CHOICE {
        fdd                                     SEQUENCE {
            referenceIdentity                   PrimaryCPICH-Info
        },
        tdd                                     SEQUENCE {
            referenceIdentity                   CellParametersID
        }
    }
}

UE-Positioning-GPS-ReferenceTime ::=         SEQUENCE {
    gps-Week                                    INTEGER (0..1023),
    gps-tow-lmsec                               GPS-TOW-lmsec,
    utran-GPSReferenceTime                     UTRAN-GPSReferenceTime           OPTIONAL,
    sfn-tow-Uncertainty                         SFN-TOW-Uncertainty             OPTIONAL,
    utran-GPS-DriftRate                         UTRAN-GPS-DriftRate            OPTIONAL,
    gps-TOW-AssistList                          GPS-TOW-AssistList              OPTIONAL
}

UE-Positioning-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))
}

UE-Positioning-IPDL-Parameters ::=          SEQUENCE {
    ip-Spacing                                  IP-Spacing,
    ip-Length                                  IP-Length,
    ip-Offset                                  INTEGER (0..9),
    seed                                       INTEGER (0..63),
    burstModeParameters                        BurstModeParameters            OPTIONAL
}

UE-Positioning-MeasuredResults ::=          SEQUENCE {

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    ue-positioning-OTDOA-Measurement                UE-Positioning-OTDOA-Measurement
    OPTIONAL,
    ue-positioning-PositionEstimateInfo            UE-Positioning-PositionEstimateInfo
    OPTIONAL,
    ue-positioning-GPS-Measurement                UE-Positioning-GPS-MeasurementResults
    OPTIONAL,
    ue-positioning-Error                          UE-Positioning-Error
    OPTIONAL
}

UE-Positioning-MeasuredResults-v390ext ::= SEQUENCE {
    ue-Positioning-OTDOA-Measurement-v390ext      UE-Positioning-OTDOA-Measurement-v390ext
}

UE-Positioning-Measurement ::= SEQUENCE {
    ue-positioning-ReportingQuantity              UE-Positioning-ReportingQuantity,
    reportCriteria                               UE-Positioning-ReportCriteria,
    ue-positioning-OTDOA-AssistanceData          UE-Positioning-OTDOA-AssistanceData
    OPTIONAL,
    ue-positioning-GPS-AssistanceData            UE-Positioning-GPS-AssistanceData
    OPTIONAL
}

UE-Positioning-Measurement-v390ext ::= SEQUENCE {
    ue-positioning-ReportingQuantity-v390ext      UE-Positioning-ReportingQuantity-v390ext
    OPTIONAL,
    measurementValidity                          MeasurementValidity                OPTIONAL,
    ue-positioning-OTDOA-AssistanceData-UEB      UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}

UE-Positioning-MeasurementEventResults ::= CHOICE {
    event7a                                       UE-Positioning-PositionEstimateInfo,
    event7b                                       UE-Positioning-OTDOA-Measurement,
    event7c                                       UE-Positioning-GPS-MeasurementResults,
    spare                                         NULL
}

UE-Positioning-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

UE-Positioning-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

UE-Positioning-OTDOA-AssistanceData ::= SEQUENCE {
    ue-positioning-OTDOA-ReferenceCellInfo        UE-Positioning-OTDOA-ReferenceCellInfo
    OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList        UE-Positioning-OTDOA-NeighbourCellList
    OPTIONAL
}

UE-Positioning-OTDOA-AssistanceData-UEB ::= SEQUENCE {
    ue-positioning-OTDOA-ReferenceCellInfo-UEB    UE-Positioning-OTDOA-ReferenceCellInfo-UEB
    OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList-UEB    UE-Positioning-OTDOA-NeighbourCellList-UEB
    OPTIONAL
}

UE-Positioning-OTDOA-Measurement ::= SEQUENCE {
    sfn                                           INTEGER (0..4095),
    modeSpecificInfo                             CHOICE {
        fdd                                       SEQUENCE {
            referenceCellIdentity                PrimaryCPICH-Info,
            ue-RX-TX-TimeDifferenceType2Info     UE-RX-TX-TimeDifferenceType2Info
        },
        tdd                                       SEQUENCE {
            referenceCellIdentity                CellParametersID
        },
    },
    neighbourList                                NeighbourList                OPTIONAL
}

UE-Positioning-OTDOA-Measurement-v390ext ::= SEQUENCE {
    neighbourList-v390ext                        NeighbourList-v390ext
}

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UE-Positioning-OTDOA-NeighbourCellInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd SEQUENCE {
            cellAndChannelIdentity CellAndChannelIdentity
        }
    },
    frequencyInfo FrequencyInfo OPTIONAL,
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters OPTIONAL,
    sfn-SFN-RelTimeDifference SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift SFN-SFN-Drift OPTIONAL,
    searchWindowSize OTDOA-SearchWindowSize,
    positioningMode CHOICE {
        ueBased SEQUENCE {},
        ueAssisted SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellInfo-UEB ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd SEQUENCE {
            cellAndChannelIdentity CellAndChannelIdentity
        }
    },
    frequencyInfo FrequencyInfo OPTIONAL,
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters OPTIONAL,
    sfn-SFN-RelTimeDifference SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift SFN-SFN-Drift OPTIONAL,
    searchWindowSize OTDOA-SearchWindowSize,
    relativeNorth INTEGER (-20000..20000) OPTIONAL,
    relativeEast INTEGER (-20000..20000) OPTIONAL,
    relativeAltitude INTEGER (-4000..4000) OPTIONAL,
    fineSFN-SFN FineSFN-SFN,
    -- actual value = (IE value * 0.0625) + 876
    roundTripTime INTEGER (0.. 32766) OPTIONAL
}

UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    UE-Positioning-OTDOA-NeighbourCellInfo

UE-Positioning-OTDOA-NeighbourCellList-UEB ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    UE-Positioning-OTDOA-NeighbourCellInfo-UEB

UE-Positioning-OTDOA-Quality ::= SEQUENCE {
    stdResolution BIT STRING (SIZE (2)),
    numberOfOTDOA-Measurements BIT STRING (SIZE (3)),
    stdOfOTDOA-Measurements BIT STRING (SIZE (5))
}

UE-Positioning-OTDOA-ReferenceCellInfo ::= SEQUENCE {
    sfn INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
        },
        tdd SEQUENCE {
            cellAndChannelIdentity CellAndChannelIdentity
        }
    },
    frequencyInfo FrequencyInfo OPTIONAL,
    positioningMode CHOICE {
        ueBased SEQUENCE {},
        ueAssisted SEQUENCE {}
    },
    ue-positioning-IPDL-Parameters UE-Positioning-IPDL-Parameters OPTIONAL
}

UE-Positioning-OTDOA-ReferenceCellInfo-UEB ::= SEQUENCE {
    sfn INTEGER (0..4095)
    OPTIONAL,
}

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modeSpecificInfo CHOICE {
    fdd
        primaryCPICH-Info
    },
    tdd
        cellAndChannelIdentity
}
},
frequencyInfo
cellPosition
-- actual value = (IE value * 0.0625) + 876
roundTripTime
ue-positioning-IPDL-Parameters
}

UE-Positioning-PositionEstimateInfo ::=
referenceTime
    utran-GPSReferenceTimeResult
    gps-ReferenceTimeOnly
    cell-Timing
        sfn
        modeSpecificInfo CHOICE {
            fdd
                primaryCPICH-Info
            },
            tdd
                cellAndChannelIdentity
        }
},
positionEstimate
}

UE-Positioning-ReportCriteria ::=
ue-positioning-ReportingCriteria
periodicalReportingCriteria
noReporting
}

UE-Positioning-ReportingQuantity ::=
methodType
positioningMethod
-- This IE is not used in this version of the specification and should be ignored.
-- IE "dummy1" should be removed in later versions of the message including this IE
dummy1
horizontal-Accuracy
gps-TimingOfCellWanted
-- This IE is not used in this version of the specification and should be ignored.
-- IE "dummy2" should be removed in later versions of the message including this IE
dummy2
additionalAssistanceDataRequest
environmentCharacterisation
}

UE-Positioning-ReportingQuantity-v390ext ::=
vertical-Accuracy
}

UE-Positioning-ResponseTime ::=
ENUMERATED {
    s1, s2, s4, s8, s16,
    s32, s64, s128 }

-- SPARE: UTRA-CarrierRSSI, Max= 76
-- Values above Max are spare
UTRA-CarrierRSSI ::=
INTEGER (0..76127)

UTRAN-GPS-DriftRate ::=
ENUMERATED {
    utran-GPSDrift0, utran-GPSDrift1, utran-GPSDrift2,
    utran-GPSDrift5, utran-GPSDrift10, utran-GPSDrift15,
    utran-GPSDrift25, utran-GPSDrift50, utran-GPSDrift-1,
    utran-GPSDrift-2, utran-GPSDrift-5, utran-GPSDrift-10,
    utran-GPSDrift-15, utran-GPSDrift-25, utran-GPSDrift-50}

UTRAN-GPSReferenceTime ::=
    utran-GPSTimingOfCell
    modeSpecificInfo
        fdd
            SEQUENCE {
                FrequencyInfo
                ReferenceCellPosition
                INTEGER (0..32766)
                UE-Positioning-IPDL-Parameters
            }
            CHOICE {
                UTRAN-GPSReferenceTimeResult,
                INTEGER (0..60479999),
                SEQUENCE {
                    INTEGER (0..4095),
                    modeSpecificInfo CHOICE {
                        fdd
                            primaryCPICH-Info
                        },
                        tdd
                            cellAndChannelIdentity
                    }
                }
            }
        }
    }
    PositionEstimate
    CHOICE {
        UE-Positioning-EventParamList,
        PeriodicalReportingCriteria,
        NULL
    }
    SEQUENCE {
        UE-Positioning-MethodType,
        PositioningMethod,
        UE-Positioning-ResponseTime,
        UE-Positioning-Accuracy
    }
    UE-Positioning-Accuracy
    ENUMERATED {
        s1, s2, s4, s8, s16,
        s32, s64, s128 }
    SEQUENCE {
        INTEGER(0..2322431999999),
        CHOICE {
            SEQUENCE {
                FrequencyInfo
                ReferenceCellPosition
                INTEGER (0..32766)
                UE-Positioning-IPDL-Parameters
            }
            CHOICE {
                UTRAN-GPSReferenceTimeResult,
                INTEGER (0..60479999),
                SEQUENCE {
                    INTEGER (0..4095),
                    modeSpecificInfo CHOICE {
                        fdd
                            primaryCPICH-Info
                        },
                        tdd
                            cellAndChannelIdentity
                    }
                }
            }
        }
    }
    PositionEstimate
}

```

```

        referenceIdentity          PrimaryCPICH-Info
    },
    tdd                            SEQUENCE {
        referenceIdentity          CellParametersID
    }
}
OPTIONAL,
sfn                                INTEGER (0..4095)
}

UTRAN-GPSReferenceTimeResult ::= SEQUENCE {
-- SPARE: ue-GPSTimingOfCell, Max= 37158911999999
-- Values above Max are spare
ue-GPSTimingOfCell                INTEGER(0..3715891199999970368744177663),
modeSpecificInfo                   CHOICE {
    fdd                             SEQUENCE {
        referenceIdentity          PrimaryCPICH-Info
    },
    tdd                             SEQUENCE {
        referenceIdentity          CellParametersID
    }
},
sfn                                INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::= ENUMERATED {
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k, spare2, spare1 }

-- Actual value = IE value * 0.1
W ::= INTEGER (0..20)

-- *****
--
-- 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

CDMA2000-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
    FrequencyInfoCDMA2000

CellValueTag ::= INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimeFactor ::= INTEGER (1..8)

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

GSM-Classmark2 ::= OCTET STRING (SIZE (5))
GSM-Classmark3 ::= OCTET STRING (SIZE (1..32))
GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

GsmSecurityCapability ::= BIT STRING {
    a5-7(0),
    a5-6(1),
    a5-5(2),
    a5-4(3),
    a5-3(4),
    a5-2(5),
    a5-1(6)
} (SIZE (7))

IdentificationOfReceivedMessage ::= SEQUENCE {
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    receivedMessageType          ReceivedMessageType
}

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure      NULL,
    protocolError                ProtocolErrorInformation,
    unspecified                  NULL,
    spare1spare4          NULL,
    spare2spare3          NULL,
    spare3spare2          NULL,
    spare1                       NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm                          SEQUENCE {
        gsm-Classmark2          GSM-Classmark2,
        gsm-Classmark3          GSM-Classmark3
    },
    cdma2000                     SEQUENCE {
        cdma2000-MessageList    CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
    InterRAT-UE-RadioAccessCapability

InterRAT-UE-SecurityCapability ::= CHOICE {
    gsm                          SEQUENCE {
        gsmSecurityCapability    GsmSecurityCapability
    }
}

InterRAT-UE-SecurityCapList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
    InterRAT-UE-SecurityCapability

InterRAT-HO-FailureCause ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure      NULL,
    protocolError                ProtocolErrorInformation,
    interRAT-ProtocolError      NULL,
    unspecified                  NULL,
    spare11                     NULL,
    spare102                     NULL,
    spare93                     NULL,
    spare84                     NULL,
    spare7                      NULL,
}

```

```

    spare6                NULL,
    spare5                NULL,
    spare4                NULL,
    spare3                NULL,
    spare2                NULL,
    spare1                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
}

ProtocolErrorInformation ::=      SEQUENCE {
    diagnosticsType          CHOICE {
        type1                SEQUENCE {
            protocolErrorCause ProtocolErrorCause
        },
        spare                 NULL
    }
}

ReceivedMessageType ::=          ENUMERATED {
    activeSetUpdate,
    cellChangeOrderFromUTRAN,
    cellUpdateConfirm,
    counterCheck,
    downlinkDirectTransfer,
    interRATHandoverCommand,
    measurementControl,
    pagingType2,
    physicalChannelReconfiguration,
    physicalSharedChannelAllocation,
    radioBearerReconfiguration,
    radioBearerRelease,
    radioBearerSetup,
    rrcConnectionRelease,
    rrcConnectionReject,
    rrcConnectionSetup,
    securityModeCommand,
    signallingConnectionRelease,
    transportChannelReconfiguration,
    transportFormatCombinationControl,
    ueCapabilityEnquiry,
    ueCapabilityInformationConfirm,
    uplinkPhysicalChannelControl,
    uraUpdateConfirm,
    utranMobilityInformation,
    assistanceDataDelivery,
    spare16, spare25, spare34, spare34,
    spare25, spare1
}

Rplmn-Information ::=          SEQUENCE {
    gsm-BA-Range-List      GSM-BA-Range-List  OPTIONAL,
    fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
    tdd-UMTS-Frequency-List TDD-UMTS-Frequency-List
    OPTIONAL,
    cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-List
    OPTIONAL
}

```

```

}
SchedulingInformation ::=          SEQUENCE {
    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
    }
}
SchedulingInformationSIB ::=      SEQUENCE {
    sib-Type                       SIB-TypeAndTag,
    scheduling                      SchedulingInformation
}
SchedulingInformationSIBSb ::=   SEQUENCE {
    sibSb-Type                     SIBSb-TypeAndTag,
    scheduling                      SchedulingInformation
}
SegCount ::=                     INTEGER (1..16)
SegmentIndex ::=                 INTEGER (1..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))
SIBOccurIdentity ::=            INTEGER (0..15)
SIBOccurrenceIdentityAndValueTag ::= SEQUENCE {
    sibOccurIdentity              SIBOccurIdentity,
    sibOccurValueTag              SIBOccurValueTag
}
SIBOccurValueTag ::=            INTEGER (0..15)
SIB-ReferenceList ::=           SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIB
SIBSb-ReferenceList ::=         SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIBSb
SIB-ReferenceListFACH ::=       SEQUENCE (SIZE (1..maxSIB-FACH)) OF
    SchedulingInformationSIB
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,
systemInformationBlockType15-4,
systemInformationBlockType18,
schedulingBlock1,
schedulingBlock2,
systemInformationBlockType15-5,
spare1, spare2 }

```

```

SIB-TypeAndTag ::=
  sysInfoType1
  sysInfoType2
  sysInfoType3
  sysInfoType4
  sysInfoType5
  sysInfoType6
  sysInfoType7
  sysInfoType8
  sysInfoType9
  sysInfoType10
  sysInfoType11
  sysInfoType12
  sysInfoType13
  sysInfoType13-1
  sysInfoType13-2
  sysInfoType13-3
  sysInfoType13-4
  sysInfoType14
  sysInfoType15
  sysInfoType16
  sysInfoType17
  sysInfoType15-1
  sysInfoType15-2
  sysInfoType15-3
  sysInfoType15-4
  sysInfoType18
  sysInfoType15-5
  spare5
  spare4
  spare3
  spare2
  spare1
}

CHOICE {
  PLMN-ValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  NULL,
  CellValueTag,
  NULL,
  NULL,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  NULL,
  CellValueTag,
  PredefinedConfigIdentityAndValueTag,
  NULL,
  CellValueTag,
  SIBOccurrenceIdentityAndValueTag,
  SIBOccurrenceIdentityAndValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag
}

```

```

SIBSb-TypeAndTag ::=
  sysInfoType1
  sysInfoType2
  sysInfoType3
  sysInfoType4
  sysInfoType5
  sysInfoType6
  sysInfoType7
  sysInfoType8
  sysInfoType9
  sysInfoType10
  sysInfoType11
  sysInfoType12
  sysInfoType13
  sysInfoType13-1
  sysInfoType13-2
  sysInfoType13-3
  sysInfoType13-4
  sysInfoType14
  sysInfoType15
  sysInfoType16
  sysInfoType17
  sysInfoTypeSB1
}

CHOICE {
  PLMN-ValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  NULL,
  CellValueTag,
  NULL,
  NULL,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  CellValueTag,
  NULL,
  CellValueTag,
  PredefinedConfigIdentityAndValueTag,
  NULL,
  CellValueTag
}

```

```

sysInfoTypeSB2          CellValueTag,
sysInfoType15-1        CellValueTag,
sysInfoType15-2        SIBOccurrenceIdentityAndValueTag,
sysInfoType15-3        SIBOccurrenceIdentityAndValueTag,
sysInfoType15-4        CellValueTag,
sysInfoType18          CellValueTag,
sysInfoType15-5        CellValueTag,
spare2                 NULL,
spare1                 NULL
}

SibOFF ::=              ENUMERATED {
                        so2, so4, so6, so8, so10,
                        so12, so14, so16, so18,
                        so20, so22, so24, so26,
                        so28, so30, so32 }

SibOFF-List ::=        SEQUENCE (SIZE (1..15)) OF
                        SibOFF

SysInfoType1 ::=       SEQUENCE {
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
  cn-DomainSysInfoList          CN-DomainSysInfoList,
-- User equipment IEs
  ue-ConnTimersAndConstants      UE-ConnTimersAndConstants      OPTIONAL,
  ue-IdleTimersAndConstants      UE-IdleTimersAndConstants      OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
}

SysInfoType2 ::=       SEQUENCE {
-- UTRAN mobility IEs
  ura-IdentityList              URA-IdentityList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
}

SysInfoType3 ::=       SEQUENCE {
  sib4indicator                 BOOLEAN,
-- UTRAN mobility IEs
  cellIdentity                  CellIdentity,
  cellSelectReselectInfo        CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
}

SysInfoType4 ::=       SEQUENCE {
-- UTRAN mobility IEs
  cellIdentity                  CellIdentity,
  cellSelectReselectInfo        CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                      OPTIONAL
}

SysInfoType5 ::=       SEQUENCE {
  sib6indicator                 BOOLEAN,
-- Physical channel IEs
  pich-PowerOffset              PICH-PowerOffset,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      aich-PowerOffset            AICH-PowerOffset
    },
    tdd                          SEQUENCE {
      pusch-SysInfoList-SFN       PUSCH-SysInfoList-SFN      OPTIONAL,
      pdsch-SysInfoList-SFN       PDSCH-SysInfoList-SFN      OPTIONAL,
      openLoopPowerControl-TDD     OpenLoopPowerControl-TDD
    }
  },
  primaryCCPCH-Info             PrimaryCCPCH-Info              OPTIONAL,
  prach-SystemInformationList    PRACH-SystemInformationList,
  sccpch-SystemInformationList    SCCPCH-SystemInformationList,
  cbs-DRX-Level1Information      CBS-DRX-Level1Information      OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sccpch-SystemInformationList
-- Extension mechanism for non- release99 information
}

```

```

        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    }

SysInfoType6 ::=
    -- Physical channel IEs
    pich-PowerOffset                  PICH-PowerOffset,
    modeSpecificInfo                   CHOICE {
        fdd                            SEQUENCE {
            aich-PowerOffset            AICH-PowerOffset,
            dummy                       CSICH-PowerOffset    OPTIONAL
            -- This parameter dummy is not to be sent in the current version of the
specification.
        },
        tdd                            SEQUENCE {
            pusch-SysInfoList-SFN      PUSCH-SysInfoList-SFN    OPTIONAL,
            pdsch-SysInfoList-SFN      PDSCH-SysInfoList-SFN    OPTIONAL,
            openLoopPowerControl-TDD    OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info                 PrimaryCCPCH-Info    OPTIONAL,
    prach-SystemInformationList        PRACH-SystemInformationList    OPTIONAL,
    sCCPCH-SystemInformationList       SCCPCH-SystemInformationList    OPTIONAL,
    cbs-DRX-Level1Information           CBS-DRX-Level1Information    OPTIONAL,
    -- Conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType7 ::=
    -- Physical channel IEs
    modeSpecificInfo                   CHOICE {
        fdd                            SEQUENCE {
            ul-Interference            UL-Interference
        },
        tdd                            NULL
    },
    prach-Information-SIB5-List        DynamicPersistenceLevelList,
    prach-Information-SIB6-List        DynamicPersistenceLevelList    OPTIONAL,
    expirationTimeFactor               ExpirationTimeFactor    OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType8 ::=
    -- User equipment IEs
    cpch-Parameters                   CPCH-Parameters,
    -- Physical channel IEs
    cpch-SetInfoList                   CPCH-SetInfoList,
    csich-PowerOffset                  CSICH-PowerOffset,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType9 ::=
    -- Physical channel IEs
    cpch-PersistenceLevelsList         CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType10 ::=
    -- User equipment IEs
    drac-SysInfoList                  DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType11 ::=
    sib12indicator                     BOOLEAN,
    -- Measurement IEs
    fach-MeasurementOccasionInfo       FACH-MeasurementOccasionInfo    OPTIONAL,
    measurementControlSysInfo          MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}          OPTIONAL
}

SysInfoType12 ::=
    SEQUENCE {

```

```

-- Measurement IEs
  fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo    OPTIONAL,
  measurementControlSysInfo       MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType13 ::=                      SEQUENCE {
-- Core network IEs
  cn-DomainSysInfoList            CN-DomainSysInfoList,
-- User equipment IEs
  ue-IdleTimersAndConstants        UE-IdleTimersAndConstants    OPTIONAL,
  capabilityUpdateRequirement      CapabilityUpdateRequirement  OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType13-1 ::=                    SEQUENCE {
-- ANSI-41 IEs
  ansi-41-RAND-Information         ANSI-41-RAND-Information,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType13-2 ::=                    SEQUENCE {
-- ANSI-41 IEs
  ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType13-3 ::=                    SEQUENCE {
-- ANSI-41 IEs
  ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType13-4 ::=                    SEQUENCE {
-- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType14 ::=                      SEQUENCE {
-- Physical channel IEs
  individualTS-InterferenceList    IndividualTS-InterferenceList,
  expirationTimeFactor             ExpirationTimeFactor        OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType15 ::=                      SEQUENCE {
-- Measurement IEs

  ue-positioning-GPS-CipherParameters UE-Positioning-CipherParameters  OPTIONAL,
  ue-positioning-GPS-ReferenceLocation ReferenceLocation,
  ue-positioning-GPS-ReferenceTime  UE-Positioning-GPS-ReferenceTime,

  ue-positioning-GPS-Real-timeIntegrity BadSatList                    OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                OPTIONAL
}

SysInfoType15-1 ::=                    SEQUENCE {
-- DGPS corrections
  ue-positioning-GPS-DGPS-Corrections UE-Positioning-GPS-DGPS-Corrections,

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

SysInfoType15-2 ::=                    SEQUENCE {
-- Ephemeris and clock corrections
  transmissionTOW                  INTEGER (0..604799),
  satID                             SatID,

```

```

    ephemerisParameter          EphemerisParameter,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
}

SysInfoType15-3 ::=            SEQUENCE {
    -- Almanac and other data
    transmissionTOW            INTEGER (0.. 604799),
    ue-positioning-GPS-Almanac  UE-Positioning-GPS-Almanac
OPTIONAL,
    ue-positioning-GPS-IonosphericModel  UE-Positioning-GPS-IonosphericModel
OPTIONAL,
    ue-positioning-GPS-UTC-Model  UE-Positioning-GPS-UTC-Model
OPTIONAL,
    satMask                    BIT STRING (SIZE (1..32))  OPTIONAL,
    lsbTOW                      BIT STRING (SIZE (8))      OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
}

SysInfoType15-4 ::=            SEQUENCE {
    -- Measurement IEs
    ue-positioning-OTDOA-CipherParameters  UE-Positioning-CipherParameters          OPTIONAL,
    ue-positioning-OTDOA-AssistanceData    UE-Positioning-OTDOA-AssistanceData,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
}

SysInfoType15-5 ::=            SEQUENCE {
    -- Measurement IEs
    ue-positioning-OTDOA-AssistanceData-UEB  UE-Positioning-OTDOA-AssistanceData-UEB,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}          OPTIONAL
}

SysInfoType16 ::=              SEQUENCE {
    -- Radio bearer IEs
    preDefinedRadioConfiguration  PreDefRadioConfiguration,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType17 ::=              SEQUENCE {
    -- Physical channel IEs
    pusch-SysInfoList             PUSCH-SysInfoList          OPTIONAL,
    pdsch-SysInfoList             PDSCH-SysInfoList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType18 ::=              SEQUENCE {
    idleModePLMNIdentities        PLMNIdentitiesOfNeighbourCells  OPTIONAL,
    connectedModePLMNIdentities    PLMNIdentitiesOfNeighbourCells  OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoTypeSB1 ::=             SEQUENCE {
    -- Other IEs
    sib-ReferenceList             SIB-ReferenceList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoTypeSB2 ::=             SEQUENCE {
    -- Other IEs
    sib-ReferenceList             SIB-ReferenceList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

TDD-UMTS-Frequency-List ::=    SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
                                FrequencyInfoTDD

-- *****
--
-- ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- *****

```

```

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::= ANSI-41-NAS-Parameter
ANSI-41-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
maxCPCCHsets               INTEGER ::= 16
maxDPCH-DLchan             INTEGER ::= 8
maxDPDCH-UL                INTEGER ::= 6
maxDRACclasses             INTEGER ::= 8
maxFACHPCH                 INTEGER ::= 8
maxFreq                     INTEGER ::= 8
maxFreqBandsFDD            INTEGER ::= 8
maxFreqBandsTDD            INTEGER ::= 4
maxFreqBandsGSM            INTEGER ::= 16
maxInterSysMessages        INTEGER ::= 4
maxLoCHperRLC              INTEGER ::= 2
maxMeasEvent                INTEGER ::= 8
maxMeasIntervals           INTEGER ::= 3
maxMeasParEvent            INTEGER ::= 2
maxNumCDMA2000Freqs        INTEGER ::= 8
maxNumGSMFreqRanges        INTEGER ::= 32
maxNumFDDFreqs             INTEGER ::= 8
maxNumTDDFreqs             INTEGER ::= 8
maxNoOfMeas                INTEGER ::= 16
maxOtherRAT                INTEGER ::= 15
maxOtherRAT-16             INTEGER ::= 16
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
maxReportedGSMCells        INTEGER ::= 68

```

```

maxRL                INTEGER ::= 8
maxRL-1              INTEGER ::= 7
maxSat                INTEGER ::= 16
maxSCCPCH            INTEGER ::= 16
maxSIB                INTEGER ::= 32
maxSIB-FACH          INTEGER ::= 8
maxSIBperMsg         INTEGER ::= 16
maxSRBsetup          INTEGER ::= 8
maxSystemCapability  INTEGER ::= 16
maxTF                INTEGER ::= 32
maxTF-CPCH           INTEGER ::= 16
maxTFC               INTEGER ::= 1024
maxTFCI-2-Combs     INTEGER ::= 512
maxTGPS              INTEGER ::= 6
maxTrCH              INTEGER ::= 32
-- maxTrCHpreconf should be 16 but has been set to 32 for compatibility
maxTrCHpreconf       INTEGER ::= 32
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,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo,
    TransportChannelReconfiguration

```

FROM PDU-definitions

```

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DRX-CycleLengthCoefficient,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    DL-PhysChCapabilityFDD-v380ext,
    FailureCauseWithProtErr,
    RRC-MessageSequenceNumber,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    AdditionalMeasurementID-List,
    PositionEstimate,

```

```

-- Other IEs :
    InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements

    maxCNdomains,
    maxNoOfMeas,
    maxRB,
    maxSRBsetup
FROM Constant-definitions;

-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is transferred in the same direction and across the same path is grouped
-- *****
--
-- RRC information, to target RNC
--
-- *****
-- RRC Information to target RNC sent either from source RNC or from another RAT

ToTargetRNC-Container ::= CHOICE {
    interRATHandover                InterRATHandoverInfoWithInterRATCapabilities,
    srncRelocation                  SRNC-RelocationInfo,
    extension                        NULL
}

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

TargetRNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup                RadioBearerSetup,
    radioBearerReconfiguration      RadioBearerReconfiguration,
    radioBearerRelease              RadioBearerRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    rrc-FailureInfo                 RRC-FailureInfo,
    extension                        NULL
}

-- Part2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- *****
--
-- Handover to UTRAN information
--
-- *****

InterRATHandoverInfoWithInterRATCapabilities ::= CHOICE {
    r3                               SEQUENCE {
        interRATHandoverInfo-r3      InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        v390NonCriticalExtensions    SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
            InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions     SEQUENCE {} OPTIONAL
        }
        OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

InterRATHandoverInfoWithInterRATCapabilities-r3-IEs ::= SEQUENCE {
    -- The order of the IEs may not reflect the tabular format
    -- but has been chosen to simplify the handling of the information in the BSC
    -- Other IEs
    ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
    interRATHandoverInfo             OCTET STRING (SIZE (0..255))
    -- Octet string is used to obtain 8 bit length field prior to actual information
    -- This makes it possible for BSS to transparently handle information received via
    -- GSM air interface even when it includes non critical extensions
}

```



```

-- The octet string shall include the InterRATHandoverInfo information
-- The BSS can re-use the 04.18 length field received from the MS
}

InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
-- User equipment IES
failureCauseWithProtErr          FailureCauseWithProtErr          OPTIONAL
}

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo ::= CHOICE {
r3                                SEQUENCE {
sRNC-RelocationInfo-r3            SRNC-RelocationInfo-r3-IEs,
v380NonCriticalExtensions          SEQUENCE {
sRNC-RelocationInfo-v380ext       SRNC-RelocationInfo-v380ext-IEs,
-- Reserved for future non critical extension
v390NonCriticalExtensions          SEQUENCE {
sRNC-RelocationInfo-v390ext       SRNC-RelocationInfo-v390ext-IEs,
-- Reserved for future non critical extension
nonCriticalExtensions             SEQUENCE {} OPTIONAL
}
} OPTIONAL
},
criticalExtensions                SEQUENCE {}
}

SRNC-RelocationInfo-r3-IEs ::= SEQUENCE {
-- Non-RRC IES
stateOfRRC                        StateOfRRC,
stateOfRRC-Procedure              StateOfRRC-Procedure,
-- Ciphering related information IES
-- If the extension v380 is included use the extension for the ciphering status per CN domain
cipheringStatus                   CipheringStatus,
calculationTimeForCiphering        CalculationTimeForCiphering        OPTIONAL,
cipheringInfoPerRB-List            CipheringInfoPerRB-List            OPTIONAL,
count-C-List                       COUNT-C-List                       OPTIONAL,
integrityProtectionStatus          IntegrityProtectionStatus,
srb-SpecificIntegrityProtInfoList  SRB-SpecificIntegrityProtInfoList,
implementationSpecificParams       ImplementationSpecificParams       OPTIONAL,
-- User equipment IES
u-RNTI                             U-RNTI,
c-RNTI                             C-RNTI                             OPTIONAL,
ue-RadioAccessCapability           UE-RadioAccessCapability,
ue-Positioning-LastKnownPos        UE-Positioning-LastKnownPos        OPTIONAL,
-- Other IES
ue-RATSpecificCapability           InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
-- UTRAN mobility IES
ura-Identity                       URA-Identity                       OPTIONAL,
-- Core network IES
cn-CommonGSM-MAP-NAS-SysInfo       NAS-SystemInformationGSM-MAP,
cn-DomainInformationList            CN-DomainInformationList            OPTIONAL,
-- Measurement IES
ongoingMeasRepList                 OngoingMeasRepList                 OPTIONAL,
-- Radio bearer IES
predefinedConfigStatusList         PredefinedConfigStatusList,
srb-InformationList                 SRB-InformationSetupList,
rab-InformationList                 RAB-InformationSetupList            OPTIONAL,
-- Transport channel IES
ul-CommonTransChInfo               UL-CommonTransChInfo               OPTIONAL,
ul-TransChInfoList                 UL-AddReconfTransChInfoList        OPTIONAL,
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
}

```

```

SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
    cn-DomainIdentity          CN-DomainIdentity,
    cipheringStatusList        CipheringStatusList
}

SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
    cn-DomainInformationList-v390ext  CN-DomainInformationList-v390ext    OPTIONAL,
    ue-RadioAccessCapability-v370ext  UE-RadioAccessCapability-v370ext    OPTIONAL,
    ue-RadioAccessCapability-v380ext  UE-RadioAccessCapability-v380ext    OPTIONAL,
    dl-PhysChCapabilityFDD-v380ext    DL-PhysChCapabilityFDD-v380ext,
    failureCauseWithProtErr          FailureCauseWithProtErr          OPTIONAL
}

CipheringStatusList ::=                SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain

CipheringStatusCNdomain ::=            SEQUENCE {
    cn-DomainIdentity                CN-DomainIdentity,
    cipheringStatus                    CipheringStatus
}

-- IE definitions

CalculationTimeForCiphering ::=        SEQUENCE {
    cell-Id                          CellIdentity,
    sfn                               INTEGER (0..4095)
}

CipheringInfoPerRB ::=                 SEQUENCE {
    dl-HFN                            BIT STRING (SIZE (20..25)),
    ul-HFN                            BIT STRING (SIZE (20..25))
}

-- TABULAR: Multiplicity value numberOfRadioBearers has been replaced
-- with maxRB.
CipheringInfoPerRB-List ::=            SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB

CipheringStatus ::=                    ENUMERATED {
    started, notStarted }

CN-DomainInformation-v390ext ::=        SEQUENCE {
    cn-DRX-CycleLengthCoeff          CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList-v390ext ::=    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext

COUNT-C-List ::=                     SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        COUNT-CSingle

COUNT-CSingle ::=                    SEQUENCE {
    cn-DomainIdentity                CN-DomainIdentity,
    count-C                          BIT STRING (SIZE (32))
}

ImplementationSpecificParams ::=        BIT STRING (SIZE (1..512))

IntegrityProtectionStatus ::=           ENUMERATED {
    started, notStarted }

MeasurementCommandWithType ::=          CHOICE {
    setup                            MeasurementType,
    modify                            NULL,
    release                            NULL
}

OngoingMeasRep ::=                    SEQUENCE {
    measurementIdentity                MeasurementIdentity,
    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

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

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo

StateOfRRC ::=                   ENUMERATED {
                                cell-DCH, cell-FACH,
                                cell-PCH, ura-PCH }

StateOfRRC-Procedure ::=         ENUMERATED {
                                awaitNoRRC-Message,
                                awaitRRC-ConnectionRe-establishmentComplete,
                                awaitRB-SetupComplete,
                                awaitRB-ReconfigurationComplete,
                                awaitTransportCH-ReconfigurationComplete,
                                awaitPhysicalCH-ReconfigurationComplete,
                                awaitActiveSetUpdateComplete,
                                awaitHandoverComplete,
                                sendCellUpdateConfirm,
                                sendUraUpdateConfirm,
                                sendRrcConnectionReestablishment,
                                otherStates
}

UE-Positioning-LastKnownPos ::= SEQUENCE {
    sfn                            INTEGER (0..4095),
    cell-id                        CellIdentity,
    positionEstimate               PositionEstimate
}

END

```

## CHANGE REQUEST

⌘ **25.331 CR 1287** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Corrections and clarifications of Radio link timing		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 23-02-2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)
			REL-5 (Release 5)

<b>Reason for change:</b>	⌘ The changes included in this CR are proposed for the following reasons: <ul style="list-style-type: none"> <li>The specification is ambiguous concerning the specification of radio link timing for the case in which UTRAN provides IE "Default DPCH offset value" upon timing maintained hard handover. As a result, this uncommon hard handover scenario may always fail</li> </ul>
<b>Summary of change:</b>	⌘ The original revision of this CR introduces the following changes <ul style="list-style-type: none"> <li>Clarification is added that UTRAN should not provide the IE "Default DPCH offset value" upon performing a timing re- initialised hard handover and that the UE shall ignore the IE if received</li> </ul> <p><b>Impact analysis:</b></p> <p><u>Impacted functionality:</u> Uncommon hard handover scenario's that can be avoided by UTRAN, namely timing re- initialised hard handover with no DOFF provided and timing maintained hard handover with DOFF provided</p> <p><u>Correction type:</u> Clarification of a function where the specification is ambiguous and incomplete. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise</p> <p><u>Interoperability:</u></p> <ul style="list-style-type: none"> <li>Isolated impact: the impact is isolated; only the corrected functionality is affected</li> <li>CR implemented only by UTRAN: The change is backwards compatible; UTRAN is advised to avoid the cases that were previously specified ambiguously</li> <li>CR implemented only by UE: If UTRAN intended to apply the uncommon timing re- initialised hard handover with no DOFF provided, this procedure will be rejected by UEs having implemented the CR while it is doubtful that UEs not implementing the CR will succeed. If UTRAN intended to apply the</li> </ul>

	uncommon timing maintained hard handover with DOFF provided, this procedure may fail if UTRAN has an incorrect understanding of what timing maintained implies. In such case it is unlikely that the procedure will succeed for UEs not implementing the CR
<b>Consequences if not approved:</b>	⌘ Ambiguity in the standard remains which may result in failure of some hard handover scenario's

<b>Clauses affected:</b>	⌘ 8.3.5.1.2, 8.3.5.2.2, 8.5.15, 8.6.6.21, 13.4.4									
<b>Other specs affected:</b>	<table border="0"> <tr> <td>⌘ <input type="checkbox"/></td> <td>Other core specifications</td> <td>⌘ 25.331 v3.9.0, CR 1286</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Test specifications</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>O&amp;M Specifications</td> <td></td> </tr> </table>	⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v3.9.0, CR 1286	<input type="checkbox"/>	Test specifications		<input type="checkbox"/>	O&M Specifications	
⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v3.9.0, CR 1286								
<input type="checkbox"/>	Test specifications									
<input type="checkbox"/>	O&M Specifications									
<b>Other comments:</b>	⌘									

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

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.3.5 Hard handover

When performing hard handover with change of frequency, the UE shall:

- stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL\_INFO\_LIST until a MEASUREMENT CONTROL message is received from UTRAN.

### 8.3.5.1 Timing re-initialised hard handover

#### 8.3.5.1.1 General

The purpose of the timing re-initialised hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) along with a change in the UL transmission timing and the CFN in the UE according to the SFN of the target cell.(see subclause 8.5.15).

This procedure is initiated when UTRAN does not know the target SFN timing before hard handover.

#### 8.3.5.1.2 Initiation

Timing re-initialised hard handover initiated by the UTRAN is normally performed by using the procedure "Physical channel reconfiguration" (subclause 8.2.6), but may also be performed by using either one of the following procedures:

- "radio bearer establishment" (subclause 8.2.1);
- "Radio bearer reconfiguration" (subclause 8.2.2);
- "Radio bearer release" (subclause 8.2.3); or
- "Transport channel reconfiguration" (subclause 8.2.4).

If IE "Timing indication" has the value "initialise", UE shall:

- execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

In this case of a timing re-initialised hard handover, UTRAN should include the IE "Default DPCH Offset Value" if the IE "Default DPCH Offset Value" is included and:

- in FDD mode ~~UTRAN should:~~
- set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation
 
$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}_j$$
  - where  $j$  indicates the first radio link listed in the message and the IE values used are the Actual Values of the IEs as defined in clause 11.

If the IE "Default DPCH Offset Value" is included, the UE shall:

- in FDD mode ~~the UE shall:~~
- if the UE receives a message where the above relation between "Default DPCH Offset Value" and "DPCH frame offset" is not respected:
  - set the variable INVALID\_CONFIGURATION to true.

If the IE "Default DPCH Offset Value" is not included, the UE shall:

- set the variable INVALID\_CONFIGURATION to true.
- ~~the UE shall:~~
  - ~~use the previously received value stored in variable DOFF. If there is no previously received value stored in DOFF, the UE should use the value 0.~~

~~— in FDD mode UTRAN should:~~

~~— set "DPCH frame offset" respecting the following relation~~

~~— if UTRAN has previously sent Default DPCH Offset Value to the UE~~

~~(previously sent Default DPCH Offset Value) mod 38400 = DPCH frame offset<sub>j</sub>~~

~~— where  $j$  indicates the first radio link listed in the message and the IE values used are the Actual Values of the IEs as defined in clause 11.~~

~~— if UTRAN has not previously sent Default DPCH Offset Value to the UE~~

~~DPCH frame offset<sub>j</sub> = 0~~

~~— where  $j$  indicates the first radio link listed in the message.~~

~~— in FDD mode the UE shall:~~

~~— if the UE receives a message where the above relations are not respected:~~

~~— set the variable INVALID\_CONFIGURATION to true.~~

### 8.3.5.2 Timing-maintained hard handover

#### 8.3.5.2.1 General

The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining the UL transmission timing and the CFN in the UE.

This procedure can be initiated only if UTRAN knows the target SFN timing before hard handover. The target SFN timing can be known by UTRAN in the following 2 cases:

- UE reads SFN when measuring "Cell synchronisation information" and sends it to the UTRAN in MEASUREMENT REPORT message.
- UTRAN internally knows the time difference between the cells.

#### 8.3.5.2.2 Initiation

Timing-maintained hard handover initiated by the network is normally performed by using the procedure "Physical channel reconfiguration" (subclause 8.2.6), but may also be performed by using either one of the following procedures:

- "radio bearer establishment" (subclause 8.2.1);
- "Radio bearer reconfiguration" (subclause 8.2.2);
- "Radio bearer release" (subclause 8.2.3); or
- "Transport channel reconfiguration" (subclause 8.2.4).

If IE "Timing indication" has the value "maintain", UE shall initiate the Timing-maintained hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN. In this case UTRAN should not include the IE "Default DPCH Offset Value".

If the IE "Default DPCH Offset Value" is included:

~~— UTRAN should:~~

~~— include the same value of IE "Default DPCH Offset Value" as the one currently being used by the UE.~~

~~NOTE:— The first radio link listed in the message may not be the reference radio link.~~

If the IE "Default DPCH Offset Value" is included, the UE shall:

- ignore the IE "Default DPCH Offset Value".

~~The UE shall:~~

~~on reception of a message where the value of IE "Default DPCH Offset Value" is not the same as the one currently being used by the UE:~~

~~set the variable INVALID\_CONFIGURATION to true.~~



## 8.5.15 CFN calculation

The DOFF used in the formulas in this clause concerns the value of IE "Default DPCH Offset Value" received in the message that instructs the UE to enter CELL\_DCH state or to perform timing re-initialised hard handover.

### 8.5.15.1 Initialisation for CELL\_DCH state after state transition

When the UE receives any of the messages causing the UE to perform a state transition to CELL\_DCH, the UE shall set the CFN in relation to the SFN of the first radio link listed in the IE "Downlink information per radio link list" included in that message according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

### 8.5.15.2 Initialisation in CELL\_DCH state at hard handover

When the UE is in CELL\_DCH state and receives any of the messages causing the UE to perform a hard handover, the UE shall check the IE "Timing indication" in that message and:

- if IE "Timing indication" has the value "initialise" (i.e. timing re-initialised hard handover):
  - read SFN on target cell identified by the first radio link listed in the IE "Downlink information per radio link list" included in that message;
  - set the CFN according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

- if IE "Timing indication" has the value "maintain" (i.e. timing-maintained hard handover), the UE shall keep CFN with no change due to the hard handover, and only increase CFN (mod 256) by 1 every frame.

### 8.5.15.3 Initialisation for CELL\_FACH

When the UE performs cell selection, re-selection or changes to CELL\_FACH state the UE shall set CFN for all common or shared channels according to:

$$\text{CFN} = \text{SFN} \text{ mod } 256$$

where the formula gives the CFN of the downlink common or shared channel frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

After the initialisation, the CFN in the UE is increased (mod 256) by 1 every frame.

#### 8.5.15.4 Initialisation after intersystem handover to UTRAN

Upon inter RAT handover to UTRAN the UE shall, regardless of the value received within IE "Timing indication" (if received):

- read SFN on target cell and set the CFN according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

### 8.6.6.21 Default DPCH Offset Value

The UE shall:

- if the IE "Default DPCH Offset Value" is included:
  - use its value to determine Frame Offset and Chip Offset from the SFN timing in a cell;
  - ~~— store the received value in variable DOFF.~~
- ~~— if the IE "Default DPCH Offset Value" is not included:~~
  - ~~— use the previously received value stored in variable DOFF. If there is no previously received value stored in DOFF, the UE should use the value 0.~~

After transition from CELL\_DCH state to other states, the UE shall:

- erase the value stored in variable DOFF.

### 13.4.4 ~~DOFF~~

~~This variable contains the default offset value in the UE. See [10] for details.~~

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
<del>Default DPCH Offset Value (DOFF)</del>	<del>OP</del>		<del>Default DPCH Offset Value 10.3.6.16</del>	<del>Cleared when entering UTRA RRC connected mode when not otherwise stated in the procedure. Cleared when leaving UTRA RRC connected mode.</del>

## CHANGE REQUEST

⌘ **25.331 CR 1286** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Corrections and clarifications of Radio link timing		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 13-02-2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ The changes included in this CR are proposed for the following reasons: <ul style="list-style-type: none"> <li>• The specification is ambiguous concerning the specification of radio link timing for the case in which UTRAN provides IE "Default DPCH offset value" upon timing maintained hard handover. As a result, this uncommon hard handover scenario may always fail</li> </ul>
<b>Summary of change:</b>	⌘ The original revision of this CR introduces the following changes <ul style="list-style-type: none"> <li>• Clarification is added that UTRAN should not provide the IE "Default DPCH offset value" upon performing a timing re- initialised hard handover and that the UE shall ignore the IE if received</li> </ul> <p><b>Impact analysis:</b></p> <p><u>Impacted functionality:</u> Uncommon hard handover scenario's that can be avoided by UTRAN, namely timing re- initialised hard handover with no DOFF provided and timing maintained hard handover with DOFF provided</p> <p><u>Correction type:</u> Clarification of a function where the specification is ambiguous and incomplete. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise</p> <p><u>Interoperability:</u></p> <ul style="list-style-type: none"> <li>• Isolated impact: the impact is isolated; only the corrected functionality is affected</li> <li>• CR implemented only by UTRAN: The change is backwards compatible; UTRAN is advised to avoid the cases that were previously specified ambiguously</li> <li>• CR implemented only by UE: If UTRAN intended to apply the uncommon timing re- initialised hard handover with no DOFF provided, this procedure will be rejected by UEs having implemented the CR while it is doubtful that UEs not implementing the CR will succeed. If UTRAN intended to apply the</li> </ul>

uncommon timing maintained hard handover with DOFF provided, this procedure may fail if UTRAN has an incorrect understanding of what timing maintained implies. In such case it is unlikely that the procedure will succeed for UEs not implementing the CR

**Consequences if not approved:** ⌘ Ambiguity in the standard remains which may result in failure of some hard handover scenario's

**Clauses affected:** ⌘ 8.3.5.1.2, 8.3.5.2.2, 8.5.15, 8.6.6.21, 13.4.4

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v4.3.0, CR 1287  
 Test specifications  
 O&M Specifications

**Other comments:** ⌘

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

## 8.3.5 Hard handover

When performing hard handover with change of frequency, the UE shall:

- stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL\_INFO\_LIST until a MEASUREMENT CONTROL message is received from UTRAN.

### 8.3.5.1 Timing re-initialised hard handover

#### 8.3.5.1.1 General

The purpose of the timing re-initialised hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) along with a change in the UL transmission timing and the CFN in the UE according to the SFN of the target cell.(see subclause 8.5.15).

This procedure is initiated when UTRAN does not know the target SFN timing before hard handover.

#### 8.3.5.1.2 Initiation

Timing re-initialised hard handover initiated by the UTRAN is normally performed by using the procedure "Physical channel reconfiguration" (subclause 8.2.6), but may also be performed by using either one of the following procedures:

- "radio bearer establishment" (subclause 8.2.1);
- "Radio bearer reconfiguration" (subclause 8.2.2);
- "Radio bearer release" (subclause 8.2.3); or
- "Transport channel reconfiguration" (subclause 8.2.4).

If IE "Timing indication" has the value "initialise", UE shall:

- execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

In this case of a timing re-initialised hard handover, UTRAN should include the IE "Default DPCH Offset Value" if the IE "Default DPCH Offset Value" is included and:

- in FDD mode-UTRAN should:
  - set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation
 
$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}_j$$
  - where  $j$  indicates the first radio link listed in the message and the IE values used are the Actual Values of the IEs as defined in clause 11.

If the IE "Default DPCH Offset Value" is included, the UE shall:

- in FDD mode-the UE shall:
  - if the UE receives a message where the above relation between "Default DPCH Offset Value" and "DPCH frame offset" is not respected:
    - set the variable INVALID\_CONFIGURATION to true.

If the IE "Default DPCH Offset Value" is not included, the UE shall:

- ~~the UE shall:~~
  - set the variable INVALID\_CONFIGURATION to true.
    - ~~use the previously received value stored in variable DOFF. If there is no previously received value stored in DOFF, the UE should use the value 0.~~

~~— in FDD mode UTRAN should:~~

~~— set "DPCH frame offset" respecting the following relation~~

~~— if UTRAN has previously sent Default DPCH Offset Value to the UE~~

~~————— (previously sent Default DPCH Offset Value) mod 38400 = DPCH frame offset<sub>j</sub>~~

~~— where  $j$  indicates the first radio link listed in the message and the IE values used are the Actual Values of the IEs as defined in clause 11.~~

~~— if UTRAN has not previously sent Default DPCH Offset Value to the UE~~

~~————— DPCH frame offset<sub>j</sub> = 0~~

~~— where  $j$  indicates the first radio link listed in the message.~~

~~— in FDD mode the UE shall:~~

~~— if the UE receives a message where the above relations are not respected:~~

~~— set the variable INVALID\_CONFIGURATION to true.~~

### 8.3.5.2 Timing-maintained hard handover

#### 8.3.5.2.1 General

The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining the UL transmission timing and the CFN in the UE.

This procedure can be initiated only if UTRAN knows the target SFN timing before hard handover. The target SFN timing can be known by UTRAN in the following 2 cases:

- UE reads SFN when measuring "Cell synchronisation information" and sends it to the UTRAN in MEASUREMENT REPORT message.
- UTRAN internally knows the time difference between the cells.

#### 8.3.5.2.2 Initiation

Timing-maintained hard handover initiated by the network is normally performed by using the procedure "Physical channel reconfiguration" (subclause 8.2.6), but may also be performed by using either one of the following procedures:

- "radio bearer establishment" (subclause 8.2.1);
- "Radio bearer reconfiguration" (subclause 8.2.2);
- "Radio bearer release" (subclause 8.2.3); or
- "Transport channel reconfiguration" (subclause 8.2.4).

If IE "Timing indication" has the value "maintain", UE shall initiate the Timing-maintained hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN. In this case UTRAN should not include the IE "Default DPCH Offset Value".

If the IE "Default DPCH Offset Value" is included:

~~— UTRAN should:~~

~~— include the same value of IE "Default DPCH Offset Value" as the one currently being used by the UE.~~

~~NOTE: — The first radio link listed in the message may not be the reference radio link.~~

If the IE "Default DPCH Offset Value" is included, the UE shall:

- ignore the IE "Default DPCH Offset Value".



~~—The UE shall:~~

~~—on reception of a message where the value of IE "Default DPCH Offset Value" is not the same as the one currently being used by the UE:~~

~~—set the variable INVALID\_CONFIGURATION to true.~~

## 8.5.15 CFN calculation

The DOFF used in the formulas in this clause concerns the value of IE "Default DPCH Offset Value" received in the message that instructs the UE to enter CELL\_DCH state or to perform timing re-initialised hard handover.

### 8.5.15.1 Initialisation for CELL\_DCH state after state transition

When the UE receives any of the messages causing the UE to perform a state transition to CELL\_DCH, the UE shall set the CFN in relation to the SFN of the first radio link listed in the IE "Downlink information per radio link list" included in that message according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

### 8.5.15.2 Initialisation in CELL\_DCH state at hard handover

When the UE is in CELL\_DCH state and receives any of the messages causing the UE to perform a hard handover, the UE shall check the IE "Timing indication" in that message and:

- if IE "Timing indication" has the value "initialise" (i.e. timing re-initialised hard handover):
  - read SFN on target cell identified by the first radio link listed in the IE "Downlink information per radio link list" included in that message;
  - set the CFN according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

- if IE "Timing indication" has the value "maintain" (i.e. timing-maintained hard handover), the UE shall keep CFN with no change due to the hard handover, and only increase CFN (mod 256) by 1 every frame.

### 8.5.15.3 Initialisation for CELL\_FACH

When the UE performs cell selection, re-selection or changes to CELL\_FACH state the UE shall set CFN for all common or shared channels according to:

$$\text{CFN} = \text{SFN} \text{ mod } 256$$

where the formula gives the CFN of the downlink common or shared channel frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

After the initialisation, the CFN in the UE is increased (mod 256) by 1 every frame.

#### 8.5.15.4 Initialisation after intersystem handover to UTRAN

Upon inter RAT handover to UTRAN the UE shall, regardless of the value received within IE "Timing indication" (if received):

- read SFN on target cell and set the CFN according to the following formula:

- for FDD:

$$\text{CFN} = (\text{SFN} - (\text{DOFF} \text{ div } 38400)) \text{ mod } 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

- for TDD:

$$\text{CFN} = (\text{SFN} - \text{DOFF}) \text{ mod } 256.$$

#### 8.6.6.14 DPCH frame offset

If "DPCH frame offset" is included in a message that instructs the UE to enter CELL\_DCH state:

- UTRAN should:
  - if only one Radio Link is included in the message:
    - set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation:
$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}$$
      - where the IE values used are the Actual Values of the IEs as defined in clause 11.
  - if more than one Radio Link are included in the message:
    - set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation:
$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}_j$$
      - where  $j$  indicates the first radio link listed in the message and the IE values used are the Actual Values of the IEs as defined in clause 11.
- The UE shall:
  - on reception of a message where the above relation between "Default DPCH Offset Value" and "DPCH frame offset" is not respected:
    - set the variable INVALID\_CONFIGURATION to true.

If the IE "DPCH frame offset" is included the UE shall:

- use its value to determine the beginning of the DPCH frame.

### 8.6.6.21 Default DPCH Offset Value

The UE shall:

- if the IE "Default DPCH Offset Value" is included:
  - use its value to determine Frame Offset and Chip Offset from the SFN timing in a cell;
  - ~~— store the received value in variable DOFF.~~
- ~~— if the IE "Default DPCH Offset Value" is not included:~~
  - ~~— use the previously received value stored in variable DOFF. If there is no previously received value stored in DOFF, the UE should use the value 0.~~

~~After transition from CELL\_DCH state to other states, the UE shall:~~

- ~~— erase the value stored in variable DOFF.~~

### 10.3.6.16 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 <i>mode</i>				
>FDD				
>>Default DPCH Offset Value (DOFF)	MP		Integer (0..306688 by step of 512)	Number of chips=. 0 to 599 time 512 chips, see [10].
>TDD				
>>Default DPCH Offset Value (DOFF)	MP		Integer(0..7)	Number of frames; See [10]

## 10.3.6.21 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.62	
>>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 [26]
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.73	
>>DL channelisation code	MP	1 to <maxDPC H-DLchan>		For the purpose of physical channel mapping [27] the DPCHs are numbered, starting from DPCH number 1, according to the order that they are contained in this IE.
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.74	Default is the same scrambling code as for the Primary CPICH
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenum 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 10.3.6.85	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.76	
>>Closed loop timing adjustment mode	CH-TxDiversity Mode		Integer(1, 2)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	MP	1..<maxCC TrCH>		
>>>TFCS ID	MD		Integer(1..8)	Identity of this CCTrCh. Default value is 1
>>>Time info	MP		Time Info 10.3.6.83	
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.10	Default is the current Common timeslot info
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.32	Default is to use the old timeslots and codes.
>>>UL CCTrCH TPC List	MD	0..<maxCC TrCH>		UL CCTrCH identities for TPC commands associated

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

Condition	Explanation
<i>SF/2</i>	The information element is mandatory present if the UE has an active compressed mode pattern sequence, which is using compressed mode method "SF/2". Otherwise the IE is not needed.
<i>TxDiversity Mode</i>	This IE is mandatory present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Otherwise the IE is not needed.



### 13.4.4 ~~DOFF~~

~~This variable contains the default offset value in the UE. See [10] for details.~~

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
<del>Default DPCH Offset Value (DOFF)</del>	<del>OP</del>		<del>Default DPCH Offset Value 10.3.6.16</del>	<del>Cleared when entering UTRA RRC connected mode when not otherwise stated in the procedure. Cleared when leaving UTRA RRC connected mode.</del>

## CHANGE REQUEST

⌘ **25.331 CR 1285** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

<b>Title:</b>	⌘ Transition from CELL_DCH to CELL_FACH state		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 22 Feb. 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ In the current version of the specification it is not possible to send the IE "PRACH info" with dedicated signalling upon transition from CELL_DCH to CELL_FACH state. However, in section 8.2.2.2 it is stated: "If the [reconfiguration] 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." This statement may be misleading, since only the CPCH information can be sent with reconfiguration messages. The statement was probably forgotten when the IE "PRACH info" was removed from reconfiguration messages.
<b>Summary of change:</b>	⌘ The sentence is clarified to state that only CPCH info may be assigned with reconfiguration messages.
	<b>Isolated Impact Change Analysis.</b>  This change clarifies the reconfiguration procedure. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
<b>Consequences if not approved:</b>	⌘ Misleading statements in the specification

<b>Clauses affected:</b>	⌘ 8.2.2.2		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘ 25.331 v3.9.0, CR 1284	
<b>Other comments:</b>	⌘		

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

[...]

### 8.2.2.2 Initiation

To initiate any 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.
- if the reconfiguration procedure is simultaneous with SRNS relocation procedure:
  - include the IE "Downlink counter synchronisation info"; and
  - if ciphering and/or integrity protection are activated:
    - include new ciphering and/or integrity protection configuration information to be used after reconfiguration.
  - use the downlink DCCH using AM RLC.
- if transport channels are added, reconfigured or deleted in uplink and/or downlink:
  - set TFCS according to the new transport channel(s).
- if transport channels are added or deleted in uplink and/or downlink, and RB Mapping Info applicable to the new configuration has not been previously provided to the UE, the UTRAN should:
  - send the RB Mapping Info for the new configuration.

In the Radio Bearer Reconfiguration procedure UTRAN may indicate that uplink transmission shall be stopped or continued on certain radio bearers. Uplink transmission on a signalling radio bearer used by the RRC signalling (signalling radio bearer RB1 or signalling radio bearer RB2) should not be stopped.

NOTE 1: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure", even if UTRAN does not require the reconfiguration of any RB. In these cases, UTRAN may include only the IE "RB identity" within the IE "RB information to reconfigure".

NOTE 2: The RADIO BEARER RECONFIGURATION message always includes the IE "Downlink information per radio link list", even if UTRAN does not require the reconfiguration of any RL. In these cases, UTRAN may re-send the currently assigned values for the mandatory IEs included within the IE "Downlink information per radio link list ". Moreover, the RADIO BEARER RECONFIGURATION message always includes the IE "Primary CPICH Info" (FDD) or IE "Primary CCPCH Info" (TDD). This implies that in case UTRAN applies the RADIO BEARER RECONFIGURATION message to move the UE to CELL\_FACH state, it has to indicate a cell. However, UTRAN may indicate any cell; the UE anyhow performs cell selection and notifies UTRAN if it selects another cell than indicated by UTRAN.

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

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

If the message is used to initiate a transition from CELL\_DCH to CELL\_FACH state, the UTRAN may assign a common channel CPICH configuration to be used in that cell by the UE. UTRAN may also assign a of a given cell and C-RNTI to be used in that cell to by the UE.

[...]

CR-Form-v5

## CHANGE REQUEST

⌘ **25.331 CR 1284** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

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

<b>Title:</b>	⌘ Transition from CELL_DCH to CELL_FACH state		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 18 Feb. 2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>R96</b> (Release 1996)	<b>2</b> (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R97</b> (Release 1997)	
	<b>B</b> (addition of feature),	<b>R98</b> (Release 1998)	
	<b>C</b> (functional modification of feature)	<b>R99</b> (Release 1999)	
	<b>D</b> (editorial modification)	<b>REL-4</b> (Release 4)	
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>REL-5</b> (Release 5)	

<b>Reason for change:</b>	⌘ In the current version of the specification it is not possible to send the IE "PRACH info" with dedicated signalling upon transition from CELL_DCH to CELL_FACH state. However, in section 8.2.2.2 it is stated: "If the [reconfiguration] 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." This statement may be misleading, since only the CPCH information can be sent with reconfiguration messages. The statement was probably forgotten when the IE "PRACH info" was removed from reconfiguration messages.
<b>Summary of change:</b>	⌘ The sentence is clarified to state that only CPCH info may be assigned with reconfiguration messages.
	<b>Isolated Impact Change Analysis.</b>
	This change clarifies the reconfiguration procedure. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.
<b>Consequences if not approved:</b>	⌘ Misleading statements in the specification

<b>Clauses affected:</b>	⌘ 8.2.2.2		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.331 v4.3.0, CR 1285	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
<b>Other comments:</b>	⌘		

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

[...]

### 8.2.2.2 Initiation

To initiate any 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.
- if the reconfiguration procedure is simultaneous with SRNS relocation procedure:
  - include the IE "Downlink counter synchronisation info"; and
  - if ciphering and/or integrity protection are activated:
    - include new ciphering and/or integrity protection configuration information to be used after reconfiguration.
  - use the downlink DCCH using AM RLC.
- if transport channels are added, reconfigured or deleted in uplink and/or downlink:
  - set TFCS according to the new transport channel(s).
- if transport channels are added or deleted in uplink and/or downlink, and RB Mapping Info applicable to the new configuration has not been previously provided to the UE, the UTRAN should:
  - send the RB Mapping Info for the new configuration.

In the Radio Bearer Reconfiguration procedure UTRAN may indicate that uplink transmission shall be stopped or continued on certain radio bearers. Uplink transmission on a signalling radio bearer used by the RRC signalling (signalling radio bearer RB1 or signalling radio bearer RB2) should not be stopped.

NOTE 1: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure", even if UTRAN does not require the reconfiguration of any RB. In these cases, UTRAN may include only the IE "RB identity" within the IE "RB information to reconfigure".



NOTE 2: The RADIO BEARER RECONFIGURATION message always includes the IE "Downlink information per radio link list", even if UTRAN does not require the reconfiguration of any RL. In these cases, UTRAN may re-send the currently assigned values for the mandatory IEs included within the IE "Downlink information per radio link list ". Moreover, the RADIO BEARER RECONFIGURATION message always includes the IE "Primary CPICH Info" (FDD) or IE "Primary CCPCH Info" (TDD). This implies that in case UTRAN applies the RADIO BEARER RECONFIGURATION message to move the UE to CELL\_FACH state, it has to indicate a cell. However, UTRAN may indicate any cell; the UE anyhow performs cell selection and notifies UTRAN if it selects another cell than indicated by UTRAN.

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

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

If the message is used to initiate a transition from CELL\_DCH to CELL\_FACH state, the UTRAN may assign a common channel CPICH configuration to be used in that cell by the UE. UTRAN may also assign a of a given cell and C-RNTI to be used in that cell to by the UE.

[...]

## CHANGE REQUEST

⌘ **25.331 CR 1281** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Clarifications on Event 1D		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 22 Feb. 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use <u>one</u> of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

**Reason for change:** ⌘ 1. It is not clear if event 1D "Change of best cell" applies only to cells that are included in the active set or also to other cells. Note: Event 1d is only applicable to the CELL\_DCH state.  
2. The statement: if the equations have been fulfilled during the time "Time to trigger" is ambiguous, since it may mean that the equations do not need to be fulfilled for all that time. The same applies to other events.  
3. The statement: Upon transition to CELL\_DCH the UE shall... is strange for events that are only applicable to CELL\_DCH state. The same can be said for other events.  
4. In the informative sections on event-triggered periodic measurement reporting is incorrectly stated: If the reporting interval is set to zero event-triggered measurement reporting shall not be applied

**Summary of change:** ⌘ 1. It is clarified that event 1D also applies to all intra-frequency cells, not only to those in the active set.  
2. The statement is replaced with: if the equations have been fulfilled for a time period indicated by "Time to trigger". This is also corrected for other measurements  
3. It is clarified that the event is applicable only to CELL\_DCH state. This is also corrected in the other cases.  
4. The statement is corrected in: If the reporting interval is set to zero event-triggered **periodic** measurement reporting shall not be applied

### Isolated Impact Change Analysis.

This change clarifies the event 1D and other measurement procedures. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.

**Consequences if** ⌘ Unnecessary complexity in UE implementation.

**not approved:**

**Clauses affected:** ⌘ 14.1.2.1, 14.1.2.2, 14.1.2.3, 14.1.2.4, 14.1.2.4, 14.1.2.5, 14.1.2.6, 14.1.3.2, 14.1.3.3, 14.1.4.1, 14.1.4.2, 14.2.1.1, 14.2.1.2, 14.3.1.1, 14.3.1.2, 14.3.1.3, 14.3.1.4

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v3.9.0, CR 1280r2  
 Test specifications  
 O&M Specifications

**Other comments:** ⌘ Changes with respect to the previous version are highlighted

### How to create CRs using this form:

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[...]

#### 14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When an intra-frequency measurement configuring event 1a is set up, the UE shall:

- create a variable TRIGGERED\_1A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1A is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell; and
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT.
  - if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT:
    - if "Reporting interval" for this event is not equal to 0:
      - if the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT is set to FALSE:
        - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to TRUE;
      - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT to 1.
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
      - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT that are not part of the active set in descending order according to the configured measurement quantity;
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
    - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT, and not included in the current active set:
    - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
      - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED\_1A\_EVENT;
      - start a timer with the value of "Reporting interval" for this event;
      - send a measurement report with IEs set as below:

- set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
- include in "cell measurement event results" all entries of the variable TRIGGERED\_1A\_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity;
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- if "sent reports" in variable TRIGGERED\_1A\_EVENT is greater than "Amount of reporting" for all entries:
  - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
    - if no entry in the variable TRIGGERED\_1A\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
      - stop the reporting interval timer;
      - set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED\_1A\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.2 Reporting event 1B: A primary CPICH leaves the reporting range

When event 1B is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT that are part of the active set;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

- move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1B\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1B\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.3 Reporting event 1C: A non-active primary CPICH becomes better than an active primary CPICH

When event 1C is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:
    - if the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT is set to FALSE:
      - start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to TRUE.
    - set "sent reports" for that primary CPICH in the variable TRIGGERED\_1C\_EVENT to 1.
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT, and not included in the current active set:

- if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for that primary CPICH, in "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
  - increment the stored counter "sent reports" for all CPICH in "cell triggered" in variable TRIGGERED\_1C\_EVENT;
  - start a timer with the value of "Reporting interval" for this event;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
    - include in "cell measurement event results" all entries of the variable TRIGGERED\_1C\_EVENT with value of IE "sent report" smaller than value of "Amount of reporting" and that are not part of the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- if "sent reports" in variable TRIGGERED\_1C\_EVENT is greater than "Amount of reporting" for all entries:
  - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
  - if no entry in the variable TRIGGERED\_1C\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
    - stop the reporting interval timer;
    - set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.4 Reporting event 1D: Change of best cell

When event 1D is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger":
    - set "best cell" in the variable BEST\_CELL\_1D\_EVENT to that primary CPICH that triggered the event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.

- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

**Note: Event 1D can be triggered by an active or by a non-active CPICH.**

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- set "best cell" in the variable BEST\_CELL\_1D\_EVENT to the best cell of the primary CPICHs included in the active set.

Equation 1 (Triggering condition for pathloss)

$$M_{NotBest} \leq M_{Best} - H_{1d} / 2,$$

Equation 2 (Triggering condition for all the other measurement quantities)

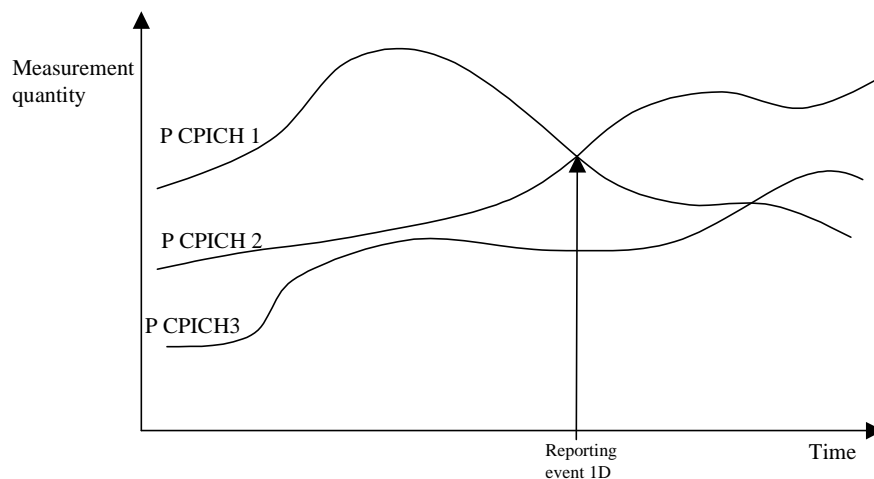
$$M_{NotBest} \geq M_{Best} + H_{1d} / 2,$$

The variables in the formula are defined as follows:

$M_{NotBest}$  is the measurement result of a cell not stored in "best cell" in the variable BEST\_CELL\_1D\_EVENT.

$M_{Best}$  is the measurement result of the cell stored in "best cell" in variable BEST\_CELL\_1D\_EVENT.

$H_{1d}$  is the hysteresis parameter for the event 1d.



**Figure 14.1.2.4-1: A primary CPICH becomes better than the previously best primary CPICH**

[...]

#### 14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold

When event 1E is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT:
- send a measurement report with IEs set as below:



- set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1e"; and
- include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT that are not part of the active set in descending order according to the configured measurement quantity;
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1E\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - remove that primary CPICH and sent reports from "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells in the current active set that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1e into the "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.6 Reporting event 1F: A Primary CPICH becomes worse than an absolute threshold

When event 1F is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency event measurement results": "Intrafrequency event identity" to "1f"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT that are part of the active set in descending order according to the configured measurement quantity;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
    - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1F\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - remove that primary CPICH from "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1f into the "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

### 14.1.3.2 Reporting event 1H: Timeslot ISCP below a certain threshold (TDD)

When event 1h is configured in the UE, the UE shall:

- if equation 1 is fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
  - include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED\_1H\_EVENT;
  - send a measurement report with the IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and in "cell measurement event results" the "Cell parameters ID" of the P-CCPCH that triggered the report;
    - include in "Cell measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT.
- if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
  - increment the stored counter "sent reports" for that primary CCPCH in "cells triggered" in variable TRIGGERED\_1H\_EVENT;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;
    - set in "measured results " the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT and "additional measured results" according to subclause 8.4.2.
- if Equation 2 below is fulfilled for a primary CCPCH:
  - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1H\_EVENT.

The UE shall use the equations below for evaluation of reporting event 1h:

Equation 1

[...]

### 14.1.3.3 Reporting event 1I: Timeslot ISCP above a certain threshold (TDD)

When event 1i is configured in the UE, the UE shall:

- if equation 1 is fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
  - include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED\_1I\_EVENT;
  - send a measurement report with the IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1i" and in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;

- include in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1I\_EVENT and "additional measured results" according to 8.4.2.
- if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
  - if Equation 2 below is fulfilled for a primary CCPCH:
    - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
      - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1I\_EVENT.

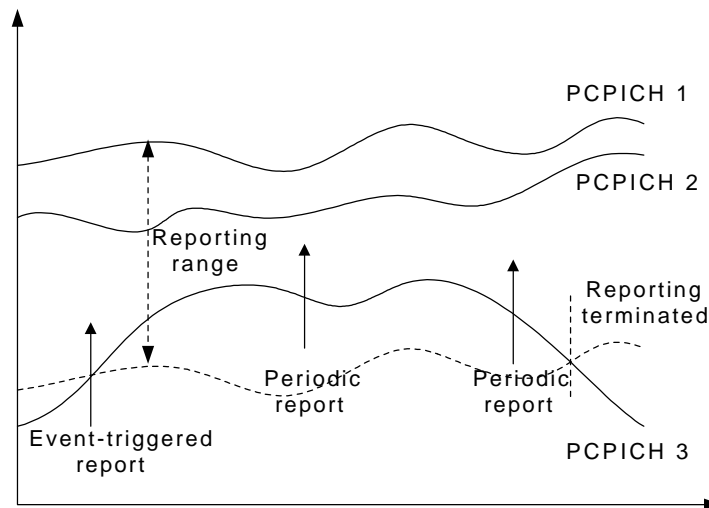
The UE shall use the equation below for evaluation of reporting event 1i:

Equation 1

[...]

## 14.1.4 Event-triggered periodic intra-frequency measurement reports (informative)

### 14.1.4.1 Cell addition failure (FDD only)



**Figure 14.1.4.1-1: Periodic reporting triggered by event 1A**

When a cell enters the reporting range and triggers event 1A, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in an update of the active set. However, in some situations the UTRAN may be unable to add a strong cell to the active set typically due to capacity shortage for example.

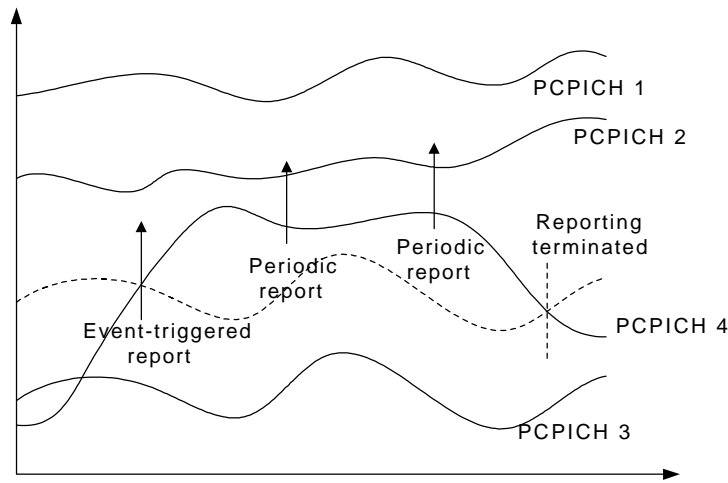
The UE shall continue reporting after the initial report by reverting to periodical measurement reporting if the reported cell is not added to the active set. This is illustrated in Figure 14.1.4.1-1. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the reporting range.

Event-triggered periodic measurement reporting shall be terminated if:

- there are no longer any monitored cell(s) within the reporting range; or
- the UTRAN has added cells to the active set so that it includes the maximum number of cells (defined by the **reporting deactivation threshold** parameter), which are allowed for event 1A to be triggered; or
- the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the **amount of reporting** parameter).

The reporting period is assigned by the UTRAN (with the **Reporting interval** parameter). If the reporting interval is set to zero event-triggered **periodic** measurement reporting shall not be applied.

#### 14.1.4.2 Cell replacement failure (FDD only)



**Figure 14.1.4.1-2: Periodic reporting triggered by event 1C**

When a cell enters the replacement range and triggers event 1C, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in the replacement of the weakest active cell. If the UTRAN is unable to replace the cell due to for example capacity shortage, it is beneficial to receive continuous reports in this case as well.

The UE shall revert to periodical measurement reporting if the UTRAN does not update the active set after the transmission of the measurement report. This is illustrated in Figure 14.1.4.1-2. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the replacement range.

Event-triggered periodic measurement reporting shall be terminated if:

- there are no longer any monitored cell(s) within the replacement range; or
- the UTRAN has removed cells from the active set so that there are no longer the minimum amount of active cells for event 1C to be triggered (as defined by the **replacement activation threshold** parameter); or
- the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the **amount of reporting** parameter).

The reporting period is assigned by the UTRAN (with the **Reporting interval** parameter). If the reporting interval is set to zero, event-triggered **periodic** measurement reporting shall not be applied.

[...]

#### 14.2.1.1 Event 2a: Change of best frequency.

When event 2a is configured in the UE within a measurement, the UE shall:

- when the measurement is initiated or resumed:
  - store the used frequency in the variable BEST\_FREQUENCY\_2A\_EVENT.
- if equation 1 below has been fulfilled **for a time period indicated by** during the time "Time to trigger" for a frequency included for that event and which is not stored in the variable BEST\_FREQUENCY\_2A\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "inter-frequency measurement event results":
      - "inter-frequency event identity" to "2a"; and

- "Frequency info" to the frequency that triggered the event; and
- "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cells parameters ID" of the best primary CCPCH for TDD cells on that frequency.
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
- update the variable BEST\_FREQUENCY\_2A\_EVENT with that frequency.

Equation 1:

[...]

#### 14.2.1.2 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.

When an inter-frequency measurement configuring event 2b is set up, the UE shall:

- create a variable TRIGGERED\_2B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 2b is configured in the UE within a measurement, the UE shall:

- if equations 1 and 2 below have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:
  - if any of those non-used frequency is not stored in the variable TRIGGERED\_2B\_EVENT:
    - store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED\_2B\_EVENT into that variable;
    - send a measurement report with IEs set as below:
      - set in "inter-frequency measurement event results":
        - "inter-frequency event identity" to "2b"; and
        - for each non-used frequency that triggered the event, beginning with the best frequency:
          - "Frequency info" to that non-used frequency; and
          - "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency.
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED\_2B\_EVENT:
    - remove that non-used frequency from the variable TRIGGERED\_2B\_EVENT.
  - if equation 4 below is fulfilled for the used frequency:
    - clear the variable TRIGGERED\_2B\_EVENT.

Triggering conditions:

Equation 1:

[...]

### 14.3.1.1 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.

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

- create a variable TRIGGERED\_3A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equations 1 and 2 below have both been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED\_3A\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable.
      - send a measurement report with IEs set as below:
        - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - "measured results" and possible "additional measured results" according to 8.4.2.
    - if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3A\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3A\_EVENT.
    - if equation 3 is fulfilled for the used frequency in UTRAN:
      - clear the variable TRIGGERED\_3A\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equations 1 and 2 below have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCNs is not stored into the variable TRIGGERED\_3A\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - "measured results" and possible "additional measured results" according to 8.4.2.
      - if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3A\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3A\_EVENT.
      - if equation 3 is fulfilled for the used frequency in UTRAN:
        - clear the variable TRIGGERED\_3A\_EVENT.

Triggering conditions:

Equation 1:

[...]

### 14.3.1.2 Event 3b: The estimated quality of other system is below a certain threshold

When an inter-RAT measurement configuring event 3b is set up, the UE shall:

- create a variable TRIGGERED\_3B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3b is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3B\_EVENT:
      - store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3B\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3B\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3B\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.;
    - if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3B\_EVENT:
      - remove that BCCH ARFCN from the variable TRIGGERED\_3B\_EVENT.

Triggering condition:

Equation 1:

[...]

### 14.3.1.3 Event 3c: The estimated quality of other system is above a certain threshold

When an inter-RAT measurement configuring event 3c is set up, the UE shall:

- create a variable TRIGGERED\_3C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3c is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3C\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3C\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3C\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3C\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
      - if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3C\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3C\_EVENT.

Triggering condition:

Equation 1:

[...]

### 14.3.1.4 Event 3d: Change of best cell in other system

When an inter-RAT measurement configuring event 3d is set up, the UE shall:

- create a variable BEST\_CELL\_3D\_EVENT related to that measurement;



- delete this variable when the measurement is released.

When event 3d is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - when the measurement is initiated or resumed:
    - store in the variable BEST\_CELL\_3D\_EVENT the Inter-RAT cell id of the GSM cell that has the best measured quantity among the GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement
    - send a measurement report with IE set as below:
      - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell that is stored in the variable BEST\_CELL\_3D\_EVENT;
      - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
  - if equation 1 has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for a GSM cell that is different from the one stored in BEST\_CELL\_3D\_EVENT and that matches any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - store the Inter-RAT cell id of that GSM cell in the variable BEST\_CELL\_3D\_EVENT;
    - send a measurement report with IEs set as below:
      - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell is now stored in BEST\_CELL\_3D\_EVENT;
      - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - when the measurement is initiated or resumed:
      - store in the variable BEST\_CELL\_3D\_EVENT the BCCH ARFCN of the GSM cell that has the best measured quantity among the BCCH ARFCNs considered in that inter-RAT measurement;
      - send a measurement report with IE set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCH ARFCN that is stored in the variable BEST\_CELL\_3D\_EVENT;
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one of the BCCH ARFCNs considered in that inter-RAT measurement and different from the one stored in BEST\_CELL\_3D\_EVENT:
      - store the BCCH ARFCN of that GSM cell in the variable BEST\_CELL\_3D\_EVENT;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCCH ARFCN that is now stored in the variable BEST\_CELL\_3D\_EVENT;
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.

Equation 1:

[...]

## CHANGE REQUEST

⌘ **25.331 CR 1280** ⌘ rev **r2** ⌘ Current version: **3.9.0** ⌘

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

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

<b>Title:</b>	⌘ Clarifications on Event 1D		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 18 Feb. 2002
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

**Reason for change:** ⌘

1. It is not clear if event 1D "Change of best cell" applies only to cells that are included in the active set or also to other cells. Note: Event 1d is only applicable to the CELL\_DCH state.
2. The statement: if the equations have been fulfilled during the time "Time to trigger" is ambiguous, since it may mean that the equations do not need to be fulfilled for all that time. The same applies to other events.
3. The statement: Upon transition to CELL\_DCH the UE shall... is strange for events that are only applicable to CELL\_DCH state. The same can be said for other events.
4. In the informative sections on event-triggered periodic measurement reporting is incorrectly stated: If the reporting interval is set to zero event-triggered measurement reporting shall not be applied

**Summary of change:** ⌘

1. It is clarified that event 1D also applies to all intra-frequency cells, not only to those in the active set.
2. The statement is replaced with: if the equations have been fulfilled for a time period indicated by "Time to trigger". This is also corrected for other measurements
3. It is clarified that the event is applicable only to CELL\_DCH state. This is also corrected in the other cases.
4. The statement is corrected in: If the reporting interval is set to zero event-triggered **periodic** measurement reporting shall not be applied

**Isolated Impact Change Analysis.**

This change clarifies the event 1D and other measurement procedures. It would not affect implementations behaving like indicated in the CR, it would affect implementations supporting the corrected functionality otherwise.

**Consequences if** ⌘ Unnecessary complexity in UE implementation.

**not approved:**

**Clauses affected:** ⌘ 14.1.2.1, 14.1.2.2, 14.1.2.3, 14.1.2.4, 14.1.2.4, 14.1.2.5, 14.1.2.6, 14.1.3.2, 14.1.3.3, 14.1.4.1, 14.1.4.2, 14.2.1.1, 14.2.1.2, 14.3.1.1, 14.3.1.2, 14.3.1.3, 14.3.1.4

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v4.3.0, CR 1281  
 Test specifications  
 O&M Specifications

**Other comments:** ⌘ Changes with respect to the previous version are highlighted

#### 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](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

[...]

#### 14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When an intra-frequency measurement configuring event 1a is set up, the UE shall:

- create a variable TRIGGERED\_1A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1A is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell; and
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:
    - if the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT is set to FALSE:
      - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to TRUE;
    - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT to 1.
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT that are not part of the active set in descending order according to the configured measurement quantity;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT, and not included in the current active set:
    - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
      - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED\_1A\_EVENT;
      - start a timer with the value of "Reporting interval" for this event;
      - send a measurement report with IEs set as below:

- set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
- include in "cell measurement event results" all entries of the variable TRIGGERED\_1A\_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity;
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- if "sent reports" in variable TRIGGERED\_1A\_EVENT is greater than "Amount of reporting" for all entries:
  - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
    - if no entry in the variable TRIGGERED\_1A\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
      - stop the reporting interval timer;
      - set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED\_1A\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.2 Reporting event 1B: A primary CPICH leaves the reporting range

When event 1B is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT that are part of the active set;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

- move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1B\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1B\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.3 Reporting event 1C: A non-active primary CPICH becomes better than an active primary CPICH

When event 1C is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:
    - if the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT is set to FALSE:
      - start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to TRUE.
    - set "sent reports" for that primary CPICH in the variable TRIGGERED\_1C\_EVENT to 1.
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT, and not included in the current active set:

- if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for that primary CPICH, in "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
  - increment the stored counter "sent reports" for all CPICH in "cell triggered" in variable TRIGGERED\_1C\_EVENT;
  - start a timer with the value of "Reporting interval" for this event;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
    - include in "cell measurement event results" all entries of the variable TRIGGERED\_1C\_EVENT with value of IE "sent report" smaller than value of "Amount of reporting" and that are not part of the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- if "sent reports" in variable TRIGGERED\_1C\_EVENT is greater than "Amount of reporting" for all entries:
  - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
  - if no entry in the variable TRIGGERED\_1C\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
    - stop the reporting interval timer;
    - set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.4 Reporting event 1D: Change of best cell

When event 1D is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger":
    - set "best cell" in the variable BEST\_CELL\_1D\_EVENT to that primary CPICH that triggered the event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.

- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

**Note: Event 1D can be triggered by an active or by a non-active CPICH.**

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- set "best cell" in the variable BEST\_CELL\_1D\_EVENT to the best cell of the primary CPICHs included in the active set.

Equation 1 (Triggering condition for pathloss)

$$M_{NotBest} \leq M_{Best} - H_{1d} / 2,$$

Equation 2 (Triggering condition for all the other measurement quantities)

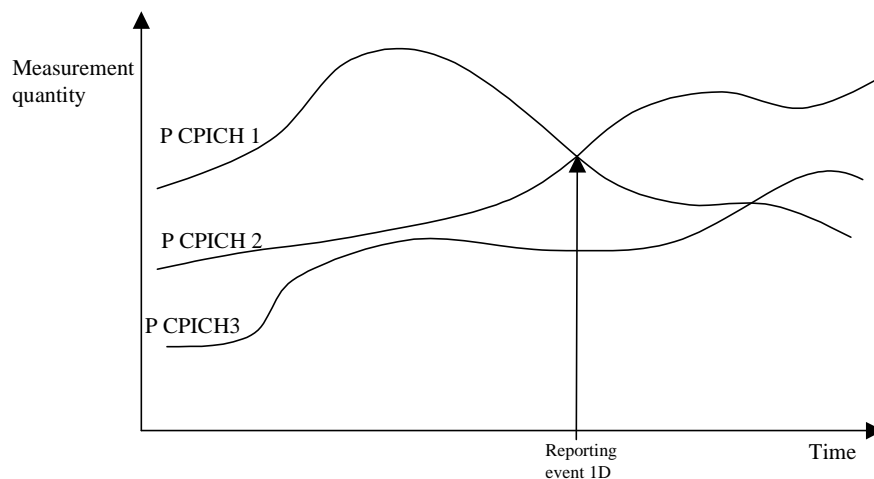
$$M_{NotBest} \geq M_{Best} + H_{1d} / 2,$$

The variables in the formula are defined as follows:

$M_{NotBest}$  is the measurement result of a cell not stored in "best cell" in the variable BEST\_CELL\_1D\_EVENT.

$M_{Best}$  is the measurement result of the cell stored in "best cell" in variable BEST\_CELL\_1D\_EVENT.

$H_{1d}$  is the hysteresis parameter for the event 1d.



**Figure 14.1.2.4-1: A primary CPICH becomes better than the previously best primary CPICH**

[...]

#### 14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold

When event 1E is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT:
- send a measurement report with IEs set as below:



- set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1e"; and
- include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT that are not part of the active set in descending order according to the configured measurement quantity;
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1E\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - remove that primary CPICH and sent reports from "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells in the current active set that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1e into the "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

#### 14.1.2.6 Reporting event 1F: A Primary CPICH becomes worse than an absolute threshold

When event 1F is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if the equations have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency event measurement results": "Intrafrequency event identity" to "1f"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT that are part of the active set in descending order according to the configured measurement quantity;
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
    - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1F\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - remove that primary CPICH from "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

**This event is only applicable to the CELL\_DCH state.** Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1f into the "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Equation 1 (Triggering condition for pathloss)

[...]

### 14.1.3.2 Reporting event 1H: Timeslot ISCP below a certain threshold (TDD)

When event 1h is configured in the UE, the UE shall:

- if equation 1 is fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
  - include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED\_1H\_EVENT;
  - send a measurement report with the IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and in "cell measurement event results" the "Cell parameters ID" of the P-CCPCH that triggered the report;
    - include in "Cell measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT.
- if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
  - increment the stored counter "sent reports" for that primary CCPCH in "cells triggered" in variable TRIGGERED\_1H\_EVENT;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;
    - set in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT and "additional measured results" according to subclause 8.4.2.
- if Equation 2 below is fulfilled for a primary CCPCH:
  - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1H\_EVENT:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1H\_EVENT.

The UE shall use the equations below for evaluation of reporting event 1h:

Equation 1

[...]

### 14.1.3.3 Reporting event 1I: Timeslot ISCP above a certain threshold (TDD)

When event 1i is configured in the UE, the UE shall:

- if equation 1 is fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
  - include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED\_1I\_EVENT;
  - send a measurement report with the IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1i" and in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;

- include in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1I\_EVENT and "additional measured results" according to 8.4.2.
- if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
  - if Equation 2 below is fulfilled for a primary CCPCH:
    - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1I\_EVENT:
      - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1I\_EVENT.

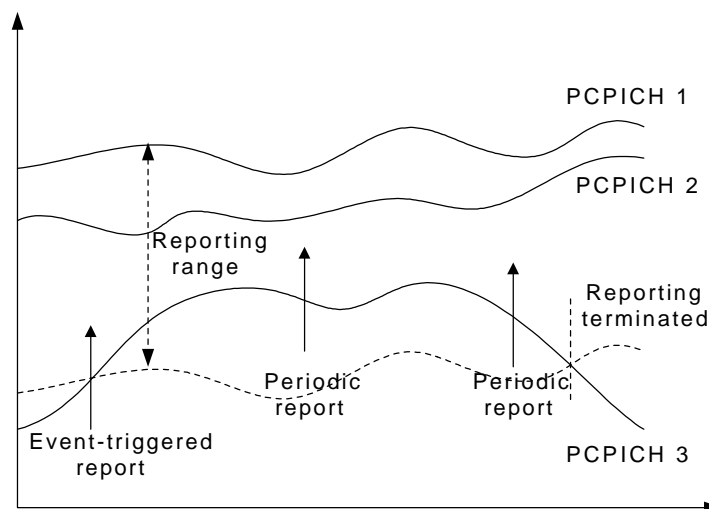
The UE shall use the equation below for evaluation of reporting event 1i:

Equation 1

[...]

## 14.1.4 Event-triggered periodic intra-frequency measurement reports (informative)

### 14.1.4.1 Cell addition failure (FDD only)



**Figure 14.1.4.1-1: Periodic reporting triggered by event 1A**

When a cell enters the reporting range and triggers event 1A, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in an update of the active set. However, in some situations the UTRAN may be unable to add a strong cell to the active set typically due to capacity shortage for example.

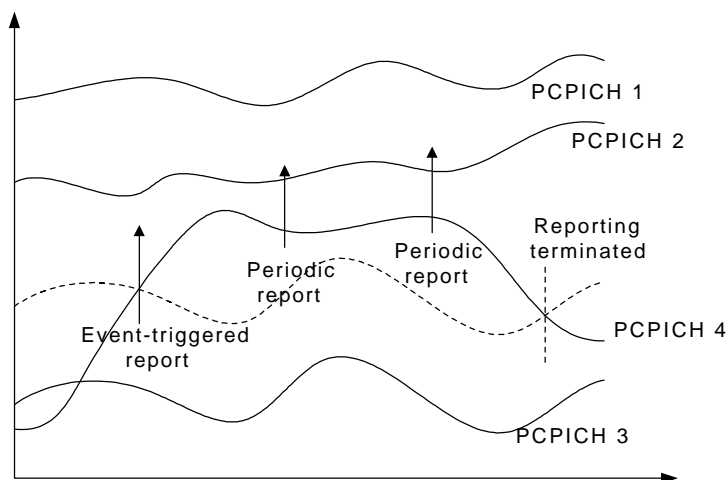
The UE shall continue reporting after the initial report by reverting to periodical measurement reporting if the reported cell is not added to the active set. This is illustrated in Figure 14.1.4.1-1. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the reporting range.

Event-triggered periodic measurement reporting shall be terminated if:

- there are no longer any monitored cell(s) within the reporting range; or
- the UTRAN has added cells to the active set so that it includes the maximum number of cells (defined by the **reporting deactivation threshold** parameter), which are allowed for event 1A to be triggered; or
- the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the **amount of reporting** parameter).

The reporting period is assigned by the UTRAN (with the **Reporting interval** parameter). If the reporting interval is set to zero event-triggered **periodic** measurement reporting shall not be applied.

#### 14.1.4.2 Cell replacement failure (FDD only)



**Figure 14.1.4.1-2: Periodic reporting triggered by event 1C**

When a cell enters the replacement range and triggers event 1C, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in the replacement of the weakest active cell. If the UTRAN is unable to replace the cell due to for example capacity shortage, it is beneficial to receive continuous reports in this case as well.

The UE shall revert to periodical measurement reporting if the UTRAN does not update the active set after the transmission of the measurement report. This is illustrated in Figure 14.1.4.1-2. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals. The reports shall include reporting information of the cells in the current active set and of the monitored cell(s) in the replacement range.

Event-triggered periodic measurement reporting shall be terminated if:

- there are no longer any monitored cell(s) within the replacement range; or
- the UTRAN has removed cells from the active set so that there are no longer the minimum amount of active cells for event 1C to be triggered (as defined by the **replacement activation threshold** parameter); or
- the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the **amount of reporting** parameter).

The reporting period is assigned by the UTRAN (with the **Reporting interval** parameter). If the reporting interval is set to zero, event-triggered **periodic** measurement reporting shall not be applied.

[...]

#### 14.2.1.1 Event 2a: Change of best frequency.

When event 2a is configured in the UE within a measurement, the UE shall:

- when the measurement is initiated or resumed:
  - store the used frequency in the variable BEST\_FREQUENCY\_2A\_EVENT.
- if equation 1 below has been fulfilled **for a time period indicated by** during the time "Time to trigger" for a frequency included for that event and which is not stored in the variable BEST\_FREQUENCY\_2A\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "inter-frequency measurement event results":
      - "inter-frequency event identity" to "2a"; and

- "Frequency info" to the frequency that triggered the event; and
- "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cells parameters ID" of the best primary CCPCH for TDD cells on that frequency.
- set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
- update the variable BEST\_FREQUENCY\_2A\_EVENT with that frequency.

Equation 1:

[...]

#### 14.2.1.2 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.

When an inter-frequency measurement configuring event 2b is set up, the UE shall:

- create a variable TRIGGERED\_2B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 2b is configured in the UE within a measurement, the UE shall:

- if equations 1 and 2 below have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:
  - if any of those non-used frequency is not stored in the variable TRIGGERED\_2B\_EVENT:
    - store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED\_2B\_EVENT into that variable;
    - send a measurement report with IEs set as below:
      - set in "inter-frequency measurement event results":
        - "inter-frequency event identity" to "2b"; and
        - for each non-used frequency that triggered the event, beginning with the best frequency:
          - "Frequency info" to that non-used frequency; and
          - "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency.
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED\_2B\_EVENT:
    - remove that non-used frequency from the variable TRIGGERED\_2B\_EVENT.
  - if equation 4 below is fulfilled for the used frequency:
    - clear the variable TRIGGERED\_2B\_EVENT.

Triggering conditions:

Equation 1:

[...]

### 14.3.1.1 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.

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

- create a variable TRIGGERED\_3A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equations 1 and 2 below have both been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED\_3A\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable.
      - send a measurement report with IEs set as below:
        - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - "measured results" and possible "additional measured results" according to 8.4.2.
    - if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3A\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3A\_EVENT.
    - if equation 3 is fulfilled for the used frequency in UTRAN:
      - clear the variable TRIGGERED\_3A\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equations 1 and 2 below have been fulfilled **for a time period indicated by** ~~during the time~~ "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCNs is not stored into the variable TRIGGERED\_3A\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - "measured results" and possible "additional measured results" according to 8.4.2.
      - if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3A\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3A\_EVENT.
      - if equation 3 is fulfilled for the used frequency in UTRAN:
        - clear the variable TRIGGERED\_3A\_EVENT.

Triggering conditions:

Equation 1:

[...]

### 14.3.1.2 Event 3b: The estimated quality of other system is below a certain threshold

When an inter-RAT measurement configuring event 3b is set up, the UE shall:

- create a variable TRIGGERED\_3B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3b is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3B\_EVENT:
      - store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3B\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3B\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3B\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.;
    - if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3B\_EVENT:
      - remove that BCCH ARFCN from the variable TRIGGERED\_3B\_EVENT.

Triggering condition:

Equation 1:

[...]

### 14.3.1.3 Event 3c: The estimated quality of other system is above a certain threshold

When an inter-RAT measurement configuring event 3c is set up, the UE shall:

- create a variable TRIGGERED\_3C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3c is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3C\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3C\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3C\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3C\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
      - if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3C\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3C\_EVENT.

Triggering condition:

Equation 1:

[...]

### 14.3.1.4 Event 3d: Change of best cell in other system

When an inter-RAT measurement configuring event 3d is set up, the UE shall:

- create a variable BEST\_CELL\_3D\_EVENT related to that measurement;



- delete this variable when the measurement is released.

When event 3d is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - when the measurement is initiated or resumed:
    - store in the variable BEST\_CELL\_3D\_EVENT the Inter-RAT cell id of the GSM cell that has the best measured quantity among the GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement
    - send a measurement report with IE set as below:
      - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell that is stored in the variable BEST\_CELL\_3D\_EVENT;
      - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
  - if equation 1 has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for a GSM cell that is different from the one stored in BEST\_CELL\_3D\_EVENT and that matches any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - store the Inter-RAT cell id of that GSM cell in the variable BEST\_CELL\_3D\_EVENT;
    - send a measurement report with IEs set as below:
      - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell is now stored in BEST\_CELL\_3D\_EVENT;
      - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - when the measurement is initiated or resumed:
      - store in the variable BEST\_CELL\_3D\_EVENT the BCCH ARFCN of the GSM cell that has the best measured quantity among the BCCH ARFCNs considered in that inter-RAT measurement;
      - send a measurement report with IE set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCH ARFCN that is stored in the variable BEST\_CELL\_3D\_EVENT;
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 1 below has been fulfilled **for a time period indicated by** ~~during the time~~ "time to trigger" for one of the BCCH ARFCNs considered in that inter-RAT measurement and different from the one stored in BEST\_CELL\_3D\_EVENT:
      - store the BCCH ARFCN of that GSM cell in the variable BEST\_CELL\_3D\_EVENT;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCCH ARFCN that is now stored in the variable BEST\_CELL\_3D\_EVENT;
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.

Equation 1:

[...]

## CHANGE REQUEST

⌘ **25.331** CR **1279** ⌘ ev **-** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Measurement related corrections		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2002-02-22
<b>Category:</b>	⌘ <b>A</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b>	⌘ REL-4 Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ Ambiguous measurement handling need to be corrected.
<b>Summary of change:</b>	⌘ <del>8.4.1.3: It is not clear what the UE shall do when receiving a measurement control message when in CELL_FACH state regarding intra frequency/inter frequency/inter-RAT measurements. This change aims at clarifying what the UE shall do.</del> - In Chapter 14: - For event 1a, the way the hysteresis is used in formula 4 of section 14.1.2.1 was erroneously changed between version 3.8.0 and 3.9.0 (CR 1155r1, Tdoc R2-012708), and this is corrected back. - The Cell individual offset is introduced in all formula, and in the text, it is clarified whether the CIO shall be used by the UE or not when ranking the cells . - It is clarified for all 1x events that the variables TRIGGERED_1X_EVENT related to one measurement are created/released when the measurements are created/released. - For the events where it had not been done, the dimension of the variables used in the formula is specified. For events 1c, 1d, 1e and 1f, a logarithm is introduced in the formula to make those consistent with the ones for event .  <u>Isolated impact analysis:</u> This CR has isolated impact on measurement related functionality.
<b>Consequences if not approved:</b>	⌘ Unclear description of the way measurements shall be handled that could lead to unexpected UE behaviour.

<b>Clauses affected:</b>	⌘ 8.4.1.3, 14.1.2.1, 14.1.2.2, 14.1.2.3, 14.1.2.4, 14.1.2.5, 14.1.2.6, 14.3.1.1, 14.3.1.2, 14.3.1.3
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<b>Other specs Affected:</b>	⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v3.9.0, CR 1278r1
	<input type="checkbox"/>	Test specifications	
	<input type="checkbox"/>	O&M Specifications	
<b>Other comments:</b>	⌘		

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at:  
[http://www.3gpp.org/3G\\_Specs/CRs.htm](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://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

### 8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

- read the IE "Measurement command";
- if the IE "Measurement command" has the value "setup":

~~If the UE is in CELL\_FACH and if the measurement type is either "intra-frequency measurement", "inter-frequency measurement" or "inter-RAT measurement":~~

~~If the "Reporting criteria" is different from "No reporting":~~

~~Ignore the MEASUREMENT CONTROL message:~~

~~Else:~~

~~If the IE "Intra-frequency cell info list", "Inter-frequency cell info list" or "Inter-RAT cell info list" was received, instructing the UE to remove or add some intra-frequency/inter-frequency/inter-RAT cells from its CELL\_INFO\_LIST variable:~~

~~Ignore the MEASUREMENT CONTROL message:~~

~~Else:~~

~~Store the information received in the MEASUREMENT control message:~~

- ~~Else:~~

- store this measurement in the variable MEASUREMENT\_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists; [Indent increased one level]
- for measurement types "inter-RAT measurement" or "inter-frequency measurement": [Indent increased one level]
  - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or [Indent increased one level]
  - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements: [Indent increased one level]
    - if the measurement is valid in the current RRC state of the UE:
      - begin measurements according to the stored control information for this measurement identity. [Indent increased one level]
- for measurement type "UE positioning measurement":
  - if the UE is in CELL\_FACH state:
    - if IE "Positioning Method" is set to "OTDOA":
      - if IE "Method Type" is set to "UE assisted":
        - if IE "UE positioning OTDOA assistance data for UE assisted" is not included:

- if System Information Block type 15.4 is broadcast:
  - read System Information Block type 15.4.
  - act as specified in subclause 8.6.7.19.2.
- if IE "Method Type" is set to "UE based":
  - if IE "UE positioning OTDOA assistance data for UE based" is not included:
    - if System Information Block type 15.5 is broadcast:
      - read System Information Block type 15.5.
      - act as specified in subclause 8.6.7.19.2a.
- for any other measurement type:
  - if the measurement is valid in the current RRC state of the UE:
    - begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
  - for all IEs present in the MEASUREMENT CONTROL message:
    - if a measurement was stored in the variable MEASUREMENT\_IDENTITY associated to the identity by the IE "measurement identity":
      - replace the corresponding information stored in variable MEASUREMENT\_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;
      - resume the measurements according to the new stored measurement control information.
    - otherwise:
      - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- if the IE "measurement command" has the value "release":
  - terminate the measurement associated with the identity given in the IE "measurement identity";
  - clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT\_IDENTITY.
- if the IE "DPCH Compressed Mode Status Info" is present,:
  - and if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS\_IDENTITY):
    - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
  - if pattern sequence corresponding to IE "TGPSI" is already active (according to "TGPS Status Flag"):
    - deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.
  - after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:

- activate the pattern sequence stored in the variable TGPS\_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "active" at the time indicated by IE "TGCFN"; and
- begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
- if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:
  - start the concerned pattern sequence immediately at that CFN.
- not alter pattern sequences stored in variable TGPS\_IDENTITY, ~~but~~ if the pattern sequence is not identified in IE "TGPSI" in the received message.
- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and
  - refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT\_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE\_CAPABILITY\_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):
  - set the variable CONFIGURATION\_INCOMPLETE to TRUE.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

The UE may:

- if the IE "Measurement command" has the value "setup":
  - for measurement type "UE positioning measurement":
    - if the UE is CELL\_FACH state:
      - if IE "Positioning Method" is set to "GPS":
        - if IE "UE positioning GPS assistance data" is not included and variable UE\_POSITIONING\_GPS\_DATA is empty:
          - if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:
            - read System Information Block types 15, 15.1, 15.2 and 15.3.
          - act as specified in subclause 8.6.7.19.3.
- and the procedure ends.

### 14.1.2.1 Reporting event 1A: A Primary CPICH enters the reporting range

When an intra-frequency measurement configuring event 1a is set up, the UE shall:

- create a variable TRIGGERED\_1A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1A is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell; and
  - if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the value of "Reporting deactivations threshold" for this event is greater than or equal to the current number of cells in the active set or equal to 0 and any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:
    - if the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT is set to FALSE:
      - start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to TRUE;
      - set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT to 1.
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1A\_EVENT that are not part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
- if the timer for the periodical reporting has expired:

- if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT, and not included in the current active set:
  - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
    - increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED\_1A\_EVENT;
    - start a timer with the value of "Reporting interval" for this event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1a"; and
      - include in "cell measurement event results" all entries of the variable TRIGGERED\_1A\_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" that are not part of the active set in descending order according to the configured measurement quantity, [taking into account the cell individual offsets for those cells](#);
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
    - if "sent reports" in variable TRIGGERED\_1A\_EVENT is greater than "Amount of reporting" for all entries:
      - set the IE "Periodical Reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE and disable the timer for the periodical reporting.
  - if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
    - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1A\_EVENT:
      - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1A\_EVENT.
      - if no entry in the variable TRIGGERED\_1A\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
        - stop the reporting interval timer;
        - set the IE "Periodical reporting running" in the variable TRIGGERED\_1A\_EVENT to FALSE.

Upon transition to CELL\_DCH the UE shall:

- Include the primary CPICH of all cells in the current active set into the "cells triggered" in the variable TRIGGERED\_1A\_EVENT.

Equation 1 (Triggering condition for pathloss)

$$10 \cdot \text{Log}M_{New} + CIO_{New} \leq W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1 / M_i) \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1a} - H_{1a} / 2),$$

Equation 2 (Triggering condition for all the other measurement quantities)



$$10 \cdot \text{Log}M_{New} + CIO_{New} \geq W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1a} - H_{1a} / 2),$$

Equation 3 (Leaving triggering condition for pathloss)

$$10 \cdot \text{Log}M_{New} + CIO_{New} > W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1 / M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R_{1a} + H_{1a} / 2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) equation corrected: R1a-H1a/2 should be R1a+H1a/2

$$10 \cdot \text{Log}M_{New} + CIO_{New} < W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R_{1a} + H_{1a} / 2),$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of the cell entering the reporting range.

$CIO_{New}$  is the individual cell offset for the cell entering the reporting range if an individual cell offset is stored for that cell. Otherwise it is equal to 0.

$M_i$  is a measurement result of a cell not forbidden to affect reporting range in the active set.

$N_A$  is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result, not taking into account any cell individual offset.

for other measurements quantities.

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result, not taking into account any individual offset.

$W$  is a parameter sent from UTRAN to UE.

$R_{1a}$  is the reporting range constant.

$H_{1a}$  is the hysteresis parameter for the event 1a.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{New}$ ,  $M_i$  and  $M_{Best}$  are expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{New}$ ,  $M_i$  and  $M_{Best}$  are expressed in [mW].

#### 14.1.2.2 Reporting event 1B: A primary CPICH leaves the reporting range

When an intra-frequency measurement configuring event 1b is set up, the UE shall:

- create a variable TRIGGERED\_1B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1B is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and

- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and
    - include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED\_1B\_EVENT that are part of the active set; [in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1B\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1B\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1B\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \geq W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R + H_{1b} / 2),$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} \leq W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R + H_{1b} / 2),$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} < W \cdot 10 \cdot \text{Log} \left( 1 / \sum_{i=1}^{N_A} (1/M_i) \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} + (R - H_{1b} / 2),$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO\]](#)

$$10 \cdot \text{Log}M_{Old} + CIO_{Old} > W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1-W) \cdot 10 \cdot \text{Log}M_{Best} - (R - H_{1b} / 2),$$

The variables in the formula are defined as follows:

$M_{Old}$  is the measurement result of the cell leaving the reporting range.

$CIO_{old}$  is the individual cell offset for the cell leaving the reporting range if an individual cell offset is stored for that cell. Otherwise it is equal to 0.

$M_i$  is a measurement result of a cell not forbidden to affect reporting range in the active set.

$N_A$  is the number of cells not forbidden to affect reporting range in the current active set.

For pathloss

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the lowest measurement result, not taking into account any cell individual offset.

for other measurements quantities.

$M_{Best}$  is the measurement result of the cell not forbidden to affect reporting range in the active set with the highest measurement result, not taking into account any cell individual offset.

$W$  is a parameter sent from UTRAN to UE.

$R_{lb}$  is the reporting range constant.

$H_{lb}$  is the hysteresis parameter for the event 1b.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{Old/New}$ ,  $M_i$  and  $M_{Best}$  are expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{Old/New}$ ,  $M_i$  and  $M_{Best}$  are expressed in [mW].

#### 14.1.2.3 Reporting event 1C: A non-active primary CPICH becomes better than an active primary CPICH

When an intra-frequency measurement configuring event 1c is set up, the UE shall:

- create a variable TRIGGERED\_1C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1C is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more a primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and
- if the equations have been fulfilled during the time "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that first primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT:
  - if "Reporting interval" for this event is not equal to 0:

- if the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT is set to FALSE:
  - start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to TRUE.
  - set "sent reports" for that primary CPICH in the variable TRIGGERED\_1C\_EVENT to 1.
- send a measurement report with IEs set as below:
  - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
  - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1C\_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value. ~~ordering~~ The "primary CPICH info" for those cells shall be ordered according to their measured value taking into account their cell individual offset, beginning with the best cell to the worst one;
  - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
- move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
- if the timer for the periodical reporting has expired:
  - if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT, and not included in the current active set:
    - if "Reporting interval" for this event is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for that primary CPICH, in "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
      - increment the stored counter "sent reports" for all CPICH in "cell triggered" in variable TRIGGERED\_1C\_EVENT;
      - start a timer with the value of "Reporting interval" for this event;
    - send a measurement report with IEs set as below:
      - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and
      - include in "cell measurement event results" all entries of the variable TRIGGERED\_1C\_EVENT with value of IE "sent report" smaller than value of "Amount of reporting" and that are not part of the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value, ordering the "primary CPICH info" according to their measured value beginning with the best cell to the worst one;
      - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - if "sent reports" in variable TRIGGERED\_1C\_EVENT is greater than "Amount of reporting" for all entries:

- set the IE "Periodical Reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE and disable the timer for the periodical reporting.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1C\_EVENT:
    - remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED\_1C\_EVENT.
    - if no entry in the variable TRIGGERED\_1C\_EVENT has a value of "sent reports" smaller than "Amount of reporting":
      - stop the reporting interval timer;
      - set the IE "Periodical reporting running" in the variable TRIGGERED\_1C\_EVENT to FALSE.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO, and to introduce the logarithm\]](#)

$$10 \log M_{New} + CIO_{New} \leq 10 \log M_{InAS} + CIO_{InAS} - H_c / 2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \log M_{New} + CIO_{New} \geq 10 \log M_{InAS} + CIO_{InAS} + H_c / 2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \log M_{New} + CIO_{New} > 10 \log M_{InAS} + CIO_{InAS} + H_c / 2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to introduce the logarithm\]](#)

$$10 \log M_{New} + CIO_{New} < 10 \log M_{InAS} + CIO_{InAS} - H_c / 2$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of the cell not included in the active set.

[CIO<sub>New</sub> is the individual cell offset for the cell becoming better than the cell in the active set if an individual cell offset is stored for that cell. Otherwise it is equal to 0.](#)

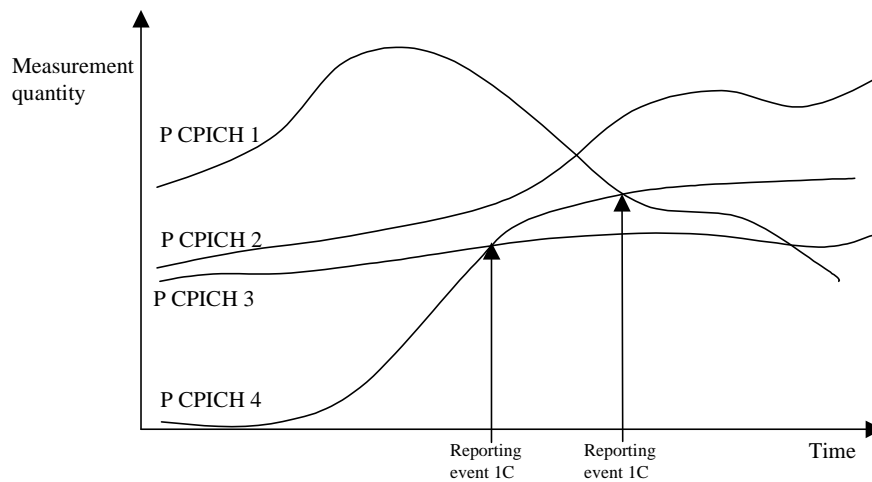
$M_{InAS}$  is the measurement result of a cell in the active set.

[CIO<sub>InAS</sub> is the individual cell offset for the cell in the active set that is becoming worse than the new cell.](#)

$H_c$  is the hysteresis parameter for the event 1c.

[If the measurement results are pathloss or CPICH-Ec/No then  \$M\_{New}\$  and  \$M\_{InAS}\$  are expressed as ratios.](#)

[If the measurement result is CPICH-RSCP then  \$M\_{New}\$  and  \$M\_{InAS}\$  are expressed in \[mW\].](#)



**Figure 14.1.2.3-1 [Informative]: A primary CPICH that is not included in the active set becomes better than a primary CPICH that is in the active set. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.**

*In this example the cells belonging to primary CPICH 1, 2 and 3 are supposed to be in the active set, but the cell transmitting primary CPICH 4 is not (yet) in the active set.*

#### 14.1.2.4 Reporting event 1D: Change of best cell

When an intra-frequency measurement configuring event 1d is set up, the UE shall:

- create a variable TRIGGERED\_1D\_EVENT related to that measurement, which shall initially contain the best cell in the active set when the measurement is initiated;
- delete this variable when the measurement is released.

When event 1D is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST\_CELL\_1D\_EVENT:
  - if all required reporting quantities are available for that cell, and
- if the equations have been fulfilled during the time "Time to trigger":
  - set "best cell" in the variable BEST\_CELL\_1D\_EVENT to that primary CPICH that triggered the event;
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

Upon transition to CELL\_DCH the UE shall:

- set "best cell" in the variable BEST\_CELL\_1D\_EVENT to the best cell of the primary CPICHs included in the active set.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to introduce the logarithm\]](#)

$$10 \text{Log}M_{\text{NotBest}} \leq 10 \text{Log}M_{\text{Best}} - H_{1d}/2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to introduce the logarithm\]](#)

$$10 \text{Log}M_{\text{NotBest}} \geq 10 \text{Log}M_{\text{Best}} + H_{1d}/2$$

The variables in the formula are defined as follows:

$M_{\text{NotBest}}$  is the measurement result of a cell not stored in "best cell" in the variable BEST\_CELL\_1D\_EVENT.

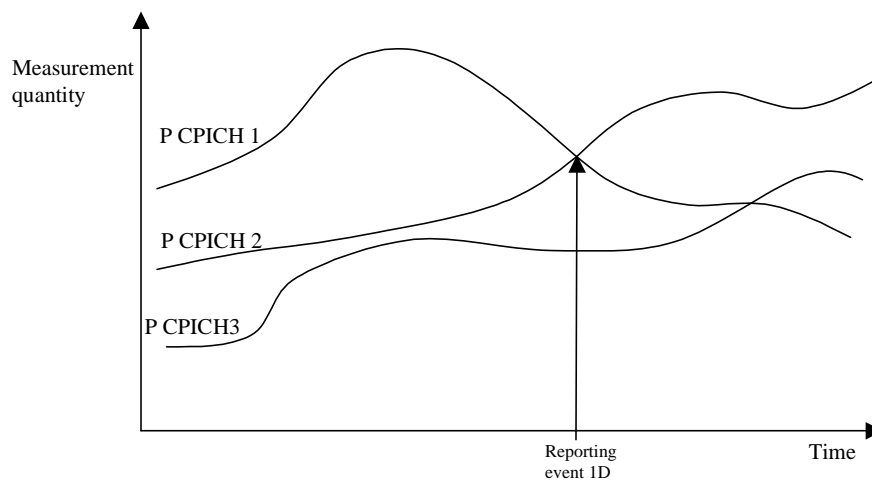
$M_{\text{Best}}$  is the measurement result of the cell stored in "best cell" in variable BEST\_CELL\_1D\_EVENT.

$H_{1d}$  is the hysteresis parameter for the event 1d.

[If the measurement results are pathloss or CPICH-Ec/No then  \$M\_{\text{NotBest}}\$  and  \$M\_{\text{Best}}\$  are expressed as ratios.](#)

[If the measurement result is CPICH-RSCP then  \$M\_{\text{NotBest}}\$  and  \$M\_{\text{Best}}\$  are expressed in \[mW\].](#)

[Note: the cell individual offsets for the two cells being compared shall not be taken into account when checking whether this event has been triggered or not.](#)



**Figure 14.1.2.4-1** [\[Informative\]](#): A primary CPICH becomes better than the previously best primary CPICH. [In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.](#)

#### 14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold

[When an intra-frequency measurement configuring event 1e is set up, the UE shall:](#)

- [create a variable TRIGGERED\\_1E\\_EVENT related to that measurement, which shall initially be empty;](#)
- [delete this variable when the measurement is released.](#)

When event 1E is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

- [if all required reporting quantities are available for that cell, and](#)
- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1e"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1E\_EVENT that are not part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1E\_EVENT.
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1E\_EVENT:
    - remove that primary CPICH and sent reports from "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells in the current active set that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1e into the "cells triggered" in the variable TRIGGERED\_1E\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} \leq T_{le} - H_{le} / 2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} \geq T_{le} + H_{le} / 2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm\]](#)

$$10 \text{Log} M_{N_{ew}} + CIO_{N_{ew}} > T_{le} + H_{le} / 2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm\]](#)



$$10 \log M_{New} + CIO_{New} < T_{1e} - H_{1e} / 2$$

The variables in the formula are defined as follows:

$M_{New}$  is the measurement result of a cell that becomes better than an absolute threshold.

$CIO_{New}$  is the individual cell offset for the cell becoming better than the absolute threshold. Otherwise it is equal to 0.

$T_{1e}$  is an absolute threshold.

$H_{1e}$  is the hysteresis parameter for the event 1e.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{New}$  is expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{New}$  is expressed in [mW].

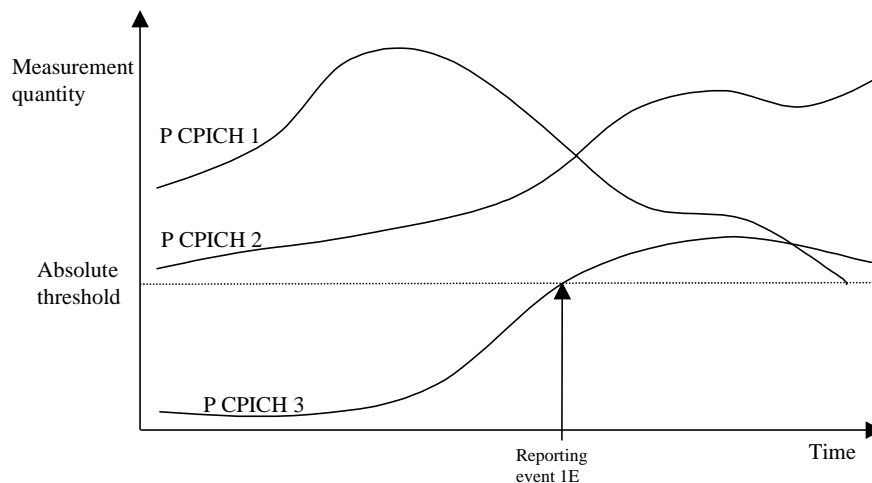


Figure 14.1.2.5-1[Informative]: Event-triggered report when a Primary CPICH becomes better than an absolute threshold. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.

#### 14.1.2.6 Reporting event 1F: A Primary CPICH becomes worse than an absolute threshold

When an intra-frequency measurement configuring event 1e is set up, the UE shall:

- create a variable TRIGGERED 1E EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 1F is configured in the UE, the UE shall:

- if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/No" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:
  - if all required reporting quantities are available for that cell, and

- if the equations have been fulfilled during the time "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
  - include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT.
- if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT:
  - send a measurement report with IEs set as below:
    - set in "intra-frequency event measurement results": "Intrafrequency event identity" to "1f"; and
    - include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED\_1F\_EVENT that are part of the active set in descending order according to the configured measurement quantity [taking into account the cell individual offset for each of those cells](#);
    - set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2;
  - move all entries from "cells recently triggered" to "cells triggered" in the variable TRIGGERED\_1F\_EVENT. [\[indent decreased one level\]](#)
- if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH:
  - if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED\_1F\_EVENT:
    - remove that primary CPICH from "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Upon transition to CELL\_DCH the UE shall:

- include the primary CPICH of all cells that fulfil the equations 1 or 2 according to the "Measurement quantity" of event 1f into the "cells triggered" in the variable TRIGGERED\_1F\_EVENT.

Equation 1 (Triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} \geq T_{1f} + H_{1f}/2$$

Equation 2 (Triggering condition for all the other measurement quantities) [\[Formula modified to include CIO, and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} \leq T_{1f} - H_{1f}/2$$

Equation 3 (Leaving triggering condition for pathloss) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} < T_{1f} - H_{1f}/2$$

Equation 4 (Leaving triggering condition for all the other measurement quantities) [\[Formula modified to include CIO and to include the logarithm,  \$M\_{New}\$  changed to  \$M\_{Old}\$ \]](#)

$$10 \text{Log}M_{Old} + CIO_{Old} > T_{1f} + H_{1f}/2$$

The variables in the formula are defined as follows:

$M_{New}$ ,  $M_{Old}$  is the measurement result of a cell that becomes worse than an absolute threshold

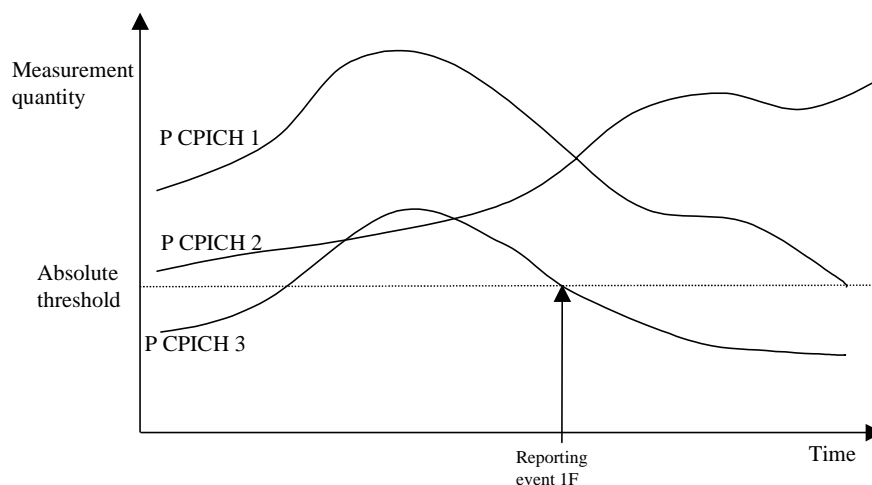
$CIO_{Old}$  is the individual cell offset for the cell becoming worse than the absolute threshold. Otherwise it is equal to 0.

$T_{If}$  is an absolute threshold

$H_{If}$  is the hysteresis parameter for the event 1f.

If the measurement results are pathloss or CPICH-Ec/No then  $M_{Old}$  is expressed as ratios.

If the measurement result is CPICH-RSCP then  $M_{Old}$  is expressed in [mW].



**Figure 14.1.2.6-1[Informative]:** Event-triggered report when a Primary CPICH becomes worse than an absolute threshold. In this figure, the parameters hysteresis and time to trigger, as well as the cell individual offsets for all cells are equal to 0.

14.3.1.1 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.

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

- create a variable TRIGGERED\_3A\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equations 1 and 2 below have both been fulfilled during the time "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

- if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED\_3A\_EVENT:
  - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable.
  - send a measurement report with IEs set as below:
    - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
    - "measured results" and possible "additional measured results" according to 8.4.2.
- if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3A\_EVENT:
  - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3A\_EVENT.
- if equation 3 is fulfilled for the used frequency in UTRAN:
  - clear the variable TRIGGERED\_3A\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equations 1 and 2 below have been fulfilled during the time "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCNs is not stored into the variable TRIGGERED\_3A\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3A\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
        - "measured results" and possible "additional measured results" according to 8.4.2.
    - if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3A\_EVENT:
      - remove that BCCH ARFCN from the variable TRIGGERED\_3A\_EVENT.
  - if equation 3 is fulfilled for the used frequency in UTRAN:
    - clear the variable TRIGGERED\_3A\_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Used} \leq T_{Used} - H_{3a} / 2$$

The variables in the formula are defined as follows:

$Q_{Used}$  is the quality estimate of the used UTRAN frequency.

$T_{Used}$  is the absolute threshold that applies for the used frequency in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Equation 2: [equation modified to include the CIO](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \geq T_{Other\ RAT} + H_{3a} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Leaving triggered state conditions:

Equation 3:

$$Q_{Used} > T_{Used} + H_{3a} / 2$$

The variables in the formula are defined as follows:

$Q_{Used}$  is the quality estimate of the used UTRAN frequency.

$T_{Used}$  is the absolute threshold that applies for the used frequency in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

Equation 4: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} < T_{Other\ RAT} - H_{3a} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3a}$  is the hysteresis parameter for event 3a.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

#### 14.3.1.2 Event 3b: The estimated quality of other system is below a certain threshold

When an inter-RAT measurement configuring event 3b is set up, the UE shall:

- create a variable TRIGGERED\_3B\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3b is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3B\_EVENT:
      - store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
    - send a measurement report with IEs set as below:
      - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);
      - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.

- if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3B\_EVENT:
  - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3B\_EVENT.
- if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
    - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3B\_EVENT:
      - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3B\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.;
  - if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3B\_EVENT:
    - remove that BCCH ARFCN from the variable TRIGGERED\_3B\_EVENT.

Triggering condition:

Equation 1: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \leq T_{Other\ RAT} - H_{3b} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3b}$  is the hysteresis parameter for event 3b.

Leaving triggered state condition:

Equation 2: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} > T_{Other\ RAT} + H_{3b} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3b}$  is the hysteresis parameter for event 3b.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

### 14.3.1.3 Event 3c: The estimated quality of other system is above a certain threshold

When an inter-RAT measurement configuring event 3c is set up, the UE shall:

- create a variable TRIGGERED\_3C\_EVENT related to that measurement, which shall initially be empty;
- delete this variable when the measurement is released.

When event 3c is configured in the UE within a measurement, the UE shall:

- if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":
  - if equation 1 below has been fulfilled during the time "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:
    - if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED\_3C\_EVENT:
      - store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
      - send a measurement report with IEs set as below:
        - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);
        - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
    - if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED\_3C\_EVENT:
      - remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED\_3C\_EVENT.
  - if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":
    - if equation 1 below has been fulfilled during the time "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:
      - if any of those BCCH ARFCN is not stored into the variable TRIGGERED\_3C\_EVENT:
        - store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED\_3C\_EVENT into that variable;
        - send a measurement report with IEs set as below:
          - set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);
          - set the IE "measured results" and the IE "additional measured results" according to 8.4.2.
      - if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED\_3C\_EVENT:
        - remove that BCCH ARFCN from the variable TRIGGERED\_3C\_EVENT.

Triggering condition:

Equation 1: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} \geq T_{Other\ RAT} + H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3c}$  is the hysteresis parameter for event 3c.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)

Leaving triggered state condition:

Equation 2: [\[equation modified to include the CIO\]](#)

$$M_{Other\ RAT} + CIO_{Other\ RAT} < T_{Other\ RAT} - H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$  is the measurement quantity for the cell of the other system.

[CIO<sub>Other RAT</sub> is the cell individual offset for the cell of the other system.](#)

$T_{Other\ RAT}$  is the absolute threshold that applies for the other system in that measurement.

$H_{3c}$  is the hysteresis parameter for event 3c.

[M<sub>Other RAT</sub> is expressed in \[dBm\].](#)