

**TSG-RAN Meeting #13  
Beijing, China, 18 - 21 September 2001**

**RP-010546**

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

**Source:** TSG-RAN WG2

**Agenda item:** 8.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-012112	agreed	25.331	0952	1	R99	Intra-frequency measurement events for TDD corrections	F	3.7.0	3.8.0
R2-012061	agreed	25.331	0953		Rel-4	Intra-frequency measurement events for TDD corrections	A	4.1.0	4.2.0
R2-012088	agreed	25.331	0954	1	R99	Inconsistencies between ASN.1 and tabular format	F	3.7.0	3.8.0
R2-012089	agreed	25.331	0955		Rel-4	Inconsistencies between ASN.1 and tabular format	A	4.1.0	4.2.0
R2-011863	agreed	25.331	0956		R99	TDD PICH corrections and clarifications	F	3.7.0	3.8.0
R2-012090	agreed	25.331	0957		Rel-4	TDD PICH corrections and clarifications	A	4.1.0	4.2.0
R2-012073	agreed	25.331	0958	1	R99	Messages on CCCH	F	3.7.0	3.8.0
R2-012192	agreed	25.331	0959		Rel-4	Messages on CCCH	A	4.1.0	4.2.0
R2-011865	agreed	25.331	0960		R99	Clarification of Parameter Values for Default Radio Configurations	F	3.7.0	3.8.0
R2-012091	agreed	25.331	0961		Rel-4	Clarification of Parameter Values for Default Radio Configurations	A	4.1.0	4.2.0
R2-011866	agreed	25.331	0962		R99	Clarification to usage of default values in "Cell Selection and Reselection for SIB11/12Info"	F	3.7.0	3.8.0
R2-012092	agreed	25.331	0963		Rel-4	Clarification to usage of default values in "Cell Selection and Reselection for SIB11/12Info"	A	4.1.0	4.2.0
R2-011867	agreed	25.331	0964		R99	Clarification of handling of System information block 14	F	3.7.0	3.8.0
R2-012093	agreed	25.331	0965		Rel-4	Clarification of handling of System information block 14	A	4.1.0	4.2.0
R2-012094	agreed	25.331	0966	3	R99	Description of UE behaviour when receiving UE positioning related info	F	3.7.0	3.8.0
R2-012095	agreed	25.331	0967		Rel-4	Description of UE behaviour when receiving UE positioning related info	A	4.1.0	4.2.0
R2-012062	agreed	25.331	0981	1	R99	Clarification on periodic measurement reporting	F	3.7.0	3.8.0
R2-012181	agreed	25.331	0982		Rel-4	Clarification on periodic measurement reporting	A	4.1.0	4.2.0
R2-012136	agreed	25.331	0983	2	R99	Corrections and clarifications on Measurement procedures description	F	3.7.0	3.8.0
R2-012137	agreed	25.331	0984		Rel-4	Corrections and clarifications on Measurement procedures description	A	4.1.0	4.2.0

## CHANGE REQUEST

⌘ **25.331 CR 952** ⌘ ev **r1** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Intra-frequency measurement events for TDD corrections		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 26.07.2001
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<p>Use <u>one</u> of the following categories:</p> <p><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)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  REL-4 (Release 4)  REL-5 (Release 5)</p>

<b>Reason for change:</b>	⌘ The description of Intra-frequency events for TDD is not complete. A strict description of the events and of the way the UE shall behave regarding the reporting is needed in order to avoid ambiguities and allow UTRAN to interpret the measurements properly..
<b>Summary of change:</b>	⌘ Variables are included for TDD events in order to improve the descriptions.  Event 1G: Event triggered periodical reporting implemented. Descriptions aligned to FDD events. UEs store those cells that are to be reporting in the new variable. The evaluation of events uses the Cell individual offset. Inclusion of cells in the report is done in descending order according to $10 \cdot \text{Log}M + O$ . Condition for removal of cells from variable defined.  Event 1H, Event 1I (Timeslot ISCP above a certain threshold): Equivalent descriptions as for Event 1G. In 1I the UE is especially required to include information about those cells Timeslot ISCP that are above the threshold.
<b>Consequences if not approved:</b>	⌘ No clear description of the way intra-frequency reporting events for TDD work.  <b>Impact Analysis:</b>  Affects Intrafrequency Measurement Events for TDD  Correction to functionality where the specification was ambiguous or not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

**Clauses affected:** ⌘ 13.4.27f1 (new), 13.4.27f2 (new), 13.4.27f3 (new), 14.1.3.1, 14.1.3.2, 14.1.3.3

<b>Other specs Affected:</b>	⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v4.1.0, CR 953
	<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.
- 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.

### 13.4.27f1 TRIGGERED 1G EVENT

This variable contains information about a 1g event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

### 13.4.27f2 TRIGGERED 1H EVENT

This variable contains information about a 1h event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

### 13.4.27f3 TRIGGERED 1I EVENT

This variable contains information about a 1i event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

## 14.1.3 Intra-frequency reporting events for TDD

### 14.1.3.1 Reporting event 1G: Change of best cell (TDD)

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

- if the equation 1 is fulfilled for a P-CCPCHs during the time "Time to trigger" and if that P-CCPCH is not included in the "primary CCPCH info" in the variable TRIGGERED 1G EVENT;
- include that P-CCPCH in "cells triggered" in the variable TRIGGERED 1G EVENTS;
- send a measurement report with IEs set as below:
  - in "intra-frequency measurement event results": "Intrafrequency event identity" to "1g"

- and in the first entry in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH which was stored in the variable TRIGGERED\_1G\_EVENT.
- include all entries in "cells triggered" in variable TRIGGERED\_1A\_EVENTS in "cell measurement event results" in the measurement report in descending order according to  $10 \cdot \text{Log}M + O$ , where  $M$  is the P-CCPCH RSCP and  $O$  the individual offset of a cell.
- "measured results" and "additional measured results" according to 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\_1G\_EVENTS:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1G\_EVENTS;

The UE shall use the equations below for evaluation of reporting event 1g:

Equation 1

$$10 \cdot \text{Log}M_i + O_i - H_{1g} > 10 \cdot \text{Log}M_{\text{previous\_best}} + O_{\text{previous\_best}}$$

The variables in the formula are defined as follows:

$M_{\text{previous\_best}}$  is the current P-CCPCH RSCP of the previous best cell expressed in [mW]

$O_{\text{previous\_best}}$  is the cell individual offset of the previous best cell

$M_i$  is the current P-CCPCH RSCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

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

Equation 2

$$10 \cdot \text{Log}M_i + O_i + H_{1g} < 10 \cdot \text{Log}M_{\text{previous\_best}} + O_{\text{previous\_best}}$$

The variables in the formula are defined as follows:

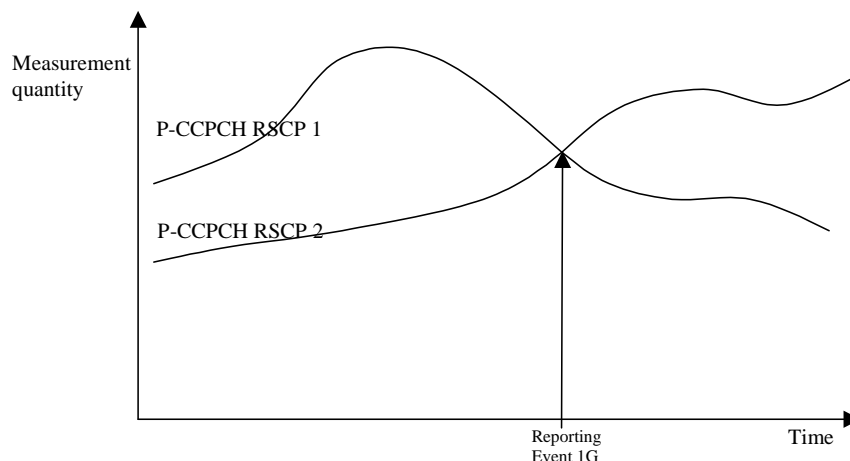
$M_{\text{previous\_best}}$  is the current P-CCPCH RSCP of the previous best cell expressed in [mW]

$O_{\text{previous\_best}}$  is the cell individual offset of the previous best cell

$M_i$  is the current P-CCPCH RSCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

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



**Figure 67: A P-CCPCH RSCP becomes better than the previous best P-CCPCH RSCP**

If any of the monitored P-CCPCH RSCPs becomes better than the previously best P-CCPCH RSCP, and event 1G has been ordered by UTRAN then this event shall trigger a report to be sent from the UE.

Before any evaluation is done, the values are filtered according to sub-clause 8.6.7.2.

Event 1G may be used with a hysteresis parameter (see sub-clause 14.1.5.1) and a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used, the UE shall send a measurement report if the P-CCPCH RSCP of a cell stays continuously better within the given time period.

The hysteresis always corresponds to the best P-CCPCH.

Event 1G may be used with cell individual offset for each cell, which is added to the P-CCPCH RSCP measurement before event evaluation.

If more than one cell triggers event 1G within the UE event evaluation period and fulfils the reporting criteria after the time-to-trigger has elapsed, the UE shall send at least the best cell but may report all these cells, sorted in descending order according to the measurement quantity.

#### 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 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
  - 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
  - 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\_EVENTS:
  - increment the stored counter "sent reports" for that primary CCPCH in "cells triggered" in variable TRIGGERED\_1H\_EVENTS;

- send a measurement report with IEs set as below:
  - 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
  - in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT and "additional measured results" according to 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\_EVENTS:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1H\_EVENTS;

The UE shall use the equations below for evaluation of reporting event 1h:

Equation 1

$$10 \cdot \text{Log}M_i + H_{1h} + O_i < T_{1h},$$

Equation 2

$$10 \cdot \text{Log}M_i - H_{1h} + O_i > T_{1h},$$

The variables in the formula are defined as follows:

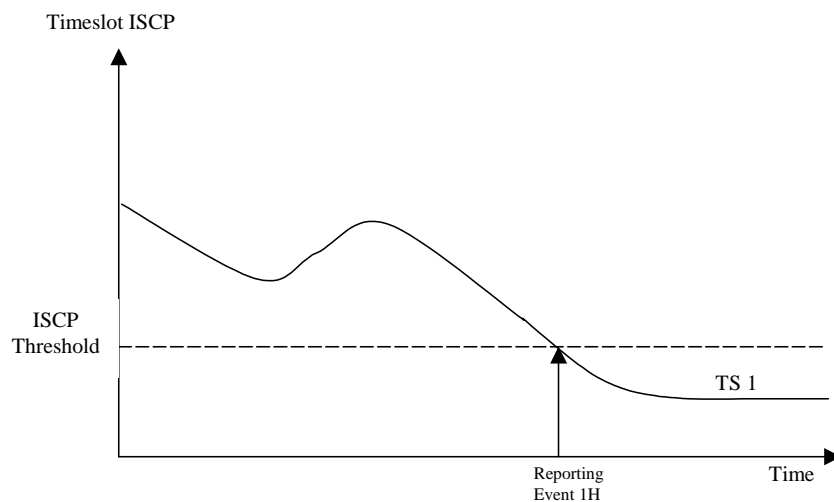
$M_i$  is the Timeslot ISCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

$T_{1h}$  is the Threshold for event 1h

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

Before any evaluation is done, the Timeslot ISCP expressed in [mW] is filtered according to sub-clause 8.6.7.2.



**Figure 68: An ISCP value of a timeslot drops below an absolute threshold**

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP drops below an absolute threshold.

Event 1H may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously below the threshold for the given time period, before the UE shall send a measurement report.

Event 1H may be used with a cell individual offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter has no impact on event 1H.

### 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 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
  - 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
  - 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\_EVENTS:
- if Equation 2 below is fulfilled for a primary CCPCH:
  - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1G\_EVENTS:
  - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1I\_EVENTS;

The UE shall use the equation below for evaluation of reporting event 1i:

#### Equation 1

$$10 \cdot \text{Log}M_i - H_{1i} + O_i > T_{1h},$$

#### Equation 2

$$10 \cdot \text{Log}M_i + H_{1i} + O_i < T_{1h},$$

The variables in the formula are defined as follows:

$M_i$  is the Timeslot ISCP of the currently evaluated cell  $i$  expressed in [mW]

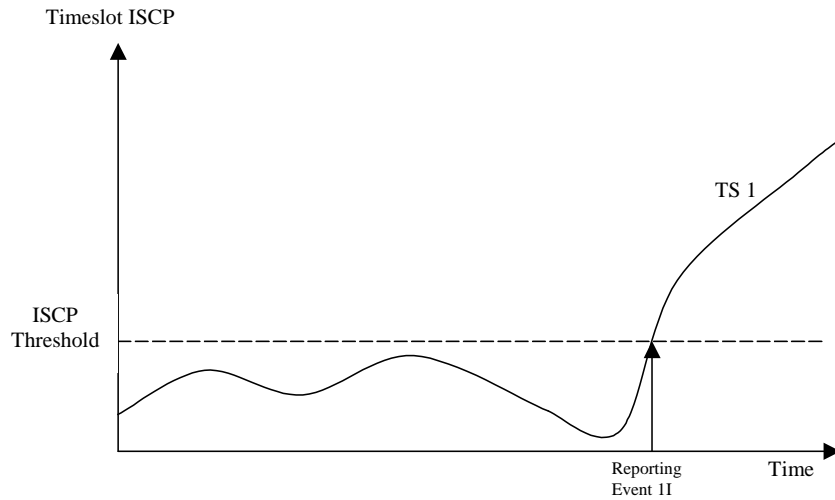
$O_i$  is the cell individual offset of the currently evaluated cell  $i$

$T_{1i}$  is the Threshold for event 1i

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

Before any evaluation is done, the Timeslot ISCP expressed in [mW] is filtered according to sub-clause 8.6.7.2.





**Figure 69: An ISCP value of a timeslot exceeds a certain threshold**

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP exceeds an absolute threshold.

Event II may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously above the threshold for the given time period, before the UE shall send a measurement report.

Event II may be used with a cell-individual-offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter has no impact on event II.

## CHANGE REQUEST

⌘ **25.331 CR 953** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

<b>Title:</b>	⌘ Intra-frequency measurement events for TDD corrections		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 26.07.2001
<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 description of Intra-frequency events for TDD is not complete. A strict description of the events and of the way the UE shall behave regarding the reporting is needed in order to avoid ambiguities and allow UTRAN to interpret the measurements properly..
<b>Summary of change:</b>	⌘ Variables are included for TDD events in order to improve the descriptions.  Event 1G: Event triggered periodical reporting implemented. Descriptions aligned to FDD events. UEs store those cells that are to be reporting in the new variable. The evaluation of events uses the Cell individual offset. Inclusion of cells in the report is done in descending order according to $10 \cdot \text{Log}M + O$ . Condition for removal of cells from variable defined.  Event 1H, Event 1I (Timeslot ISCP above a certain threshold): Equivalent descriptions as for Event 1G. In 1I the UE is especially required to include information about those cells Timeslot ISCP that are above the threshold.
<b>Consequences if not approved:</b>	⌘ No clear description of the way intra-frequency reporting events for TDD work.

<b>Clauses affected:</b>	⌘ 13.4.27f1 (new), 13.4.27f2 (new), 13.4.27f3 (new), 14.1.3.1, 14.1.3.2, 14.1.3.3		
<b>Other specs Affected:</b>	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.331 v3.7.0, CR 0952r1	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
<b>Other comments:</b>	⌘		

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### 13.4.27f1 TRIGGERED 1G EVENT

This variable contains information about a 1g event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

### 13.4.27f2 TRIGGERED 1H EVENT

This variable contains information about a 1h event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

### 13.4.27f3 TRIGGERED 1I EVENT

This variable contains information about a 1i event that has been triggered in the UE.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Cells triggered</u>	<u>OP</u>	<u>1 to &lt; maxCellMeas&gt;</u>		
<u>&gt;Primary CCPCH info</u>	<u>MP</u>		<u>Primary CCPCH info 10.3.6.57</u>	

## 14.1.3 Intra-frequency reporting events for TDD

### 14.1.3.1 Reporting event 1G: Change of best cell (TDD)

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

- if the equation 1 is fulfilled for a P-CCPCHs during the time "Time to trigger" and if that P-CCPCH is not included in the "primary CCPCH info" in the variable TRIGGERED 1G EVENT;
- include that P-CCPCH in "cells triggered" in the variable TRIGGERED 1G EVENTS;
- send a measurement report with IEs set as below:
  - in "intra-frequency measurement event results": "Intrafrequency event identity" to "1g"

- and in the first entry in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH which was stored in the variable TRIGGERED\_1G\_EVENT.
- include all entries in "cells triggered" in variable TRIGGERED\_1A\_EVENTS in "cell measurement event results" in the measurement report in descending order according to  $10 \cdot \text{Log}M + O$ , where  $M$  is the P-CCPCH RSCP and  $O$  the individual offset of a cell.
- "measured results" and "additional measured results" according to 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\_1G\_EVENTS:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1G\_EVENTS;

The UE shall use the equations below for evaluation of reporting event 1g:

Equation 1

$$10 \cdot \text{Log}M_i + O_i - H_{1g} > 10 \cdot \text{Log}M_{\text{previous\_best}} + O_{\text{previous\_best}}$$

The variables in the formula are defined as follows:

$M_{\text{previous\_best}}$  is the current P-CCPCH RSCP of the previous best cell expressed in [mW]

$O_{\text{previous\_best}}$  is the cell individual offset of the previous best cell

$M_i$  is the current P-CCPCH RSCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

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

Equation 2

$$10 \cdot \text{Log}M_i + O_i + H_{1g} < 10 \cdot \text{Log}M_{\text{previous\_best}} + O_{\text{previous\_best}}$$

The variables in the formula are defined as follows:

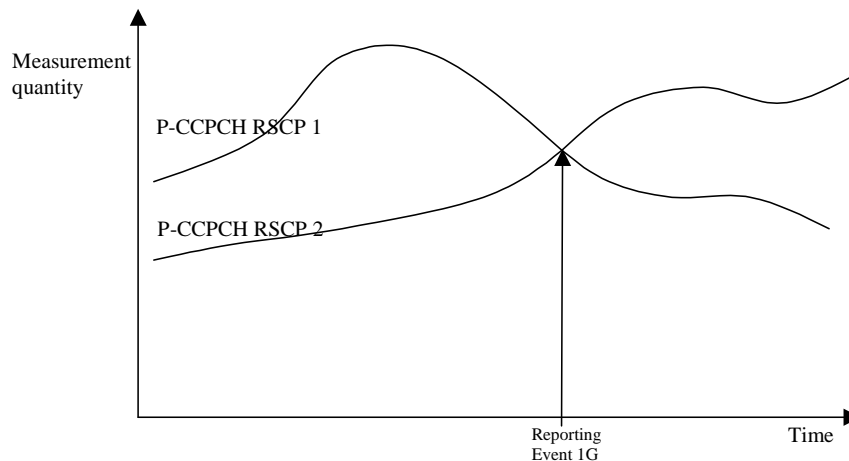
$M_{\text{previous\_best}}$  is the current P-CCPCH RSCP of the previous best cell expressed in [mW]

$O_{\text{previous\_best}}$  is the cell individual offset of the previous best cell

$M_i$  is the current P-CCPCH RSCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

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



**Figure 67: A P-CCPCH RSCP becomes better than the previous best P-CCPCH RSCP**

If any of the monitored P-CCPCH RSCPs becomes better than the previously best P-CCPCH RSCP, and event 1G has been ordered by UTRAN then this event shall trigger a report to be sent from the UE.

Before any evaluation is done, the values are filtered according to sub-clause 8.6.7.2.

Event 1G may be used with a hysteresis parameter (see sub-clause 14.1.5.1) and a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used, the UE shall send a measurement report if the P-CCPCH RSCP of a cell stays continuously better within the given time period.

The hysteresis always corresponds to the best P-CCPCH.

Event 1G may be used with cell individual offset for each cell, which is added to the P-CCPCH RSCP measurement before event evaluation.

If more than one cell triggers event 1G within the UE event evaluation period and fulfils the reporting criteria after the time-to-trigger has elapsed, the UE shall send at least the best cell but may report all these cells, sorted in descending order according to the measurement quantity.

#### 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 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
  - 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
  - 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\_EVENTS:
  - increment the stored counter "sent reports" for that primary CCPCH in "cells triggered" in variable TRIGGERED\_1H\_EVENTS;

- send a measurement report with IEs set as below:
  - 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
  - in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED\_1H\_EVENT and "additional measured results" according to 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\_EVENTS:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1H\_EVENTS;

The UE shall use the equations below for evaluation of reporting event 1h:

Equation 1

$$10 \cdot \text{Log}M_i + H_{1h} + O_i < T_{1h},$$

Equation 2

$$10 \cdot \text{Log}M_i - H_{1h} + O_i > T_{1h},$$

The variables in the formula are defined as follows:

$M_i$  is the Timeslot ISCP of the currently evaluated cell  $i$  expressed in [mW]

$O_i$  is the cell individual offset of the currently evaluated cell  $i$

$T_{1h}$  is the Threshold for event 1h

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

Before any evaluation is done, the Timeslot ISCP expressed in [mW] is filtered according to sub-clause 8.6.7.2.

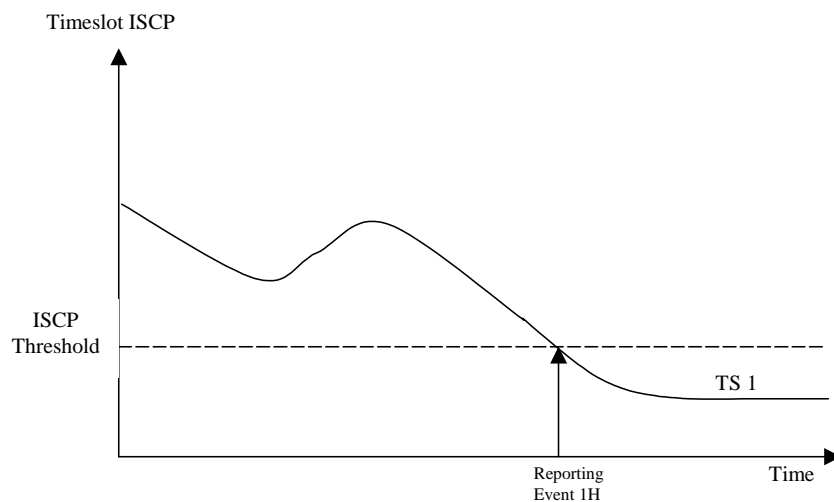


Figure 68: An ISCP value of a timeslot drops below an absolute threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP drops below an absolute threshold.

Event 1H may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously below the threshold for the given time period, before the UE shall send a measurement report.

Event 1H may be used with a cell individual offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter has no impact on event 1H.

### 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 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
    - 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
    - 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\_EVENTS:
- if Equation 2 below is fulfilled for a primary CCPCH:
  - if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED\_1G\_EVENTS:
    - remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED\_1I\_EVENTS;

The UE shall use the equation below for evaluation of reporting event 1i:

#### Equation 1

$$10 \cdot \text{Log}M_i - H_{1i} + O_i > T_{1h},$$

#### Equation 2

$$10 \cdot \text{Log}M_i + H_{1i} + O_i < T_{1h},$$

The variables in the formula are defined as follows:

$M_i$  is the Timeslot ISCP of the currently evaluated cell  $i$  expressed in [mW]

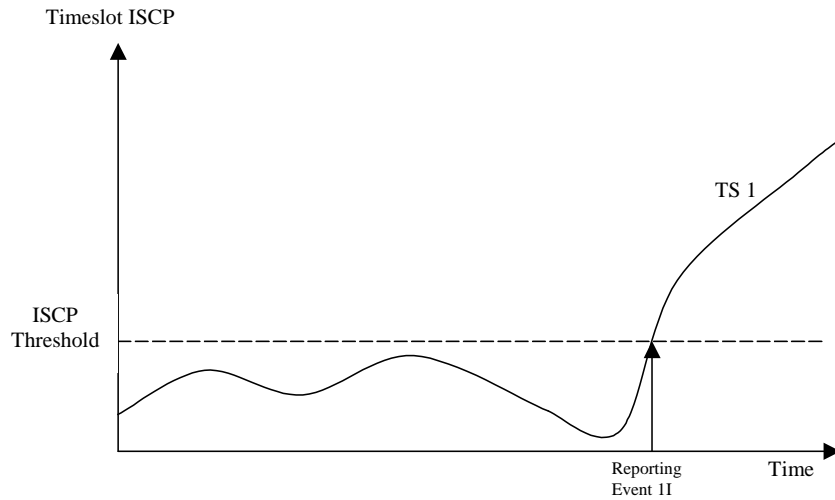
$O_i$  is the cell individual offset of the currently evaluated cell  $i$

$T_{1i}$  is the Threshold for event 1i

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

Before any evaluation is done, the Timeslot ISCP expressed in [mW] is filtered according to sub-clause 8.6.7.2.





**Figure 69: An ISCP value of a timeslot exceeds a certain threshold**

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP exceeds an absolute threshold.

Event II may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously above the threshold for the given time period, before the UE shall send a measurement report.

Event II may be used with a cell-individual-offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter has no impact on event II.

## CHANGE REQUEST

⌘ **25.331 CR 954** ⌘ ev **r1** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Inconsistencies between ASN.1 and tabular format		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27.06.2001
<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 <a href="#">TR 21.900</a> .		REL-4 (Release 4)
			REL-5 (Release 5)

<b>Reason for change:</b>	⌘ A few inconsistencies between tabular and ASN.1 have been identified. Furthermore superfluous elements are removed.
<b>Summary of change:</b>	⌘ Hysteresis <ul style="list-style-type: none"> <li>The parameter Hysteresis is defined in intrafrequency related IEs in tabular as Real(0..7.5 by step 0.5) and in interrat related IEs in tabular as Integer(0..15). For both cases the element Hysteresis in ASN.1 is used which is defined as Integer(0..15) with Actual value = IE value * 0.5. In order to correct this inconsistency it is proposed to change the tabular to Real(0..7.5 by step 0.5) for the interrat Hysteresis.</li> </ul> <p>Multiplicity values and type constraint values</p> <ul style="list-style-type: none"> <li>maxSubCh (obsolete because respective information is now coded with Bit String), maxSig (obsolete because respective information is now coded with Bit String) are not used in the specification and are therefore removed. No impact on implementations.</li> </ul> <p>Obsolete elements in ASN.1</p> <ul style="list-style-type: none"> <li>InterRATMessage: Explicit elements are defined for GSM and CDMA 2000 now. Therefore InterRATMessage is not used any more. No impact on implementations.</li> <li>maxSig, maxSubCh: (see above) No impact on implementations.</li> <li>RL-RemovalInfoList: Both RL-RemovalInfoList and RL-RemovalInformationList are used in the specification. Both are identical. Therefore it is proposed to remove one of the (RL-RemovalInfoList) to avoid superfluous elements in the ASN.1. No impact on implementations.</li> <li>CellPosition: element is not used due to changes in ASN.1 in the past. No impact on implementations.</li> <li>CellToMeasure: element is not used due to changes in ASN.1 in the past. No impact</li> </ul>

on implementations.

- DL-PhysicalChannelBER: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- QualityType: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- UE-Positioning-EventID: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- maxDPCHcodesPerTS: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- Imported definitions not used by the respective module have been removed from IMPORTS sections. No impact on implementations.

#### Corrections to ASN.1

- SCCPCH-InfoForFACH: In the previous meeting a CR introduced an inconsistency between tabular and ASN.1 with respect to this element. It is proposed to include the missing element FACH-PCH-InformationList in the TDD branch in order to keep the impact of this change isolated to shared channel operation in TDD mode.
- Rplmn-Information: Erroneously, the element FDD-UMTS-Frequency-List (element is used in RRC connection release) is used also for TDD. This is corrected. The change has an isolated impact on transfer of Rplmn information for TDD.
- HandoverToUTRANInfo-r3-IEs: In the previous meeting a CR introduced an inconsistency in this element. The extended capabilities for UE capabilities for FDD have been forgotten to be included in this element due to erroneous usage of ASN.1. This has been fixed by this change. Furthermore changes with respect to UE-SecurityInformation were not introduced due to erroneous usage of ASN.1. This change affects the RRC container (isolated impact).
- A renaming of identifiers with the name 'explicit' has been done in accordance to 25.921, Chapter 10, "Usage of ASN.1". Instead of this C++ keyword, 'explicit-config' is now used.

Impact Analysis (see also text above):

Affected functions:

- 1) shared channel operation in TDD mode
- 2) transfer of Rplmn information for TDD
- 3) RRC container (RNCs are required to implement this change because signalling between RNCs is affected. Otherwise SRNS relocation does not work)

« Correction to a function where the specification was :

Procedural text or rules were missing.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

**Consequences if not approved:** ☒ Inconsistency between tabular and ASN.1 and thus possibly missing information in messages.

**Clauses affected:** ☒ 10.3.7.30, 10.3.10, 11.2, 11.3, 11.4, 11.5, 11.6

**Other specs affected:** ☒  Other core specifications ☒ 25.331 v4.1.0, CR 955  
 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.

### 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		<a href="#">Real(0..7.5 by step of 0.5)</a> <a href="#">Integer (0..15)</a>	
>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 if " Inter-RAT event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-RAT event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

### 10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell [Note 1] (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition 1	CV-clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event
>Triggering condition 2	CV-clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event
>Reporting Range 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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Replacement activation threshold	CV-clause 5		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event 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)	
>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
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to , "1e", "1f", "1h" or "1i", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 5	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed
Clause 6	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1e".
Clause 7	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1c".



### 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
maxTFCl-1-Combs	Maximum number of TFCI (field 1) combinations	512
maxTFCl-2-Combs	Maximum number of TFCI (field 2) combinations	512
maxCPCHsets	Maximum number of CPCH sets per cell	16
maxSIBperMsg	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
<b>PhyCH information</b>		
<a href="#">maxSubCh</a>	<a href="#">Maximum number of sub-channels on PRACH</a>	<a href="#">12</a>
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
<a href="#">maxSig</a>	<a href="#">Maximum number of signatures on PRACH</a>	<a href="#">16</a>
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
<del>maxDPCHcodesPerTS</del>	<del>Maximum number of codes for one timeslots (TDD)</del>	<del>16</del>
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>		
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

## 11.2 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,
  Re-EstablishmentTimer,
  RedirectionInfo,
  RejectionCause,
  ReleaseCause,
  RRC-StateIndicator,
  RRC-TransactionIdentifier,
  SecurityCapability,
  START-Value,
  STARTList,
  U-RNTI,
  U-RNTI-Short,
  UE-RadioAccessCapability,
  UE-RadioAccessCapability-v370ext,
  UE-ConnTimersAndConstants,
  URA-UpdateCause,
  UTRAN-DRX-CycleLengthCoefficient,
  WaitTime,
-- Radio Bearer IES :
  DefaultConfigIdentity,
  DefaultConfigMode,
  DL-CounterSynchronisationInfo,
  PredefinedConfigIdentity,
  RAB-Info,
  RAB-Info-Post,
  RAB-InformationList,

```

```

RAB-InformationReconfigList,
RAB-InformationSetupList,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2,
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 :
AllocationPeriodInfo,
Alpha,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-DPCH-PowerControlInfo,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-CapacityAllocationInfo,
PDSCH-Identity,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
PUSCH-Identity,
RL-AdditionInformationList,
RL-RemovalInformationList,
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,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentity,

```

```

MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList,
UE-Positioning-GPS-AssistanceData,
UE-Positioning-OTDOA-AssistanceData,
-- Other IEs :
BCCH-ModificationInfo,
CDMA2000-MessageList,
GSM-MessageList,
InterRAT-ChangeFailureCause,
InterRAT-HO-FailureCause,
InterRAT-UE-RadioAccessCapabilityList,
InterRAT-UE-SecurityCapList,
InterRATMessage,
IntraDomainNasNodeSelector,
ProtocolErrorInformation,
ProtocolErrorMoreInformation,
Rplmn-Information,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM InformationElements

maxSIBperMsg
maxSystemCapability
FROM Constant-definitions;

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,
maxDPCHcodesPerTS,
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,
maxPUSCH,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxSRBsetup,
maxRL,
maxRL-1,
maxSCCPCH,
maxSat,
maxSIB,
maxSIB-FACH,
maxSig,
maxSubCh,
maxSystemCapability,
maxTF,
maxTF-CPCH,
maxTFC,
maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
maxTS,
maxTS-1,
maxURA
FROM Constant-definitions;

...

-- 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
}

...

IndividualDL-CCTrCH-Info ::= SEQUENCE {
  dl-TFCS-Identity                TFCS-Identity,
  tfcs-SignallingMode             CHOICE {
    explicit-config-          TFCS,
    sameAsUL                       TFCS-Identity
  }
}

```

```

}
...
TFCI-Field2-Information ::= CHOICE {
  tfci-Range TFCI-RangeList,
  explicit-config ExplicitTFCS-Configuration
}
...
PDSCH-CodeMapping ::= SEQUENCE {
  dl-ScramblingCode SecondaryScramblingCode OPTIONAL,
  signallingMethod CHOICE {
    codeRange CodeRange,
    tfci-Range DSCH-MappingList,
    explicit-config PDSCH-CodeInfoList,
    replace ReplacedPDSCH-CodeInfoList
  }
}

SCCPCH-InfoForFACH ::= SEQUENCE {
  secondaryCCPCH-Info SecondaryCCPCH-Info,
  tfcs TFCS,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      fach-PCH-InformationList FACH-PCH-InformationList,
      sib-ReferenceListFACH SIB-ReferenceListFACH
    },
    tdd NULLSEQUENCE {
      fach-PCH-InformationList FACH-PCH-InformationList
    }
  }
}

...

CellPosition ::= SEQUENCE {
  relativeNorth INTEGER (-32767..32767),
  relativeEast INTEGER (-32767..32767),
  relativeAltitude INTEGER (4095..4095)
}

...

CellToMeasure ::= SEQUENCE {
  sfn-sfn-Drift INTEGER (0..30) OPTIONAL,
  primaryCPICH-Info PrimaryCPICH-Info,
  frequencyInfo FrequencyInfo OPTIONAL,
  sfn-SFN-ObservedTimeDifference SFN-SFN-ObsTimeDifference1,
  fineSFN-SFN FineSFN-SFN,
  cellPosition CellPosition OPTIONAL
}

CellToMeasureInfoList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  CellToMeasure

...

Actual value = IE value * 0.02
DL-PhysicalChannelBER ::= INTEGER (0..255)

...

QualityType ::= ENUMERATED {
  std-10, std-50, cpich-Ec-N0 }

...

UE-Positioning-EventID ::= ENUMERATED {
e7a, e7b, e7c }

...
RL-InformationLists ::= SEQUENCE {
  rl-AdditionInfoList RL-AdditionInfoList OPTIONAL,
  rl-RemovalInfoListRL-RemovalInformationList RL-RemovalInfoListRL-
  RemovalInformationList OPTIONAL
}

```



```

RL-RemovalInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info
...

InterRATMessage ::= CHOICE {
    gsm SEQUENCE {
        gsm-MessageList GSM-MessageList
    },
    cdma2000 SEQUENCE {
        cdma2000-MessageList CDMA2000-MessageList
    }
}

...
-- Actual value = IE value * 0.5
Hysteresis ::= INTEGER (0..15)

END

```

## 11.4 Constant definitions

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

```
BEGIN
```

```

hipDSCHidentities INTEGER ::= 64
hipUSCHidentities INTEGER ::= 64
hiRM INTEGER ::= 256
maxAC INTEGER ::= 16
maxAdditionalMeas INTEGER ::= 4
maxASC INTEGER ::= 8
maxASCmap INTEGER ::= 7
maxASCpersist INTEGER ::= 6
maxCCTrCH INTEGER ::= 8
maxCellMeas INTEGER ::= 32
maxCellMeas-1 INTEGER ::= 31
maxCNDomains INTEGER ::= 4
maxCPCHsets INTEGER ::= 16
maxDPCH-DLchan INTEGER ::= 8
maxDPCHcodesPerTS INTEGER ::= 16
--**TODO**
maxDPDCH-UL INTEGER ::= 6
maxDRACclasses INTEGER ::= 8
--**TODO**
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
maxPagel 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 ::= 6
maxRL                       INTEGER ::= 8
maxRL-1                     INTEGER ::= 7
maxSat                      INTEGER ::= 16
maxSCCPCH                   INTEGER ::= 16
maxSIB                      INTEGER ::= 32
---**TODO**
maxSIB-FACH                 INTEGER ::= 8
maxSIBperMsg                INTEGER ::= 16
maxSig                   INTEGER ::= 16
maxSRBsetup                 INTEGER ::= 8
maxSubCh                 INTEGER ::= 12
maxSystemCapability         INTEGER ::= 16
maxTF                       INTEGER ::= 32
maxTF-CPCH                  INTEGER ::= 16
maxTFC                      INTEGER ::= 1024
maxTFCI-2-Combs            INTEGER ::= 512
maxTGPS                     INTEGER ::= 6
maxTrCH                     INTEGER ::= 32
maxTrCHpreconf              INTEGER ::= 16
maxTS                       INTEGER ::= 14
maxTS-1                     INTEGER ::= 13
maxURA                      INTEGER ::= 8

```

```
END
```

## 11.5 RRC information between network nodes

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

```
BEGIN
```

```
IMPORTS
```

```

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

```

```

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    FailureCauseWithProtErr,
    RRC-MessageSequenceNumber,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
-- Radio Bearer IEs :
PDCP-InfoReconfig,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
RB-Identity,
RB-MappingInfo,
RLC-Info,
    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,
maxPredefConfig,
maxRABsetup,
maxRB,
maxSRBsetup,
maxTrCH
FROM Constant-definitions+

  UE-SecurityInformation,
  UE-CapabilityInformation-Withv370ext
FROM UetoOtherRAT-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 {
  handoverToUTRAN          HandoverToUTRANInfo,
  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-InformationContainerFailureInfo RRC-InformationContainerFailureInfo,
  extension                NULL,
}

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

TargetRNC-ToSourceRAT-Container ::= CHOICE {
  handoverToUTRAN          HandoverToUTRANCommand,
  rrc-InformationContainerFailureInfo RRC-InformationContainerFailureInfo,
  extension                NULL,
}

-- Part2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- *****
--
-- Handover to UTRAN information
--
-- *****

```

```

HandoverToUTRANInfo ::= CHOICE {
  r3
    handoverToUTRANInfo-r3      SEQUENCE {
      nonCriticalExtensions      HandoverToUTRANInfo-r3-IEs,
                                SEQUENCE {} OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

HandoverToUTRANInfo-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  uE-CapabilityInformation-Withv370ext ue-RadioAccessCapability      UE-
  CapabilityInformation-Withv370extUE-RadioAccessCapability          OPTIONAL,
  uE-SecurityInformationstartList                                  UE-SecurityInformationSTARTList
  OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability      InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
  predefinedConfigStatusList    PredefinedConfigStatusList            OPTIONAL
}

-- *****
--
-- RRC information container failure info
--
-- *****

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

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

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo ::= CHOICE {
  r3
    sRNC-RelocationInfo-r3              SEQUENCE {
      nonCriticalExtensions              SRNC-RelocationInfo-r3-IEs,
                                          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                  SEQUENCE {}
}

SRNC-RelocationInfo-r3-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  stateOfRRC                            StateOfRRC,
  stateOfRRC-Procedure                   StateOfRRC-Procedure,
  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
}

-- 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 }

COUNT-C-List ::= SEQUENCE (SIZE (1..maxCNDomains)) OF
    COUNT-C-List

COUNT-C-List ::= 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

PredefinedConfigStatusList ::= SEQUENCE (SIZE (maxPredefConfig6)) OF
    PredefinedConfigStatusInfo

PredefinedConfigStatusInfo ::= SEQUENCE {
    predefinedConfigValueTag        PredefinedConfigValueTag    OPTIONAL
-- Absence of the IE indicates that the UE has not stored the corresponding preconfiguration
}

```

```

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

```

## 11.6 RRC information between UE and other RATs

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

```
BEGIN
```

```
IMPORTS
```

```

-- User Equipment IEs :
    START-Value,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
-- Radio Bearer IEs :
    PredefinedConfigValueTag
FROM InformationElements;

```

```

FROM maxPredefConfig
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
```

```
-- Currently not used
```

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

```
-- RRC information, target RNC to source RNC
```

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

```
-- Currently not used
```

```

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

-- Currently not used

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- Currently not used

-- Part 3: Non- extensible IE definitions
-- In alphabetical order

PredefConfigStatusInfo ::= SEQUENCE {
  predefinedConfigValueTag PredefinedConfigValueTag
}

PredefConfigStatusInfoList ::= SEQUENCE (SIZE (maxPredefConfig)) OF
  PredefConfigStatusInfo

UE-CapabilityInformation-Withv370ext ::= SEQUENCE {
  ue-RadioAccessCapability UE-RadioAccessCapability OPTIONAL,
  ue-RadioAccessCapabilityExt1 UE-RadioAccessCapability-v370ext OPTIONAL
}

UE-SecurityInformation ::= SEQUENCE {
  start-CS START-Value
}

END

```

**3GPP TSG-RAN WG2 Meeting #23**  
**Helsinki, Finland, 27 - 31 August 2001**

**R2-012089**

CR-Form-v4
<b>CHANGE REQUEST</b>
⌘ <b>25.331 CR 955</b> ⌘ ev <b>-</b> ⌘ Current version: <b>4.1.0</b> ⌘

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

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

<b>Title:</b>	⌘ Inconsistencies between ASN.1 and tabular format		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI <span style="float: right;"><b>Date:</b> ⌘ 27.06.2001</span>		
<b>Category:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                             ⌘ <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>.                         </td> <td style="width: 50%; vertical-align: top;"> <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)                         </td> </tr> </table>	⌘ <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>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>	⌘ A few inconsistencies between tabular and ASN.1 have been identified. Furthermore superfluous elements are removed.
<b>Summary of change:</b>	⌘ Hysteresis <ul style="list-style-type: none"> <li>• The parameter Hysteresis is defined in intrafrequency related IEs in tabular as Real(0..7.5 by step 0.5) and in interrat related IEs in tabular as Integer(0..15). For both cases the element Hysteresis in ASN.1 is used which is defined as Integer(0..15) with Actual value = IE value * 0.5. In order to correct this inconsistency it is proposed to change the tabular to Real(0..7.5 by step 0.5) for the interrat Hysteresis.</li> </ul> <p>Multiplicity values and type constraint values</p> <ul style="list-style-type: none"> <li>• maxSubCh (obsolete because respective information is now coded with Bit String), maxSig (obsolete because respective information is now coded with Bit String) are not used in the specification and are therefore removed. No impact on implementations.</li> </ul> <p>Obsolete elements in ASN.1</p> <ul style="list-style-type: none"> <li>• InterRATMessage: Explicit elements are defined for GSM and CDMA 2000 now. Therefore InterRATMessage is not used any more. No impact on implementations.</li> <li>• maxSig, maxSubCh: (see above) No impact on implementations.</li> <li>• RL-RemovalInfoList: Both RL-RemovalInfoList and RL-RemovalInformationList are used in the specification. Both are identical. Therefore it is proposed to remove one of the (RL-RemovalInfoList) to avoid superfluous elements in the ASN.1. No impact on implementations.</li> <li>• CellPosition: element is not used due to changes in ASN.1 in the past. No impact on implementations.</li> <li>• CellToMeasure: element is not used due to changes in ASN.1 in the past. No impact</li> </ul>



on implementations.

- DL-PhysicalChannelBER: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- QualityType: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- UE-Positioning-EventID: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- maxDPCHcodesPerTS: element is not used due to changes in ASN.1 in the past. No impact on implementations.
- Imported definitions not used by the respective module have been removed from IMPORTS sections. No impact on implementations.

**Corrections to ASN.1**

- SCCPCH-InfoForFACH: In the previous meeting a CR introduced an inconsistency between tabular and ASN.1 with respect to this element. It is proposed to include the missing element FACH-PCH-InformationList in the TDD branch in order to keep the impact of this change isolated to shared channel operation in TDD mode.
- Rplmn-Information: Erroneously, the element FDD-UMTS-Frequency-List (element is used in RRC connection release) is used also for TDD. This is corrected. The change has an isolated impact on transfer of Rplmn information for TDD.
- HandoverToUTRANInfo-r3-IEs: In the previous meeting a CR introduced an inconsistency in this element. The extended capabilities for UE capabilities for FDD have been forgotten to be included in this element due to erroneous usage of ASN.1. This has been fixed by this change. Furthermore changes with respect to UE-SecurityInformation were not introduced due to erroneous usage of ASN.1. This change affects the RRC container (isolated impact).
- A renaming of identifiers with the name ‘explicit’ has been done in accordance to 25.921, Chapter 10, “Usage of ASN.1”. Instead of this C++ keyword, ‘explicit-config’ is now used.

Impact Analysis (see also text above):

Affected functions:

- 1) shared channel operation in TDD mode
- 2) transfer of Rplmn information for TDD
- 3) RRC container (RNCs are required to implement this change because signalling between RNCs is affected. Otherwise SRNS relocation does not work)

« Correction to a function where the specification was :

Procedural text or rules were missing.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

**Consequences if not approved:** ☹ Inconsistency between tabular and ASN.1 and thus possibly missing information in messages.

**Clauses affected:** ☹ 10.3.7.30, 10.3.10, 11.2, 11.3, 11.4, 11.5, 11.6

**Other specs affected:** ☹  Other core specifications ☹ 25.331 v3.7.0, CR 0954r1  
 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.

**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		<del>Real(0..7.5 by step of 0.5)Integer (0..15)</del>	
>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	

<b>Condition</b>	<b>Explanation</b>
<i>Clause 0</i>	The IE is mandatory if " Inter-RAT event identity" is set to "3a", otherwise the IE is not needed
<i>Clause 1</i>	The IE is mandatory if " Inter-RAT event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

### 10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell [Note 1] (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition 1	CV-clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event
>Triggering condition 2	CV-clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event
>Reporting Range 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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Replacement activation threshold	CV-clause 5		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event 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)	
>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
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to , "1e", "1f", "1h" or "1i", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 5	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed
Clause 6	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1e".
Clause 7	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1c".

### 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
MaxROHC-PacketSizes	Maximum number of packet sizes that are allowed to be produced by ROHC.	16
MaxROHC-Profiles	Maximum number of profiles supported by ROHC on a given RB.	8
<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
maxTFCl-1-Combs	Maximum number of TFCI (field 1) combinations	512
maxTFCl-2-Combs	Maximum number of TFCI (field 2) combinations	512
maxCPCHsets	Maximum number of CPCH sets per cell	16
maxSIBperMsg	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
<b>PhyCH information</b>		
<del>maxSubCh</del>	<del>Maximum number of sub-channels on PRACH</del>	<del>12</del>
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
<del>maxSig</del>	<del>Maximum number of signatures on PRACH</del>	<del>16</del>
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16

maxAC	Maximum number of access classes	16
maxASC	Maximum number of access service classes	8
maxASCmap	Maximum number of access class to access service classes mappings	7
maxASCpersist	Maximum number of access service classes for which persistence scaling factors are specified	6
maxPRACH	Maximum number of PRACHs in a cell	16
MaxPRACH_FPACH	Maximum number of PRACH / FPACH pairs in a cell (1.28 Mcps TDD)	8
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
<b>maxDPCHcodesPerTS</b>	<b>Maximum number of codes for one timeslots (TDD)</b>	<b>16</b>
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)	6 (1.28 Mcps TDD) 14 (3.84 Mcps TDD)
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>		
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



## 11.2 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,
  Re-EstablishmentTimer,
  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-ConnTimersAndConstants,
  URA-UpdateCause,
  UTRAN-DRX-CycleLengthCoefficient,
  WaitTime,
-- Radio Bearer IEs :
  DefaultConfigIdentity,
  DefaultConfigMode,
  DL-CounterSynchronisationInfo,
  PredefinedConfigIdentity,

```

```

RAB-Info,
RAB-Info-Post,
RAB-InformationList,
RAB-InformationReconfigList,
RAB-InformationSetupList,
RAB-InformationSetupList-r4,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReconfigList-r4,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-InformationSetupList-r4,
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 :
AllocationPeriodInfo,
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-DPCH-PowerControlInfo,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
OpenLoopPowerControl-IPDL-TDD-r4,
PDSCH-CapacityAllocationInfo,
PDSCH-CapacityAllocationInfo-r4,
PDSCH-Identity,
PDSCH-Info,
PDSCH-Info-r4,
PRACH-RACH-Info,
PRACH-RACH-Info-LCR-r4,
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,
MeasuredResultsList,
MeasuredResultsList-LCR-r4-ext,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementCommand-r4,
MeasurementIdentity,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList,
UE-Positioning-GPS-AssistanceData,
UE-Positioning-OTDOA-AssistanceData,
UP-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
BCCH-ModificationInfo,
CDMA2000-MessageList,
GSM-MessageList,
InterRAT-ChangeFailureCause,
InterRAT-HO-FailureCause,
InterRAT-UE-RadioAccessCapabilityList,
InterRAT-UE-SecurityCapList,
InterRATMessage,
IntraDomainNasNodeSelector,
ProtocolErrorInformation,
ProtocolErrorMoreInformation,
Rplmn-Information,
Rplmn-Information-r4,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM InformationElements

maxSIBperMsg,
maxSystemCapability
FROM Constant-definitions;

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

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

AssistanceDataDelivery-r3-r4-ext-IEs ::= SEQUENCE {
  -- In case of TDD, the following IE is included instead of the IE
  -- up-IPDL-Parameters in up-OTDOA-AssistanceData
  up-IPDL-Parameters-TDD      UP-IPDL-Parameters-TDD-r4-ext      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,
    SEQUENCE {} OPTIONAL
  },
  later-than-r3      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-ErrorIndicationRb2or3    BOOLEAN,
am-RLC-ErrorIndicationRb4orAbove    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-establishIndicatorRb2or3    BOOLEAN,
  rlc-Re-establishIndicatorRb4orAbove    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          dl-PDSCH-Information          SEQUENCE {
        },          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                  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
}

-- *****
--
-- 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 {
        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                          SEQUENCE {
            -- 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                          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 {
            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 {
-- 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
        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          U-RNTI-Short,
activationTime      ActivationTime   OPTIONAL,
cipheringAlgorithm  CipheringAlgorithm OPTIONAL,
-- Radio bearer IEs
rab-Info            RAB-Info-Post,
-- Specification mode information
specificationMode   CHOICE {
    complete         SEQUENCE {
        srb-InformationSetupList  SRB-InformationSetupList,
        rab-InformationSetupList  RAB-InformationSetupList-r4   OPTIONAL,
        ul-CommonTransChInfo      UL-CommonTransChInfo,
        ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
        dl-CommonTransChInfo      DL-CommonTransChInfo,
        dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
        ul-DPCH-Info              UL-DPCH-Info-r4,
        modeSpecificInfo          CHOICE {
            fdd                   SEQUENCE {
                dl-PDSCH-Information  DL-PDSCH-Information OPTIONAL,
                cpch-SetInfo          CPCH-SetInfo          OPTIONAL
            },
            tdd                   NULL
        },
        dl-CommonInformation        DL-CommonInformation-r4,
        dl-InformationPerRL-List    DL-InformationPerRL-List-r4,
        frequencyInfo              FrequencyInfo
    },
    preconfiguration              SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
        predefinedConfigIdentity    PredefinedConfigIdentity,
        rab-Info                    RAB-Info-Post          OPTIONAL,
        modeSpecificInfo            CHOICE {
            fdd                     SEQUENCE {
                ul-DPCH-Info          UL-DPCH-InfoPostFDD,
                dl-CommonInformationPost DL-CommonInformationPost,
                dl-InformationPerRL-List DL-InformationPerRL-ListPostFDD,
                frequencyInfo         FrequencyInfoFDD
            },
            tdd                     CHOICE {
                tdd384               SEQUENCE {
                    ul-DPCH-Info      UL-DPCH-InfoPostTDD,
                    dl-InformationPerRL DL-InformationPerRL-PostTDD,
                    frequencyInfo     FrequencyInfoTDD,
                    primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
                },
                tdd128               SEQUENCE {
                    ul-DPCH-Info      UL-DPCH-InfoPostTDD-LCR-r4,
                    dl-InformationPerRL DL-InformationPerRL-PostTDD-LCR-r4,
                    frequencyInfo     FrequencyInfoTDD,
                    primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
                }
            }
        }
    }
},
-- Physical channel IEs
maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

```

```

}

-- *****
--
-- 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
                                HandoverFromUTRANCommand-CDMA2000-r3-IEs,

```

```

        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
    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
}

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

MeasurementControl ::= CHOICE {
    r3                                  SEQUENCE {
        measurementControl-r3          MeasurementControl-r3-IEs,
        nonCriticalExtensions          SEQUENCE {
            measurementControl-r3-r4-ext MeasurementControl-r3-r4-ext-IEs,
            nonCriticalExtensions      SEQUENCE {}          OPTIONAL
        }
    },
    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 {
    -- In case of TDD, the following IE is included instead of the IE
    -- up-IPDL-Parameters in up-OTDOA-AssistanceData
    up-IPDL-Parameters-TDD            UP-IPDL-Parameters-TDD-r4-ext  OPTIONAL
}

MeasurementControl-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,

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```

-- 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
  nonCriticalExtensions    SEQUENCE {
    measurementReport-r3-r4-ext  MeasurementReport-r3-r4-ext-IEs,
    nonCriticalExtensions        SEQUENCE {}      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
        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
                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
}

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
}

-- *****
--
-- 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
                                RadioBearerReconfiguration-r3-r4-ext-IEs,
    } 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-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
    -- 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
        rrc-TransactionIdentifier SEQUENCE {
            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
    radioBearerSetup-r3
    nonCriticalExtensions
    } OPTIONAL
  },
  later-than-r3
    rrc-TransactionIdentifier
    criticalExtensions
    r4
      radioBearerSetup-r4
      nonCriticalExtensions
    },
    criticalExtensions
  }
}

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

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    cipheringModeInfo          CipheringModeInfo          OPTIONAL,
    activationTime             ActivationTime          OPTIONAL,
    new-U-RNTI                 U-RNTI              OPTIONAL,
    new-C-RNTI                 C-RNTI              OPTIONAL,
    rrc-StateIndicator         RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- 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
        rrcConnectionReject-r3          SEQUENCE {
            nonCriticalExtensions        RRCConnectionReject-r3-IEs,
                                         SEQUENCE {} OPTIONAL
        },
    later-than-r3
        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
        rrcConnectionRelease-r3        SEQUENCE {
            nonCriticalExtensions        RRCConnectionRelease-r3-IEs,
                                         SEQUENCE {} OPTIONAL
        },
    later-than-r3
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions                CHOICE {
            r4
                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
        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  RRCCConnectionRelease-CCCH-r4-IEs,
                nonCriticalExtensions        SEQUENCE {} OPTIONAL
            },
            criticalExtensions            SEQUENCE {}
        }
    }
}

RRCCConnectionRelease-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             RRCCConnectionRelease-r3-IEs
}

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

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

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

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

RRCCConnectionRequest ::= 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
--
-- *****

RRCCConnectionSetup ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionSetup-r3       RRCCConnectionSetup-r3-IEs,
        nonCriticalExtensions        SEQUENCE {
            rrcConnectionSetup-r3-r4-ext  RRCCConnectionSetup-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       UL-ChannelRequirement-r4        OPTIONAL,
  dl-CommonInformation        DL-CommonInformation-r4        OPTIONAL,
  dl-InformationPerRL-List    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,
      -- Reserved for future non critical extension
      v4NonCriticalExtensions          SEQUENCE {
        rrcConnectionSetupComplete-r3-r4-ext
          RRCConnectionSetupComplete-r3-r4-ext-IEs,
        nonCriticalExtensions-r4      SEQUENCE {}          OPTIONAL
      }
    }
  }
}

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

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

-- *****
--
-- 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
}

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

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

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 REQUEST
--
-- *****

SignallingConnectionReleaseRequest ::= 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
}
}

```

```

-- *****
--
-- 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
    }
}

```

```

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

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,
    -- Reserved for future non critical extension
  v4NonCriticalExtensions      SEQUENCE {
    ueCapabilityInformation-r3-r4-ext
                                UECapabilityInformation-r3-r4-ext,
                                SEQUENCE {}      OPTIONAL
    nonCriticalExtensions-r4      SEQUENCE {}      OPTIONAL
  }      OPTIONAL
}
}

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

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
    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 {
    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,
  maxDPCHcodesPerTS,
  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,
maxPUSCH,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxSRBsetup,
maxRL,
maxRL-1,
maxROHC-PacketSizes-r4,
maxROHC-Profile-r4,
maxSCCPCH,
maxSat,
maxSIB,
maxSIB-FACH,
maxSig,
maxSubCh,
maxSystemCapability,
maxTF,
maxTF-CPCH,
maxTFC,
maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
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-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
    },
    iMSIUEinitiatedEvent                             SEQUENCE {
      routingparameter                                 RoutingParameter
    },
    iMEI                                               SEQUENCE {
      routingparameter                                 RoutingParameter
    },
    spare1                                             SEQUENCE {
      routingparameter                                 RoutingParameter
    },
    spare2                                             SEQUENCE {
      routingparameter                                 RoutingParameter
    }
  },
  enteredparameter                                    BOOLEAN
}

IMEI ::=                                             SEQUENCE (SIZE (15)) OF
                                                         IMEI-Digit

IMEI-Digit ::=                                       INTEGER (0..15)

IMSI-GSM-MAP ::=                                    SEQUENCE (SIZE (6..15)) 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 ::=                    SEQUENCE {
  mcc                                MCC,
  mnc                                MNC
}

PLMN-Type ::=                        CHOICE {
  gsm-MAP                            SEQUENCE {
    plmn-Identity                    PLMN-Identity
  },
  ansi-41                             SEQUENCE {
    p-REV                            P-REV,
    min-P-REV                        Min-P-REV,
    sid                              SID,
    nid                              NID
  },
  gsm-MAP-and-ANSI-41                SEQUENCE {
    plmn-Identity                    PLMN-Identity,
    p-REV                            P-REV,
    min-P-REV                        Min-P-REV,
    sid                              SID,
    nid                              NID
  }
}

RAB-Identity ::=                    CHOICE {
  gsm-MAP-RAB-Identity                BIT STRING (SIZE (8)),
  ansi-41-RAB-Identity                BIT STRING (SIZE (8))
}

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

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

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

```

OPTIONAL

```

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

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
    }

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-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,
        spare1 }

FailureCauseWithProtErr ::=
    CHOICE {
        configurationUnsupported          NULL,
        physicalChannelFailure           NULL,
        incompatibleSimultaneousReconfiguration
                                         NULL,
        compressedModeRuntimeError      TGPSI,
        protocolError                   ProtocolErrorInformation,
        cellUpdateOccurred              NULL,
        invalidConfiguration            NULL,
        configurationIncomplete         NULL,
        unsupportedMeasurement          NULL,
        spare1                          NULL,
        spare2                          NULL,
        spare3                          NULL,
        spare4                          NULL,
        spare5                          NULL,
        spare6                          NULL,
        spare7                          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 {
    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 }

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,
    compressedModeMeasCapabGSMLList     CompressedModeMeasCapabGSMLList 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
}
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 ::=
    supportForRfc3095
        notSupported
        supported
            maxROHC-ContextSessions
            reverseCompressionDepth
        }
    }

SEQUENCE {
    CHOICE {
        NULL,
        SEQUENCE {
            MaxROHC-ContextSessions-r4 DEFAULT s16,
            INTEGER (0..65535) DEFAULT 0
        }
    }
}

PhysicalChannelCapability ::=
    fddPhysChCapability
        downlinkPhysChCapability
        uplinkPhysChCapability
    }
    -- The following describes the 3.84Mcps TDD physical channel capability
    tddPhysChCapability
        downlinkPhysChCapability
        uplinkPhysChCapability
    }
}

-- The following describes the 1.28Mcps TDD physical channel capability
PhysicalChannelCapability-LCR-r4 ::=
    tdd128-PhysChCapability
        downlinkPhysChCapability
        uplinkPhysChCapability
    }
}

PNBSCH-Allocation-r4 ::=
    numberOfRepetitionsPerSFNPeriod
        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 ::=
    asnl-ViolationOrEncodingError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    conditionalInformationElementError,
    messageExtensionNotComprehended,
    spare1, spare2
}

ProtocolErrorIndicator ::=
    noError, errorOccurred
}

ProtocolErrorIndicatorWithMoreInfo ::=
    noError
    errorOccurred
        rrc-TransactionIdentifier
        protocolErrorInformation
    }
}

ProtocolErrorMoreInformation ::=
    diagnosticsType
        type1
            asnl-ViolationOrEncodingError
            messageTypeNonexistent
            messageNotCompatibleWithReceiverState
            ie-ValueNotComprehended
            conditionalInformationElementError
            messageExtensionNotComprehended
            spare1
            spare2
        },
        spare
    }
}

```



```

RadioFrequencyBandFDD ::=          ENUMERATED {
                                     fdd2100,
                                     fdd1900,
                                     spare1, spare2, spare3, spare4, spare5, spare6}

RadioFrequencyBandTDDList ::=      ENUMERATED {
                                     a, b, c, ab, ac, bc, abc }

RadioFrequencyBandTDD ::=          ENUMERATED {a, b, c, spare}

RadioFrequencyBandGSM ::=          ENUMERATED {
                                     gsm450,
                                     gsm480,
                                     gsm850,
                                     gsm900P,
                                     gsm900E,
                                     gsm1800,
                                     gsm1900,
                                     spare1, spare2, spare3, spare4, spare5,
                                     spare6, spare7, spare8, spare9}

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 }

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),
        uea1(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),
        uia1(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 }

T-302 ::=
    ENUMERATED {
        ms100, ms200, ms400, ms600, ms800,
        ms1000, ms1200, ms1400, ms1600,
        ms1800, ms2000, ms3000, ms4000,
        ms6000, ms8000 }

T-304 ::=
    ENUMERATED {
        ms100, ms200, ms400,
        ms1000, ms2000, spare1, spare2, spare3 }

T-305 ::=
    ENUMERATED {
        noUpdate, m5, m10, m30,
        m60, m120, m360, m720 }

T-307 ::=
    ENUMERATED {
        s5, s10, s15, s20,
        s30, s40, s50 }

T-308 ::=
    ENUMERATED {
        ms40, ms80, ms160, ms320 }

T-309 ::=
    INTEGER (1..8)

T-310 ::=
    ENUMERATED {
        ms40, ms80, ms120, ms160,
        ms200, ms240, ms280, ms320 }

T-311 ::=
    ENUMERATED {
        ms250, ms500, ms750, ms1000,
        ms1250, ms1500, ms1750, ms2000 }

T-312 ::=
    INTEGER (0..15)

T-313 ::=
    INTEGER (0..15)

T-314 ::=
    ENUMERATED {
        s0, s2, s4, s6, s8,
        s12, s16, s20 }

T-315 ::=
    ENUMERATED {
        s0, s10, s30, s60, s180,
        s600, s1200, s1800 }

T-316 ::=
    ENUMERATED {
        s0, s10, s20, s30, s40,
        s50, s-inf }

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-DS-41 ::=
    OCTET STRING (SIZE (2..12))

TotalRLC-AM-BufferSize ::=
    ENUMERATED {
        kb2, kb10, kb50, kb100,
        kb150, kb500, kb1000 }
```

```

-- 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-PowerClass-v370 ::= ENUMERATED {class1, class2, class3, class4,
    spare1, spare2, spare3, spare4}

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-RadioAccessCapability-v370ext ::= SEQUENCE {
  ue-RadioAccessCapabBandFDDList  UE-RadioAccessCapabBandFDDList
}

UE-RadioAccessCapabBandFDDList ::= SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
  UE-RadioAccessCapabBandFDD

UE-RadioAccessCapabBandFDD ::= SEQUENCE{
  radioFrequencyBandFDD           RadioFrequencyBandFDD,
  fddRF-Capability                SEQUENCE {
    ue-PowerClass                  UE-PowerClass-v370,
    txRxFrequencySeparation        TxRxFrequencySeparation
  } OPTIONAL,
  measurementCapability            MeasurementCapability-v370
}

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,
  maxSimultaneousTransChsUL         MaxSimultaneousTransChsUL,
  modeSpecificInfo                  CHOICE {
    fdd                               NULL,
    tdd                               SEQUENCE {
      maxSimultaneousCCTrCH-Count    MaxSimultaneousCCTrCH-Count
    }
  },
  maxTransmittedBlocks              MaxTransportBlocksUL,
  maxNumberOfTFC-InTFCS              MaxNumberOfTFC-InTFCS-UL,
  maxNumberOfTF                      MaxNumberOfTF
}

UE-Positioning-Capability ::= SEQUENCE {
  standaloneLocMethodsSupported     BOOLEAN,
  ue-BasedOTDOA-Supported            BOOLEAN,
  networkAssistedGPS-Supported      NetworkAssistedGPS-Supported,
  gps-ReferenceTimeCapable          BOOLEAN,
  supportForIPDL                     BOOLEAN
}

URA-UpdateCause ::= ENUMERATED {
  changeOfURA,
  periodicURAUpdate,
}

```

```

        re-enteredServiceArea,
        spare1 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..9)

WaitTime ::=
    INTEGER (0..15)

-- *****
--
--     RADIO BEARER INFORMATION ELEMENTS (10.3.4)
--
-- *****

AlgorithmSpecificInfo ::=
    CHOICE {
        rfc2507-Info
    }

AlgorithmSpecificInfo-r4 ::=
    CHOICE {
        rfc2507-Info
        rfc3095-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
        receivingWindowSize
        dl-RLC-StatusInfo
    }

DL-CounterSynchronisationInfo ::=
    SEQUENCE {
        rB-WithPDCP-InfoList
    }

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

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

DL-RLC-Mode ::=
    CHOICE {
        dl-AM-RLC-Mode
        dl-UM-RLC-Mode
        dl-TM-RLC-Mode
    }

DL-RLC-StatusInfo ::=
    SEQUENCE {
        timerStatusProhibit
        timerEPC
        missingPDU-Indicator
        timerStatusPeriodic
    }

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

DL-TransportChannelType ::=
    CHOICE {
        dch
        fach
        dsch
        dch-and-dsch
    }

ExpectReordering ::=
    ENUMERATED {

```

```

reorderingNotExpected,
reorderingExpected }

ExplicitDiscard ::=
    timerMRW
    timerDiscard
    maxMRW
}

HeaderCompressionInfo ::=
    algorithmSpecificInfo
}

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

HeaderCompressionInfo-r4 ::=
    SEQUENCE {
        algorithmSpecificInfo-r4
    }

HeaderCompressionInfoList-r4 ::=
    SEQUENCE (SIZE (1..maxPDCPALgoType)) OF
        HeaderCompressionInfo-r4

LogicalChannelIdentity ::=
    INTEGER (1..15)

LosslessSRNS-RelocSupport ::=
    CHOICE {
        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 ::=
    SEQUENCE {
        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 ::=
    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-Info-r4 ::=
    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-r4    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 ::=
    pdcp-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 ::=
    timerPollProhibit
    timerPoll
    poll-PDU
    poll-SDU
    lastTransmissionPDU-Poll
    lastRetransmissionPDU-Poll
    pollWindow
    timerPollPeriodic
}

PollWindow ::=
    ENUMERATED {
        pw50, pw60, pw70, pw80, pw85,
        pw90, pw95, pw99 }

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

PredefinedRB-Configuration ::=
    re-EstablishmentTimer
    srb-InformationList
    rb-InformationList
}

PreDefRadioConfiguration ::=
    -- Radio bearer IEs
    predefinedRB-Configuration
    -- Transport channel IEs
    preDefTransChConfiguration
    -- Physical channel IEs
    preDefPhyChConfiguration
}

RAB-Info ::=
    rab-Identity
    cn-DomainIdentity
    nas-Synchronisation-Indicator
    re-EstablishmentTimer
}

RAB-InformationList ::=
    SEQUENCE (SIZE (1..maxRABsetup)) OF
        RAB-Info

RAB-InformationReconfigList ::=
    SEQUENCE (SIZE (1.. maxRABsetup)) OF
        RAB-InformationReconfig

RAB-InformationReconfig ::=
    rab-Identity
    cn-DomainIdentity
    nas-Synchronisation-Indicator
}

RAB-Info-Post ::=
    rab-Identity
    cn-DomainIdentity
    nas-Synchronisation-Indicator
}

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 {
    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 ::= SEQUENCE {
    ul-RLC-Mode UL-RLC-Mode OPTIONAL,
    dl-RLC-Mode DL-RLC-Mode OPTIONAL
}
RLC-InfoChoice ::= CHOICE {
    rlc-Info RLC-Info,
    same-as-RB RB-Identity
}
RLC-SequenceNumber ::= INTEGER (0..4095)
RLC-SizeInfo ::= SEQUENCE {

```

```

    rlc-SizeIndex                INTEGER (1..maxTF)
}
RLC-SizeExplicitList ::=
    SEQUENCE (SIZE (1..maxTF)) OF
        RLC-SizeInfo
ROHC-Profile-r4 ::=
    INTEGER (1..3)
ROHC-ProfileList-r4 ::=
    SEQUENCE (SIZE (1..maxROHC-Profile-r4)) OF
        ROHC-Profile-r4
ROHC-PacketSize-r4 ::=
    INTEGER (2..1500)
ROHC-PacketSizeList-r4 ::=
    SEQUENCE (SIZE (1..maxROHC-PacketSizes-r4)) OF
        ROHC-PacketSize-r4
SRB-InformationSetup ::=
    SEQUENCE {
        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 ::=
    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 ::=
    transmissionRLC-Discard
    transmissionWindowSize
    timerRST
    max-RST
    pollingInfo
}

UL-CounterSynchronisationInfo ::=
    rB-WithPDCP-InfoList
    startList
}

UL-LogicalChannelMapping ::=
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType
    logicalChannelIdentity
    rlc-SizeList
        allSizes
        configured
        explicitList
    },
    mac-LogicalChannelPriority
}

UL-LogicalChannelMappingList ::=
    rlc-LogicalChannelMappingIndicator
    ul-LogicalChannelMapping
}

UL-LogicalChannelMappings ::=
    oneLogicalChannel
    twoLogicalChannels
}

UL-RLC-Mode ::=
    ul-AM-RLC-Mode
    ul-UM-RLC-Mode
}

```

```

    ul-TM-RLC-Mode      UL-TM-RLC-Mode,
    spare              NULL
}

UL-TM-RLC-Mode ::=
    transmissionRLC-Discard      TransmissionRLC-Discard      OPTIONAL,
    segmentationIndication      BOOLEAN
}

UL-UM-RLC-Mode ::=
    transmissionRLC-Discard      TransmissionRLC-Discard      OPTIONAL
}

UL-TransportChannelType ::=
    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)
            -- Actual size = (part1 * 8) + 128 + part2
        },
        sizeType3      SEQUENCE {
            part1      INTEGER (0..47),
            part2      INTEGER (1..15)
            -- Actual size = (part1 * 16) + 256 + part2
        },
        sizeType4      SEQUENCE {
            part1      INTEGER (0..62),
            part2      INTEGER (1..63)
            -- 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
}

DL-AddReconfTransChInfo2List ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                   DL-AddReconfTransChInformation2

DL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                   DL-AddReconfTransChInformation

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::= SEQUENCE {
    dl-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
            }
        }
        tdd                           SEQUENCE {
            individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList
        }
    }
}

-- 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              CHOICE {
                dl-DCH-TFCS            SEQUENCE {
                    tfcs                TFCS                OPTIONAL
                },
                sameAsUL               NULL
            }
        }
        tdd                           SEQUENCE {
            individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList
        }
    }
}

DL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                   DL-TransportChannelIdentity

DL-TransportChannelIdentity ::= SEQUENCE {
    dl-TransportChannelType          DL-TrCH-Type,

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    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)
}
OPTIONAL

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,

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    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                SEQUENCE {
        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 ::=
    minimumAllowedTFC-Number
    allowedTFC-List
    non-allowedTFC-List
    restrictedTrChInfoList
    fullTFCS
    CHOICE {
        TFC-Value,
        AllowedTFC-List,
        Non-allowedTFC-List,
        RestrictedTrChInfoList,
        NULL
    }

TFC-Value ::=
    INTEGER (0..1023)

TFCI-Field2-Information ::=
    tfci-Range
    explicit-config-
    CHOICE {
        TFCI-RangeList,
        ExplicitTFCS-Configuration
    }

TFCI-Range ::=
    maxTFCIField2Value
    tfcs-InfoForDSCH
    SEQUENCE {
        INTEGER (1..1023),
        TFCS-InfoForDSCH
    }

TFCI-RangeList ::=
    SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
    TFCI-Range

TFCS ::=
    normalTFCI-Signalling
    splitTFCI-Signalling
    CHOICE {
        ExplicitTFCS-Configuration,
        SplitTFCI-Signalling
    }

TFCS-Identity ::=
    tfcs-ID
    sharedChannelIndicator
    SEQUENCE {
        TFCS-IdentityPlain          DEFAULT 1,
        BOOLEAN
    }

TFCS-IdentityPlain ::=
    INTEGER (1..8)

TFCS-InfoForDSCH ::=
    ctfc2bit
    ctfc4bit
    ctfc6bit
    ctfc8bit
    ctfc12bit
    ctfc16bit
    ctfc24bit
    CHOICE {
        INTEGER (0..3),
        INTEGER (0..15),
        INTEGER (0..63),
        INTEGER (0..255),
        INTEGER (0..4095),
        INTEGER (0..65535),
        INTEGER (0..16777215)
    }

TFCS-ReconfAdd ::=
    ctfcSize
    ctfc2Bit
        ctfc2
        powerOffsetInformation
    },
    ctfc4Bit
        ctfc4
        powerOffsetInformation
    },
    ctfc6Bit
        ctfc6
        powerOffsetInformation
    },
    ctfc8Bit
        ctfc8
        powerOffsetInformation
    },
    ctfc12Bit
        ctfc12
        powerOffsetInformation
    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 ::=
  dedicatedTransChTFS      DedicatedTransChTFS,
  commonTransChTFS         CommonTransChTFS
}

TransportFormatSet-LCR ::=
  dedicatedTransChTFS      DedicatedTransChTFS,
  commonTransChTFS-LCR     CommonTransChTFS-LCR
}

UL-AddReconfTransChInfoList ::=
  SEQUENCE (SIZE (1..maxTrCH)) 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
  -- CTrCH Info.
  tfc-Subset                TFC-Subset                OPTIONAL,
  prach-TFCS                TFCS                    OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                     SEQUENCE {
      ul-TFCS                TFCS
    },
    tdd                     SEQUENCE {
      ul-TFCS                TFCS
    }
  }
  individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList OPTIONAL
}
}
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 {
        chCodeIndex0(0),
        chCodeIndex1(1),
        chCodeIndex2(2),
        chCodeIndex3(3),
        chCodeIndex4(4),
        chCodeIndex5(5),
        chCodeIndex6(6),
        chCodeIndex7(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                         SEQUENCE {
            subchannels                BIT STRING {
                subCh7(0),
                subCh6(1),
                subCh5(2),
                subCh4(3),
                subCh3(4),
                subCh2(5),
                subCh1(6),
                subCh0(7)
            } (SIZE(8))                    OPTIONAL
        }
    }
}
}
}

```

```

AccessServiceClass-TDD-LCR-r4 ::= SEQUENCE {
  availableSYNC-UlCodesIndics BIT STRING {
    sulCodeIndex0(0),
    sulCodeIndex1(1),
    sulCodeIndex2(2),
    sulCodeIndex3(3),
    sulCodeIndex4(4),
    sulCodeIndex5(5),
    sulCodeIndex6(6),
    sulCodeIndex7(7)
  } (SIZE(8)) OPTIONAL,
  subchannelSize CHOICE {
    size1 NULL,
    -- in 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
}
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          TFCS-Identity          OPTIONAL,
  ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo
}

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CCTrCH-PowerControlInfo-r4 ::= SEQUENCE {
    tfcs-Identity                TFCS-Identity                OPTIONAL,
    ul-DPCH-PowerControlInfo    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-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList    OPTIONAL
}

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList        PDSCH-CodeMapList
}

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

CommonTimeslotInfo ::= SEQUENCE {
    -- TABULAR: 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)

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```

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,
    dl-CCTrCH-TimeslotsCodes          DownlinkTimeslotsCodes          OPTIONAL,
    ul-CCTrChTPCList                 UL-CCTrChTPCList                OPTIONAL
}

DL-CCTrCh-r4 ::=                    SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain                DEFAULT 1,
    timeInfo                          TimeInfo,
    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 ::=
    secondaryScramblingCode      SEQUENCE {
    sf-AndCodeNumber              SecondaryScramblingCode      OPTIONAL,
    scramblingCodeChange          SF512-AndCodeNumber,
    }                             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              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-InfoCommonPost
}

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommonPredef      OPTIONAL
}

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

DL-DPCH-InfoCommon ::= SEQUENCE {
    cfnHandling                   CHOICE {
        maintain                   NULL,
        initialise                  SEQUENCE {
            cfntargetsfnsframeoffset Cfntargetsfnsframeoffset      OPTIONAL
        }
    },
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            dl-DPCH-PowerControlInfo    DL-DPCH-PowerControlInfo    OPTIONAL,
            powerOffsetPilot-pdpdch     PowerOffsetPilot-pdpdch,
            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,

```

```

        commonTimeslotInfo
    }
}

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-DPCH-InfoPerRL-r4 ::=
    fdd
        pCPICH-UsageForChannelEst
        dpch-FrameOffset
        secondaryCPICH-Info
        dl-ChannelisationCodeList
        tpc-CombinationIndex
        ssdt-CellIdentity
        closedLoopTimingAdjMode
    },
    tdd
}

DL-DPCH-InfoPerRL-PostFDD ::=
    pCPICH-UsageForChannelEst
    dl-ChannelisationCode
    tpc-CombinationIndex
}

DL-DPCH-InfoPerRL-PostTDD ::=
    dl-DPCH-TimeslotsCodes
}

DL-DPCH-InfoPerRL-PostTDD-LCR-r4 ::=
    dl-CCTrCH-TimeslotsCodes
}

DL-DPCH-PowerControlInfo ::=
    modeSpecificInfo
    fdd
        dpc-Mode
    },
    tdd
        tpc-StepSizeTDD
}
}

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

DL-InformationPerRL ::=

```

```

modeSpecificInfo
  fdd
    primaryCPICH-Info
    pdsch-SHO-DCH-Info
    pdsch-CodeMapping
  },
  tdd
    PrimaryCCPCH-Info
},
dl-DPCH-InfoPerRL
sccpch-InfoForFACH
}

DL-InformationPerRL-r4 ::=
modeSpecificInfo
  fdd
    primaryCPICH-Info
    pdsch-SHO-DCH-Info
    pdsch-CodeMapping
  },
  tdd
    PrimaryCCPCH-Info-r4
},
dl-DPCH-InfoPerRL
secondaryCCPCH-Info
}

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
  dl-DPCH-InfoPerRL
}

DL-InformationPerRL-PostTDD ::= SEQUENCE {
  primaryCCPCH-Info
  dl-DPCH-InfoPerRL
}

DL-InformationPerRL-PostTDD-LCR-r4 ::= SEQUENCE {
  primaryCCPCH-Info
  dl-DPCH-InfoPerRL
}

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

DL-rate-matching-restriction ::= SEQUENCE {
  restrictedTrCH-InfoList
}

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
  consecutive
  firstChannelisationCode
  lastChannelisationCode
},
bitmap

```

```

        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
        }
    }
}

DownlinkAdditionalTimeslots-LCR-r4 ::= SEQUENCE {
    parameters CHOICE {
        sameAsLast SEQUENCE {
            timeslotNumber TimeslotNumber-LCR-r4
        },
        newParameters SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo-LCR-r4,
            dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort
        }
    }
}

DownlinkTimeslotsCodes ::= SEQUENCE {
    firstIndividualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
    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 SEQUENCE (SIZE (1..maxTS-LCR-1)) OF
                DownlinkAdditionalTimeslots-LCR-r4
        }
    }
}

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
}

-- 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

FPACH-Info-r4 ::= SEQUENCE {
    timeslot                    TimeslotNumber-PRACH-LCR-r4,
    channelisationCode          TDD-FPACH-CCode16-r4,
    midambleShiftAndBurstType  MidambleShiftAndBurstType-LCR-r4,
    wi                          Wi-LCR
}

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
}

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 }

NidentityAbort ::= 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                    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
}
}
}
}
}

```

```

    }
  }
}

MidambleShiftAndBurstType-LCR-r4 ::= SEQUENCE {
  midambleAllocationMode CHOICE {
    defaultMidamble 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              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 ::= 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-Info-r4 ::= SEQUENCE {
    tfcs-ID                          TFCS-IdentityPlain            DEFAULT 1,
    commonTimeslotInfo                CommonTimeslotInfo          OPTIONAL,
}

```



<pre> tddOption   tdd384     pdsch-TimeslotsCodes   },   tdd128     pdsch-TimeslotsCodes   } } </pre>	<pre> CHOICE {   SEQUENCE {     DownlinkTimeslotsCodes OPTIONAL   },   SEQUENCE {     DownlinkTimeslotsCodes-LCR-r4 OPTIONAL   } } </pre>
<pre> PDSCH-Info-LCR-r4 ::=   tfcs-ID   commonTimeslotInfo   pdsch-TimeslotsCodes } </pre>	<pre> SEQUENCE {   TFCS-IdentityPlain          DEFAULT 1,   CommonTimeslotInfo         OPTIONAL,   DownlinkTimeslotsCodes-LCR-r4 OPTIONAL } </pre>
<pre> PDSCH-PowerControlInfo ::=   tpc-StepSizeTDD   ul-CCTrChTPCList } </pre>	<pre> SEQUENCE {   TPC-StepSizeTDD           OPTIONAL,   UL-CCTrChTPCList         OPTIONAL } </pre>
<pre> PDSCH-SHO-DCH-Info ::=   dsch-RadioLinkIdentifier   rl-IdentififierList } </pre>	<pre> SEQUENCE {   DSCH-RadioLinkIdentifier,   RL-IdentififierList } OPTIONAL </pre>
<pre> PDSCH-SysInfo ::=   pdsch-Identity   pdsch-Info   dsch-TFS   dsch-TFCS } </pre>	<pre> SEQUENCE {   PDSCH-Identity,   PDSCH-Info,   TransportFormatSet   TFCS } OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-SysInfo-LCR-r4 ::=   pdsch-Identity   pdsch-Info   dsch-TFS   dsch-TFCS } </pre>	<pre> SEQUENCE {   PDSCH-Identity,   PDSCH-Info-LCR-r4,   TransportFormatSet   TFCS } OPTIONAL, OPTIONAL </pre>
<pre> PDSCH-SysInfoList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF   PDSCH-SysInfo </pre>
<pre> PDSCH-SysInfoList-LCR-r4 ::= </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF   PDSCH-SysInfo-LCR-r4 </pre>
<pre> PDSCH-SysInfoList-SFN ::=   pdsch-SysInfo   sfn-TimeInfo } </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF   SEQUENCE {     PDSCH-SysInfo,     SFN-TimeInfo   } } OPTIONAL </pre>
<pre> PDSCH-SysInfoList-SFN-LCR-r4 ::=   pdsch-SysInfo   sfn-TimeInfo } </pre>	<pre> SEQUENCE (SIZE (1..maxPDSCH)) OF   SEQUENCE {     PDSCH-SysInfo-LCR-r4,     SFN-TimeInfo   } } OPTIONAL </pre>
<pre> PersistenceScalingFactor ::= </pre>	<pre> ENUMERATED {   psf0-9, psf0-8, psf0-7, psf0-6,   psf0-5, psf0-4, psf0-3, psf0-2 } </pre>
<pre> PersistenceScalingFactorList ::= </pre>	<pre> SEQUENCE (SIZE (1..maxASCPersist)) OF   PersistenceScalingFactor </pre>
<pre> PI-CountPerFrame ::= </pre>	<pre> ENUMERATED {   e18, e36, e72, e144 } </pre>
<pre> PICH-Info ::=   fdd     channelisationCode256     pi-CountPerFrame     sttd-Indicator   },   tdd     channelisationCode     timeslot     burstType } </pre>	<pre> CHOICE {   SEQUENCE {     ChannelisationCode256,     PI-CountPerFrame,     BOOLEAN   },   SEQUENCE {     TDD-PICH-CCode     TimeslotNumber     CHOICE { </pre>

<pre>                 type-1                 type-2             }             repetitionPeriodLengthOffset             pagingIndicatorLength             n-GAP             n-PCH         }     } </pre>	<pre>                 MidambleShiftLong,                 MidambleShiftShort             RepPerLengthOffset-PICH             PagingIndicatorLength             N-GAP             N-PCH </pre>	<pre>                 OPTIONAL,                 OPTIONAL,                 DEFAULT pi4,                 DEFAULT f4,                 DEFAULT 2 </pre>
<pre> PICH-Info-LCR-r4 ::=     timeslot     midambleShiftAndBurstType     repetitionPeriodLengthOffset     pagingIndicatorLength     n-GAP     n-PCH } </pre>	<pre> SEQUENCE {     TimeslotNumber-LCR-r4     MidambleShiftAndBurstType-LCR-r4,     RepPerLengthOffset-PICH     PagingIndicatorLength     N-GAP     N-PCH } </pre>	<pre>                 OPTIONAL,                 OPTIONAL,                 DEFAULT pi4,                 DEFAULT f4,                 DEFAULT 2 </pre>
<pre> PICH-PowerOffset ::= </pre>	<pre> INTEGER (-10..5) </pre>	
<pre> PilotBits128 ::= </pre>	<pre> ENUMERATED {     pb4, pb8 } </pre>	
<pre> PilotBits256 ::= </pre>	<pre> ENUMERATED {     pb2, pb4, pb8 } </pre>	
<pre> PositionFixedOrFlexible ::= </pre>	<pre> ENUMERATED {     fixed,     flexible } </pre>	
<pre> PowerControlAlgorithm ::=     algorithm1     algorithm2 } </pre>	<pre> CHOICE {     TPC-StepSizeFDD,     NULL } </pre>	
<pre> PowerOffsetPilot-pdpdch ::= </pre>	<pre> INTEGER (0..24) </pre>	
<pre> PowerRampStep ::= </pre>	<pre> INTEGER (1..8) </pre>	
<pre> PRACH-ChanCodes-LCR-r4 ::= </pre>	<pre> SEQUENCE (SIZE (1..4)) OF     TDD-PRACH-CCode-LCR-r4 </pre>	
<pre> PRACH-Definition-LCR-r4 ::=     timeslot     prach-ChanCodes-LCR     midambleShiftAndBurstType     fpach-Info } </pre>	<pre> SEQUENCE {     TimeslotNumber-PRACH-LCR-r4,     PRACH-ChanCodes-LCR-r4,     MidambleShiftAndBurstType-LCR-r4,     FPACH-Info-r4 } </pre>	
<pre> PRACH-Midamble ::= </pre>	<pre> ENUMERATED {     direct,     direct-Inverted } </pre>	
<pre> PRACH-Partitioning ::=     fdd     tdd } </pre>	<pre> CHOICE {     SEQUENCE (SIZE (1..maxASC)) OF         ASCSetting-FDD,     SEQUENCE (SIZE (1..maxASC)) OF         ASCSetting-TDD } </pre>	
<pre> PRACH-Partitioning-LCR-r4 ::= </pre>	<pre> SEQUENCE (SIZE (1..maxASC)) OF     ASCSetting-TDD-LCR-r4 </pre>	
<pre> PRACH-PowerOffset ::=     powerRampStep     preambleRetransMax } </pre>	<pre> SEQUENCE {     PowerRampStep,     PreambleRetransMax } </pre>	
<pre> PRACH-RACH-Info ::=     modeSpecificInfo     fdd         availableSignatures         availableSF         preambleScramblingCodeWordNumber         puncturingLimit         availableSubChannelNumbers     }, </pre>	<pre> SEQUENCE {     CHOICE {         SEQUENCE {             AvailableSignatures,             SF-PRACH,             PreambleScramblingCodeWordNumber,             PuncturingLimit,             AvailableSubChannelNumbers         }     } } </pre>	

```

    tdd
        timeslot
        channelisationCodeList
        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-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
    PRACH-SystemInformation

PreambleRetransMax ::= INTEGER (1..64)

PreambleScramblingCodeWordNumber ::= INTEGER (0..15)

PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef      UL-DPCH-InfoPredef,
    dl-CommonInformationPredef DL-CommonInformationPredef OPTIONAL
}

PrimaryCCPCH-Info ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    },
    tdd SEQUENCE {
        -- syncCase should be absent for 1.28Mcps TDD mode
        syncCase CHOICE {
            syncCase1 SEQUENCE {
                timeslot TimeslotNumber
            },
            syncCase2 SEQUENCE {
                timeslotSync2 TimeslotSync2
            }
        }
        cellParametersID CellParametersID OPTIONAL,
        blockSTTD-Indicator BOOLEAN 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
                    }
                }
            }
        }
    }
}

```

```

    }
    },
    tddl28
    tstd-Indicator
  },
  cellParametersID
  blockSTTD-Indicator
}

PrimaryCCPCH-Info-LCR-r4 ::= SEQUENCE {
  tstd-Indicator          BOOLEAN,
  cellParametersID      CellParametersID
  blockSTTD-Indicator    BOOLEAN
}

-- For 1.28Mcps TDD, the following IE includes elements for the PCCPCH Info additional to those
-- in PrimaryCCPCH-Info
PrimaryCCPCH-Info-LCR-r4-ext ::= SEQUENCE {
  tstd-Indicator          BOOLEAN
}

PrimaryCCPCH-InfoPost ::= SEQUENCE {
  syncCase                CHOICE {
    syncCase1              SEQUENCE {
      timeslot              TimeslotNumber
    },
    syncCase2              SEQUENCE {
      timeslotSync2        TimeslotSync2
    }
  },
  cellParametersID        CellParametersID,
  blockSTTD-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 {
      pdsch-AllocationPeriodInfo AllocationPeriodInfo,
      pusch-PowerControlInfo      UL-TargetSIR
      tfcs-ID                      TFCS-IdentityPlain
      configuration                CHOICE {
        old-Configuration          SEQUENCE {
          pusch-Identity            PUSCH-Identity
        },
        new-Configuration          SEQUENCE {
          pusch-Info                PUSCH-Info,
          pusch-Identity            PUSCH-Identity
        }
      }
    }
  }
}

```

```

PUSCH-CapacityAllocationInfo-r4 ::= SEQUENCE {
    pusch-Allocation          CHOICE {
        pusch-AllocationPending    NULL,
        pusch-AllocationAssignment SEQUENCE {
            pdsch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo     PUSCH-PowerControlInfo-r4  OPTIONAL,
            tfcs-Identity              TFCS-IdentityPlain        OPTIONAL,
            configuration              CHOICE {
                old-Configuration      SEQUENCE {
                    pusch-Identity     PUSCH-Identity
                },
                new-Configuration      SEQUENCE {
                    pusch-Info         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 {
    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       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
    pusched-SysInfo                SEQUENCE {
    sfn-TimeInfo                    PUSCH-SysInfo,
    }                                SFN-TimeInfo                                OPTIONAL

PUSCH-SysInfoList-SFN-LCR-r4 ::=  SEQUENCE (SIZE (1..maxPDSCH)) OF
    pusched-SysInfo                SEQUENCE {
    sfn-TimeInfo                    PUSCH-SysInfo-LCR-r4,
    }                                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 ::=
    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 {
    e1bit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

SCCPCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..16)) OF
    SCCPCH-ChannelisationCode

SCCPCH-InfoForFACH ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                     TFCS,
    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           OPTIONAL,
    fach-PCH-InformationList FACH-PCH-InformationList OPTIONAL,
    pich-Info                PICH-Info      OPTIONAL
}

SCCPCH-SystemInformation-LCR-r4-ext ::= SEQUENCE {
    secondaryCCPCH-LCR-Extensions SecondaryCCPCH-Info-LCR-r4-ext,
    -- pich-Info in the SCCPCH-SystemInformation IE shall be absent, and instead the following used.
    pich-Info                PICH-Info-LCR-r4           OPTIONAL
}

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

SecondaryCCPCH-Info-r4 ::=              SEQUENCE {
  modeSpecificInfo                       CHOICE {
    fdd                                    SEQUENCE {
      pCPICH-UsageForChannelEst          PCPICH-UsageForChannelEst,
      secondaryCPICH-Info                 SecondaryCPICH-Info           OPTIONAL,
      secondaryScramblingCode             SecondaryScramblingCode     OPTIONAL,
      sttd-Indicator                      BOOLEAN,
      sf-AndCodeNumber                    SF256-AndCodeNumber,
      pilotSymbolExistence                BOOLEAN,
      tfci-Existence                      BOOLEAN,
      positionFixedOrFlexible              PositionFixedOrFlexible,
      timingOffset                         TimingOffset                DEFAULT 0
    },
    tdd                                    SEQUENCE {
      -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
      commonTimeslotInfo                  CommonTimeslotInfoSCCPCH,
      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,
  channelisationCode256                   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 (SIZE (8))
    fpach-Info          FPACH-Info-r4
    sync-UL-Procedure   SYNC-UL-Procedure-r4
}
OPTIONAL,
OPTIONAL

```

```

SYNC-UL-Procedure-r4 ::=
    max-SYNC-UL-Transmissions
    powerRampingStep
}

SYNC-UL-Info-r4 ::=
    sync-UL-Codes-Bitmap
    ul-TargetSIR
    powerRampingStep
    max-SYNC-UL-Transmissions
    mmax
}

TDD-FPACH-CCode16-r4 ::=
    ENUMERATED {
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PICH-CCode ::=
    ENUMERATED {
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode8 ::=
    ENUMERATED {
        cc8-1, cc8-2, cc8-3, cc8-4,
        cc8-5, cc8-6, cc8-7, cc8-8 }

TDD-PRACH-CCode16 ::=
    ENUMERATED {
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCode-LCR-r4 ::=
    ENUMERATED {
        cc4-1, cc4-2, cc4-3, cc4-4,
        cc8-1, cc8-2, cc8-3, cc8-4,
        cc8-5, cc8-6, cc8-7, cc8-8,
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCodeList ::=
    sf8
    sf16
}

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 ::=
    tgpsi
    tgps-Status
    SEQUENCE {
        TGPSI,
        CHOICE {

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```

        activate          SEQUENCE {
            tgcfm          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          TGCFM
        },
        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,
    tgl1                       TGL,
    tgl2                       TGL,
    tgd                        TGD,
    tgpl1                       TGPL,
    tgpl2                       TGPL,
    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,
    deltaSIRAfter2             DeltaSIR,
    nidentifyAbort             NidentifyAbort,
    treconfirmAbort            TreconfirmAbort
}

TGPSI ::=                    INTEGER (1..maxTGPS)

TGSN ::=                      INTEGER (0..14)

TimeInfo ::=                  SEQUENCE {
    activationTime             ActivationTime,
    durationTimeInfo           DurationTimeInfo
}

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)

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 ::= SEQUENCE {
    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    ul-CCTrCH-TimeslotsCodes UplinkTimeslotsCodes OPTIONAL
}

UL-CCTrCH-r4 ::= SEQUENCE {
    tfcs-ID TFCS-IdentityPlain DEFAULT 1,
    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-DPCH-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
        tfci-Existence
        puncturingLimit
    },
    tdd
        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,
            ul-OL-PC-Signalling          CHOICE {
                broadcast-UL-OL-PC-info  NULL,
                handoverGroup            SEQUENCE {
                    individualTS-InterferenceList  IndividualTS-InterferenceList,
                    dpch-ConstantValue            ConstantValue,
                    primaryCCPCH-TX-Power        PrimaryCCPCH-TX-Power
                }
            }
        }
} OPTIONAL

UL-DPCH-PowerControlInfo-r4 ::= CHOICE {
    fdd
        SEQUENCE {
            dpcch-PowerOffset          DPCCH-PowerOffset,
            pc-Preamble                PC-Preamble,
            powerControlAlgorithm       PowerControlAlgorithm
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        },
    tdd
        SEQUENCE {
            ul-TargetSIR                UL-TargetSIR,
            ul-OL-PC-Signalling          CHOICE {
                broadcast-UL-OL-PC-info  NULL,
                handoverGroup            SEQUENCE {
                    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 {
    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-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-r4 OPTIONAL,
                synchronisationParameters  SynchronisationParameters-r4 OPTIONAL
            }
        }
    }
}

UL-TimingAdvanceControl-LCR-r4 ::=      CHOICE {
    disabled                             NULL,
    enabled                               SEQUENCE {
        ul-SynchronisationParameters-r4  UL-SynchronisationParameters-r4 OPTIONAL,
        synchronisationParameters-r4     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 }

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
    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              CHOICE {

```

```

fdd
    primaryCPICH-Info
    primaryCPICH-TX-Power
    readSFN-Indicator
    tx-DiversityIndicator
},
tdd
    primaryCCPCH-Info
    primaryCCPCH-TX-Power
    timeslotInfoList
    readSFN-Indicator
}
}

CellInfo-r4 ::=
    cellIndividualOffset
    referenceTimeDifferenceToCell
    modeSpecificInfo
    fdd
        primaryCPICH-Info
        primaryCPICH-TX-Power
        readSFN-Indicator
        tx-DiversityIndicator
    },
    tdd
        primaryCCPCH-Info
        primaryCCPCH-TX-Power
        timeslotInfoList
    }
}

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
    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
    }
}

```

```

SEQUENCE {
    PrimaryCPICH-Info
    PrimaryCPICH-TX-Power
    BOOLEAN,
    BOOLEAN
}

SEQUENCE {
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power
    OPTIONAL,
    TimeslotInfoList
    OPTIONAL,
    BOOLEAN
}

SEQUENCE {
    CellIndividualOffset
    ReferenceTimeDifferenceToCell
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info
            PrimaryCPICH-TX-Power
            BOOLEAN,
            BOOLEAN
        }
        SEQUENCE {
            PrimaryCCPCH-Info-r4,
            PrimaryCCPCH-TX-Power
            OPTIONAL,
            TimeslotInfoList-r4
            OPTIONAL
        }
    }
}

SEQUENCE {
    CellIndividualOffset
    ReferenceTimeDifferenceToCell
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info
            PrimaryCPICH-TX-Power
            BOOLEAN,
            BOOLEAN
        }
        SEQUENCE {
            PrimaryCCPCH-Info,
            PrimaryCCPCH-TX-Power
            OPTIONAL,
            TimeslotInfoList
            OPTIONAL,
            BOOLEAN
        }
    }
    CellSelectReselectInfoSIB-11-12-RSCP
    OPTIONAL
}

SEQUENCE {
    CellIndividualOffset
    ReferenceTimeDifferenceToCell
    PrimaryCCPCH-Info-LCR-r4,
    PrimaryCCPCH-TX-Power
    OPTIONAL,
    TimeslotInfoList-LCR-r4
    OPTIONAL,
    CellSelectReselectInfoSIB-11-12-RSCP
    OPTIONAL
}

SEQUENCE {
    CellIndividualOffset
    ReferenceTimeDifferenceToCell
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info
            PrimaryCPICH-TX-Power
            BOOLEAN,
            BOOLEAN
        }
        SEQUENCE {
            PrimaryCCPCH-Info,
            PrimaryCCPCH-TX-Power
            OPTIONAL,
            TimeslotInfoList
            OPTIONAL,
            BOOLEAN
        }
    }
}

```

```

    },
    cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-ECN0    OPTIONAL
}

CellInfoSI-ECN0-LCR-r4 ::=              SEQUENCE {
    cellIndividualOffset                 CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell        ReferenceTimeDifferenceToCell        OPTIONAL,
    primaryCCPCH-Info                   PrimaryCCPCH-Info-LCR-r4,
    primaryCCPCH-TX-Power                PrimaryCCPCH-TX-Power              OPTIONAL,
    timeslotInfoList                    TimeslotInfoList-LCR-r4            OPTIONAL,
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-ECN0    OPTIONAL
}

CellInfoSI-HCS-RSCP ::=                 SEQUENCE {
    cellIndividualOffset                 CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell        ReferenceTimeDifferenceToCell        OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            primaryCPICH-Info           PrimaryCPICH-Info                  OPTIONAL,
            primaryCPICH-TX-Power       PrimaryCPICH-TX-Power              OPTIONAL,
            readSFN-Indicator           BOOLEAN,
            tx-DiversityIndicator       BOOLEAN
        },
        tdd                             SEQUENCE {
            primaryCCPCH-Info           PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power       PrimaryCCPCH-TX-Power              OPTIONAL,
            timeslotInfoList           TimeslotInfoList                  OPTIONAL,
            readSFN-Indicator           BOOLEAN
        }
    },
    cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-HCS-RSCP    OPTIONAL
}

CellInfoSI-HCS-RSCP-LCR-r4 ::=         SEQUENCE {
    cellIndividualOffset                 CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell        ReferenceTimeDifferenceToCell        OPTIONAL,
    primaryCCPCH-Info                   PrimaryCCPCH-Info-LCR-r4,
    primaryCCPCH-TX-Power                PrimaryCCPCH-TX-Power              OPTIONAL,
    timeslotInfoList                    TimeslotInfoList-LCR-r4            OPTIONAL,
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-RSCP    OPTIONAL
}

CellInfoSI-HCS-ECN0 ::=                SEQUENCE {
    cellIndividualOffset                 CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell        ReferenceTimeDifferenceToCell        OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            primaryCPICH-Info           PrimaryCPICH-Info                  OPTIONAL,
            primaryCPICH-TX-Power       PrimaryCPICH-TX-Power              OPTIONAL,
            readSFN-Indicator           BOOLEAN,
            tx-DiversityIndicator       BOOLEAN
        },
        tdd                             SEQUENCE {
            primaryCCPCH-Info           PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power       PrimaryCCPCH-TX-Power              OPTIONAL,
            timeslotInfoList           TimeslotInfoList                  OPTIONAL,
            readSFN-Indicator           BOOLEAN
        }
    },
    cellSelectionReselectionInfo          CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

CellInfoSI-HCS-ECN0-LCR-r4 ::=         SEQUENCE {
    cellIndividualOffset                 CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell        ReferenceTimeDifferenceToCell        OPTIONAL,
    primaryCCPCH-Info                   PrimaryCCPCH-Info-LCR-r4,
    primaryCCPCH-TX-Power                PrimaryCCPCH-TX-Power              OPTIONAL,
    timeslotInfoList                    TimeslotInfoList-LCR-r4            OPTIONAL,
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

CellMeasuredResults ::=                SEQUENCE {
    cellIdentity                         CellIdentity                        OPTIONAL,
    sfN-SFN-ObsTimeDifference            SFN-SFN-ObsTimeDifference          OPTIONAL,
    cellSynchronisationInfo             CellSynchronisationInfo            OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            primaryCPICH-Info           PrimaryCPICH-Info,

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        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
}

CellMeasurementEventResults-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    PrimaryCCPCH-Info-LCR-r4

CellPosition ::= SEQUENCE {
    relativeNorth          INTEGER (-32767..32767),
    relativeEast           INTEGER (-32767..32767),
    relativeAltitude       INTEGER (-4095..4095)
}

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-ECN0 ::= SEQUENCE {
  q-Offset1S-N          Q-OffsetS-N          DEFAULT 0,
  q-Offset2S-N          Q-OffsetS-N          DEFAULT 0,
  maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
  modeSpecificInfo     CHOICE {
    fdd                 SEQUENCE {
      q-QualMin         Q-QualMin          OPTIONAL,
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    tdd                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    gsm                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    }
  }
}

CellSelectReselectInfoSIB-11-12-HCS-RSCP ::= SEQUENCE {
  q-OffsetS-N           Q-OffsetS-N           DEFAULT 0,
  maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
  hcs-NeighbouringCellInformation-RSCP HCS-NeighbouringCellInformation-RSCP
  OPTIONAL,
  modeSpecificInfo     CHOICE {
    fdd                 SEQUENCE {
      q-QualMin         Q-QualMin          OPTIONAL,
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    tdd                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    gsm                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    }
  }
}

CellSelectReselectInfoSIB-11-12-HCS-ECN0 ::= SEQUENCE {
  q-Offset1S-N          Q-OffsetS-N          DEFAULT 0,
  q-Offset2S-N          Q-OffsetS-N          DEFAULT 0,
  maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
  hcs-NeighbouringCellInformation-ECN0 HCS-NeighbouringCellInformation-ECN0
  OPTIONAL,
  modeSpecificInfo     CHOICE {
    fdd                 SEQUENCE {
      q-QualMin         Q-QualMin          OPTIONAL,
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    tdd                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    },
    gsm                 SEQUENCE {
      q-RxlevMin        Q-RxlevMin        OPTIONAL
    }
  }
}

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
      countC-SFN-Frame-difference
    }
  }
}

CellToMeasure ::= SEQUENCE {
  sfn-sfn-Drift INTEGER (0..30) OPTIONAL,
  primaryCPICH-Info PrimaryCPICH-Info,
  frequencyInfo FrequencyInfo OPTIONAL,
  sfn-SFN-ObservedTimeDifference SFN-SFN-ObsTimeDifference1,
  fineSPN-SPN FineSPN-SPN,
  cellPosition CellPosition OPTIONAL
}

CellToMeasureInfoList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
  CellToMeasure

CellToReport ::= SEQUENCE {
  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)
}

CPICH-Ec-NO ::= INTEGER (0..50)

CPICH-RSCP ::= INTEGER (0..91)

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 }

-- Actual value = IE value * 0.02
DL-PhysicalChannelBER ::= INTEGER (0..255)

DL-TransportChannelBLER ::= INTEGER (0..63)

DopplerUncertainty ::= ENUMERATED {
  hz12-5, hz25, hz50, hz100, hz200 }

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 }

Eventla ::=                          SEQUENCE {
    triggeringCondition    TriggeringCondition2,
    reportingRange        ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList           OPTIONAL,
    w                      W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount        ReportingAmount,
    reportingInterval      ReportingInterval
}

Eventla-r4 ::=                       SEQUENCE {
    triggeringCondition    TriggeringCondition2,
    reportingRange        ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-r4       OPTIONAL,
    w                      W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount        ReportingAmount,
    reportingInterval      ReportingInterval
}

Eventla-LCR-r4 ::=                  SEQUENCE {
    triggeringCondition    TriggeringCondition2,
    reportingRange        ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList-LCR-r4   OPTIONAL,
    w                      W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount        ReportingAmount,
    reportingInterval      ReportingInterval
}

```

```

Event1b ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
}
SEQUENCE {
    TriggeringCondition1,
    ReportingRange,
    ForbiddenAffectCellList
    W
    OPTIONAL,
}

Event1b-r4 ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
}
SEQUENCE {
    TriggeringCondition1,
    ReportingRange,
    ForbiddenAffectCellList-r4
    W
    OPTIONAL,
}

Event1b-LCR-r4 ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
}
SEQUENCE {
    TriggeringCondition1,
    ReportingRange,
    ForbiddenAffectCellList-LCR-r4
    W
    OPTIONAL,
}

Event1c ::=
    replacementActivationThreshold
    reportingAmount
    reportingInterval
}
SEQUENCE {
    ReplacementActivationThreshold,
    ReportingAmount,
    ReportingInterval
}

Event1e ::=
    triggeringCondition
    thresholdUsedFrequency
}
SEQUENCE {
    TriggeringCondition2,
    ThresholdUsedFrequency
}

Event1f ::=
    triggeringCondition
    thresholdUsedFrequency
}
SEQUENCE {
    TriggeringCondition1,
    ThresholdUsedFrequency
}

Event2a ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    NonUsedFreqParameterList
    OPTIONAL,
    OPTIONAL
}

Event2b ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    NonUsedFreqParameterList
    OPTIONAL,
    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 ::=
}
SEQUENCE {

```



```

    usedFreqThreshold          Threshold,
    usedFreqW                  W,
    hysteresis                 HysteresisInterFreq,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus          OPTIONAL
}

Event3a ::=                   SEQUENCE {
    thresholdOwnSystem         Threshold,
    w                           W,
    thresholdOtherSystem       Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus          OPTIONAL
}

Event3b ::=                   SEQUENCE {
    thresholdOtherSystem       Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus          OPTIONAL
}

Event3c ::=                   SEQUENCE {
    thresholdOtherSystem       Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus          OPTIONAL
}

Event3d ::=                   SEQUENCE {
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus          OPTIONAL
}

EventIDInterFreq ::=         ENUMERATED {
    e2a, e2b, e2c, e2d, e2e, e2f }

EventIDInterRAT ::=          ENUMERATED {
    e3a, e3b, e3c, e3d }

EventIDIntraFreq ::=         ENUMERATED {
    e1a, e1b, e1c, e1d, e1e,
    e1f, e1g, e1h, e1i }

EventResults ::=             CHOICE {
    intraFreqEventResults      IntraFreqEventResults,
    interFreqEventResults      InterFreqEventResults,
    interRATEventResults       InterRATEventResults,
    trafficVolumeEventResults  TrafficVolumeEventResults,
    qualityEventResults        QualityEventResults,
    ue-InternalEventResults     UE-InternalEventResults,
    ue-positioning-MeasurementEventResults UE-Positioning-MeasurementEventResults
}

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,
    -- 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     BOOLEAN,
    inter-RAT-meas-ind          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
FineSFN-SFN ::= INTEGER (0..15)

ForbiddenAffectCell ::= CHOICE {
    fdd PrimaryCPICH-Info,
    tdd PrimaryCCPCH-Info
}

ForbiddenAffectCell-r4 ::= CHOICE {
    fdd PrimaryCPICH-Info,
    tdd 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,
    pathloss Pathloss 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

GPS-TOW-rem-usec ::= INTEGER (0..999)

```

```

HCS-CellReselectInformation-RSCP ::=          SEQUENCE {
    penaltyTime                               PenaltyTime-RSCP
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-CellReselectInformation-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
}

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-ECN0-LCR ::= SEQUENCE {
    removedInterFreqCellList      RemovedInterFreqCellList      OPTIONAL,
    newInterFreqCellList           NewInterFreqCellSI-List-ECN0-LCR-r4  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP-LCR ::= SEQUENCE {
    removedInterFreqCellList      RemovedInterFreqCellList      OPTIONAL,
    newInterFreqCellList           NewInterFreqCellSI-List-HCS-RSCP-LCR-r4  OPTIONAL
}

InterFreqCellInfoSI-List-HCS-ECN0-LCR ::= SEQUENCE {
    removedInterFreqCellList      RemovedInterFreqCellList      OPTIONAL,
    newInterFreqCellList           NewInterFreqCellSI-List-HCS-ECN0-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-r4           InterFreqCellInfoList-r4,
    interFreqMeasQuantity              InterFreqMeasQuantity          OPTIONAL,
    interFreqReportingQuantity         InterFreqReportingQuantity    OPTIONAL,
    measurementValidity                MeasurementValidity           OPTIONAL,
    interFreqSetUpdate                 UE-AutonomousUpdateMode      OPTIONAL,
    reportCriteria                     InterFreqReportCriteria-r4
}

InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo             CHOICE {

```

```

    gsm
        bsic
        frequency-band
        bcch-ARFCN
        ncMode
    },
    is-2000
    spare
}

InterRATCellID ::=                INTEGER (0..maxCellMeas-1)

InterRATCellInfoList ::=          SEQUENCE {
    removedInterRATCellList       RemovedInterRATCellList,
    newInterRATCellList           NewInterRATCellList,
    cellsForInterRATMeasList      CellsForInterRATMeasList           OPTIONAL
}

InterRATCellInfoList-B ::=        SEQUENCE {
    removedInterRATCellList       RemovedInterRATCellList,
    newInterRATCellList           NewInterRATCellList-B
}

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)) 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 {
            pathloss                    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
    SEQUENCE {
        FilterCoefficient
        CHOICE {
            SEQUENCE {
                intraFreqMeasQuantity-FDD
                IntraFreqMeasQuantity-FDD
            }
        }
    }
    DEFAULT fc0,

```



```

    },
    tdd                               SEQUENCE {
        intraFreqMeasQuantity-TDDList  IntraFreqMeasQuantity-TDDList
    }
}

IntraFreqMeasQuantity-FDD ::=      ENUMERATED {
    cpich-EC-N0,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=      ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDDList ::=  SEQUENCE (SIZE (1..4)) OF
    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=   SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

IntraFreqMeasurementSysInfo-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-ECNO ::= SEQUENCE {
    intraFreqMeasurementID           MeasurementIdentity           DEFAULT 1,
    intraFreqCellInfoSI-List         IntraFreqCellInfoSI-List-ECNO 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-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
}

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-ECNO-LCR-r4 ::= SEQUENCE {
    intraFreqMeasurementID           MeasurementIdentity           DEFAULT 1,
    intraFreqCellInfoSI-List         IntraFreqCellInfoSI-List-ECNO-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-r4 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,
}

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```

    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 {
    ip15, ip110 }

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
}

MeasuredResults-LCR-r4 ::= CHOICE {
    intraFreqMeasuredResultsList    IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList    InterFreqMeasuredResultsList,
    interRATMeasuredResultsList     InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults           QualityMeasuredResults,
    ue-InternalMeasuredResults       UE-InternalMeasuredResults-LCR-r4,
    ue-positioniing-MeasuredResults  UE-Positioning-MeasuredResults
}

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
                }
            },
            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
                },
                interFreqMeasurementSysInfo        InterFreqMeasurementSysInfo-RSCP    OPTIONAL
            },
            cpich-Ec-N0            SEQUENCE {
                intraFreqMeasurementSysInfo        IntraFreqMeasurementSysInfo-ECN0
            },
            interFreqMeasurementSysInfo            InterFreqMeasurementSysInfo-ECN0    OPTIONAL
        }
    },
    interRATMeasurementSysInfo     InterRATMeasurementSysInfo-B    OPTIONAL
},
    hcs-used                       SEQUENCE {
        cellSelectQualityMeasure   CHOICE {
            cpich-RSCP            SEQUENCE {
                intraFreqMeasurementSysInfo        IntraFreqMeasurementSysInfo-HCS-RSCP
            },
            interFreqMeasurementSysInfo            InterFreqMeasurementSysInfo-HCS-RSCP
        },
        cpich-Ec-N0              SEQUENCE {
            intraFreqMeasurementSysInfo            IntraFreqMeasurementSysInfo-HCS-ECN0
            interFreqMeasurementSysInfo            InterFreqMeasurementSysInfo-HCS-ECN0
        }
    },
    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 {

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```

    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-NO        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
            interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-RSCP-LCR-r4 OPTIONAL
        },
        cpich-Ec-NO        SEQUENCE {
OPTIONAL,
            intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-ECN0-LCR-r4
            interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-ECN0-LCR-r4 OPTIONAL
        }
    }
}
}

MeasurementIdentity ::=      INTEGER (1..16)

MeasurementQuantityGSM ::=   ENUMERATED {
                                gsm-CarrierRSSI,
                                pathloss }

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              InterRATMeasurement,
    up-Measurement                    UE-Positioning-Measurement-r4,
    trafficVolumeMeasurement-r4      TrafficVolumeMeasurement,
    qualityMeasurement-r4            QualityMeasurement,
    ue-InternalMeasurement-r4        UE-InternalMeasurement-r4
}

MeasurementValidity ::=      SEQUENCE {
    ue-State                          ENUMERATED {
                                        cell-DCH, all-But-Cell-DCH, all-States }
}

MonitoredCellRACH-List ::=   SEQUENCE (SIZE (1..7)) OF
                                MonitoredCellRACH-Result

MonitoredCellRACH-Result ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference        SFN-SFN-ObsTimeDifference          OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                          SEQUENCE {
            primaryCPICH-Info          PrimaryCPICH-Info,
            measurementQuantity        CHOICE {

```

```

        cpich-Ec-NO          CPICH-Ec-NO,
        cpich-RSCP          CPICH-RSCP,
        pathloss            Pathloss
    },
    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                 SubFrame1Reserved,
    t-GD                    BIT STRING (SIZE (8)),
    t-oc                    BIT STRING (SIZE (16)),
    af2                     BIT STRING (SIZE (8)),
    af1                     BIT STRING (SIZE (16)),
    af0                     BIT STRING (SIZE (22)),
    c-rs                    BIT STRING (SIZE (16)),
    delta-n                 BIT STRING (SIZE (16)),
    m0                      BIT STRING (SIZE (32)),
    c-uc                    BIT STRING (SIZE (16)),
    e                       BIT STRING (SIZE (32)),
    c-us                    BIT STRING (SIZE (16)),
    a-Sqrt                  BIT STRING (SIZE (32)),
    t-oe                    BIT STRING (SIZE (16)),
    fitInterval             BIT STRING (SIZE (1)),
    aodo                    BIT STRING (SIZE (5)),
    c-ic                    BIT STRING (SIZE (16)),
    omega0                  BIT STRING (SIZE (32)),
    c-is                    BIT STRING (SIZE (16)),
    i0                      BIT STRING (SIZE (32)),
    c-rc                    BIT STRING (SIZE (16)),
    omega                   BIT STRING (SIZE (32)),
    omegaDot                BIT STRING (SIZE (24)),
    iDot                    BIT STRING (SIZE (14))
}

NC-Mode ::=                BIT STRING (SIZE (3))

Neighbour ::=              SEQUENCE {
    modeSpecificInfo        CHOICE {
        fdd                 SEQUENCE {
            neighbourIdentity    PrimaryCPICH-Info          OPTIONAL,
            ue-RX-TX-TimeDifferenceType2 UE-RX-TX-TimeDifferenceType2    OPTIONAL
        },
        tdd                 SEQUENCE {
            neighbourAndChannelIdentity CellAndChannelIdentity    OPTIONAL
        }
    },
    neighbourQuality        NeighbourQuality,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2}

```

NeighbourList ::=	SEQUENCE (SIZE (1..maxCellMeas)) OF Neighbour	
NeighbourQuality ::=	SEQUENCE { ue-Positioning-OTDOA-Quality	UE-Positioning-OTDOA-Quality
	}	
NewInterFreqCell ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfo OPTIONAL, OPTIONAL,
	}	
NewInterFreqCell-r4 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfo-r4 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellList ::=	SEQUENCE (SIZE (1..maxCellMeas)) OF NewInterFreqCell	
NewInterFreqCellList-r4 ::=	SEQUENCE (SIZE (1..maxCellMeas)) OF NewInterFreqCell-r4	
NewInterFreqCellSI-RSCP ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-RSCP OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-ECN0 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-ECN0 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-HCS-RSCP ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-HCS-RSCP OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-HCS-ECN0 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-HCS-ECN0 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-RSCP-LCR-r4 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-RSCP-LCR-r4 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-ECN0-LCR-r4 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-ECN0-LCR-r4 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-HCS-RSCP-LCR-r4 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-HCS-RSCP-LCR-r4 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-HCS-ECN0-LCR-r4 ::=	SEQUENCE { interFreqCellID frequencyInfo cellInfo	InterFreqCellID FrequencyInfo CellInfoSI-HCS-ECN0-LCR-r4 OPTIONAL, OPTIONAL,
	}	
NewInterFreqCellSI-List-ECN0 ::=	SEQUENCE (SIZE (1..maxCellMeas)) OF NewInterFreqCellSI-ECN0	
NewInterFreqCellSI-List-HCS-RSCP ::=	SEQUENCE (SIZE (1..maxCellMeas)) OF NewInterFreqCellSI-HCS-RSCP	

```

NewInterFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-ECN0

NewInterFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-RSCP

NewInterFreqCellSI-List-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-ECN0-LCR-r4

NewInterFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-RSCP-LCR-r4

NewInterFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-HCS-ECN0-LCR-r4

NewInterFreqCellSI-List-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterFreqCellSI-RSCP-LCR-r4

NewInterRATCell ::= SEQUENCE {
    interRATCellID InterRATCellID OPTIONAL,
    technologySpecificInfo CHOICE {
        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
        },
        spare1 NULL,
        spare2 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
        },
        spare1 NULL,
        spare2 NULL
    }
}

NewInterRATCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterRATCell

NewInterRATCellList-B ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewInterRATCell-B

NewIntraFreqCell ::= SEQUENCE {
    intraFreqCellID IntraFreqCellID OPTIONAL,
    cellInfo CellInfo
}

NewIntraFreqCell-r4 ::= SEQUENCE {
    intraFreqCellID IntraFreqCellID OPTIONAL,
    cellInfo CellInfo-r4
}

NewIntraFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCell

NewIntraFreqCellList-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
NewIntraFreqCell-r4

```



```

NewIntraFreqCellSI-RSCP ::=          SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-RSCP
}

NewIntraFreqCellSI-ECN0 ::=          SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-ECN0
}

NewIntraFreqCellSI-HCS-RSCP ::=      SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-HCS-RSCP
}

NewIntraFreqCellSI-HCS-ECN0 ::=      SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-HCS-ECN0
}

NewIntraFreqCellSI-RSCP-LCR-r4 ::=   SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-RSCP-LCR-r4
}

NewIntraFreqCellSI-ECN0-LCR-r4 ::=   SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-ECN0-LCR-r4
}

NewIntraFreqCellSI-HCS-RSCP-LCR-r4 ::= SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-HCS-RSCP-LCR-r4
}

NewIntraFreqCellSI-HCS-ECN0-LCR-r4 ::= SEQUENCE {
    intraFreqCellID                    OPTIONAL,
    cellInfo                            CellInfoSI-HCS-ECN0-LCR-r4
}

NewIntraFreqCellSI-List-RSCP ::=     SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::=     SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-RSCP

NewIntraFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-ECN0

NewIntraFreqCellSI-List-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-RSCP-LCR-r4

NewIntraFreqCellSI-List-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-ECN0-LCR-r4

NewIntraFreqCellSI-List-HCS-RSCP-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-RSCP-LCR-r4

NewIntraFreqCellSI-List-HCS-ECN0-LCR-r4 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-ECN0-LCR-r4

-- Actual value = IE value * 0.0125 - 0.09375
NodeB-ClockDrift ::=                INTEGER (0..15)

NonUsedFreqParameter ::=            SEQUENCE {
    nonUsedFreqThreshold                Threshold,
    nonUsedFreqW                        W
}

NonUsedFreqParameterList ::=        SEQUENCE (SIZE (1..maxFreq)) OF
    NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::=      INTEGER (0..4095)

OTDOA-SearchWindowSize ::=          ENUMERATED {
    c20, c40, c80, c160, c320,

```

```

c640, c1280, moreThan1280 }

Pathloss ::=
INTEGER (46..158)

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
}
ReportingAmount
ReportingIntervalLong
DEFAULT ra-Infinity,

PeriodicalWithReportingCellStatus ::= SEQUENCE {
  periodicalReportingCriteria
  reportingCellStatus
}
PeriodicalReportingCriteria
ReportingCellStatus
OPTIONAL

PLMNIdentitiesOfNeighbourCells ::= SEQUENCE {
  plmnsOfIntraFreqCellsList
  plmnsOfInterFreqCellsList
  plmnsOfInterRATCellsList
}
PLMNsOfIntraFreqCellsList
PLMNsOfInterFreqCellsList
PLMNsOfInterRATCellsList
OPTIONAL,
OPTIONAL,
OPTIONAL

PLMNsOfInterFreqCellsList ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
SEQUENCE {
  plmn-Identity
}
PLMN-Identity
OPTIONAL

PLMNsOfIntraFreqCellsList ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
SEQUENCE {
  plmn-Identity
}
PLMN-Identity
OPTIONAL

PLMNsOfInterRATCellsList ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
SEQUENCE {
  plmn-Identity
}
PLMN-Identity
OPTIONAL

PositionEstimate ::=
CHOICE {
  ellipsoidPoint
  ellipsoidPointUncertCircle
  ellipsoidPointUncertEllipse
  ellipsoidPointAltitude
  ellipsoidPointAltitudeEllipse
}
EllipsoidPoint,
EllipsoidPointUncertCircle,
EllipsoidPointUncertEllipse,
EllipsoidPointAltitude,
EllipsoidPointAltitudeEllipsoide

PositioningMethod ::=
ENUMERATED {
  otdoa,
  gps,
  otdoaOrGPS }

-- Actual value = IE value * 0.32
PRC ::=
INTEGER (-2047..2047)

```

```

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
    }
  }
}

QualityType ::=                    ENUMERATED {
  std 10, std 50, epich-Ee-N0 }

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

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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,
  withinMonitoredAndOrActiveSetNonUsedFreq MaxNumberOfReportingCellsType1,

  allVirtualActSetplusMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType3,

  withinActSetOrVirtualActSet    MaxNumberOfReportingCellsType2,
  withinActSetAndOrMonitoredUsedFreqOrMonitoredNonUsedFreq 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
        RL-RemovalInformationList
        RL-RemovalInformationList
        RL-RemovalInfoList
        RL-RemovalInfoList
    }

RL-RemovalInfoList ::=
    SEQUENCE (SIZE (1..maxRL)) OF
        PrimaryCPICH-Info

RLC-BuffersPayload ::=
    ENUMERATED {
        pl0, pl4, pl8, pl16, pl32, pl64, pl128,
        pl256, pl512, pl1024, pl2k, pl4k,
        pl8k, pl16k, pl32k, pl64k, pl128k,
        pl256k, pl512k, pl1024k }

-- 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 {no-drift, sfnsfndrift0-33, sfnsfndrift0-66,
        sfnsfndrift1, sfnsfndrift1-33, sfnsfndrift1-66,
        sfnsfndrift2, sfnsfndrift2-5, sfnsfndrift3,
        sfnsfndrift4, sfnsfndrift5, sfnsfndrift7,
        sfnsfndrift9, sfnsfndrift11, sfnsfndrift13,
        sfnsfndrift15, sfnsfndrift-0-33, sfnsfndrift-0-66,
        sfnsfndrift-1, sfnsfndrift-1-33, sfnsfndrift-1-66,
        sfnsfndrift-2, sfnsfndrift-2-5, sfnsfndrift-3,
        sfnsfndrift-4, sfnsfndrift-5, sfnsfndrift-7,
        sfnsfndrift-9, sfnsfndrift-11, sfnsfndrift-13,
        sfnsfndrift-15}

SFN-SFN-ObsTimeDifference ::=
    CHOICE {
        type1
        SFN-SFN-ObsTimeDifference1,
        type2
        SFN-SFN-ObsTimeDifference2
    }

SFN-SFN-ObsTimeDifference1 ::=
    INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::=
    INTEGER (0..40961)

SFN-SFN-OTD-Type ::=
    ENUMERATED {
        noReport,
        type1,
        type2 }

```

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SFN-SFN-RelTimeDifference1 ::= SEQUENCE {
    sfm-Offset                INTEGER (0 .. 4095),
    sfm-sfm-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-CRMax ::= CHOICE {
    notUsed,
    t30,
    t60,
    t120,
    t180,
    t240
}

T-CRMaxHyst ::= ENUMERATED {
    notUsed, t10, t20, t30,
    t40, t50, t60, t70 }

TemporaryOffset ::= ENUMERATED {
    to10, to20, to30, to40, to50,
    to60, to70, infinite }

TemporaryOffsetList ::= 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
}

TimeslotInfo-LCR-r4 ::= SEQUENCE {
    timeslotNumber TimeslotNumber-LCR-r4,
    burstType      BurstType
}

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
}

TimeslotISCP ::= INTEGER (0..91)

-- 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,
}

```

```

    trafficVolumeMeasRepCriteria      TrafficVolumeReportingCriteria      OPTIONAL,
    measurementValidity               MeasurementValidity                 OPTIONAL,
    measurementReportingMode          MeasurementReportingMode,
    reportCriteriaSysInf              TrafficVolumeReportCriteriaSysInfo
}

TrafficVolumeMeasuredResults ::= SEQUENCE {
    rb-Identity                       RB-Identity,
    rlc-BuffersPayload                RLC-BuffersPayload                 OPTIONAL,
    averageRLC-BufferPayload          AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload       VarianceOfRLC-BufferPayload        OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::= SEQUENCE {
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity         TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity    TrafficVolumeReportingQuantity      OPTIONAL,
    measurementValidity               MeasurementValidity                 OPTIONAL,
    reportCriteria                    TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-TrCH-Identity

TrafficVolumeReportCriteria ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                       NULL
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria
}

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList               TransChCriteriaList                 OPTIONAL
}

TrafficVolumeReportingQuantity ::= SEQUENCE {
    rlc-RB-BufferPayload               BOOLEAN,
    rlc-RB-BufferPayloadAverage        BOOLEAN,
    rlc-RB-BufferPayloadVariance       BOOLEAN
}

TrafficVolumeThreshold ::= ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th2k, th3k,
    th4k, th6k, th8k, th12k, th16k,
    th24k, th32k, th48k, th64k, th96k,
    th128k, th192k, th256k, th384k,
    th512k, th768k
}

TransChCriteria ::= SEQUENCE {
    ul-transportChannelID              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
}

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,
        upPCH-ADV                        INTEGER (0..352)                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-r4 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 {
                    upPTS-ADV          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

UE-RX-TX-TimeDifferenceType1 ::= INTEGER (768..1280)

-- Actual value = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

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UE-TransmittedPower ::=                INTEGER (0..104)

UE-TransmittedPowerTDD-List ::=        SEQUENCE (SIZE (1..maxTS)) OF
                                         UE-TransmittedPower

UL-TrCH-Identity ::=                   CHOICE{
    dch                                 TransportChannelIdentity,
    rach                                 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-EventID ::=            ENUMERATED {
    e7a, e7b, e7c }

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 {
    referenceTime                         CHOICE {
        utran-ReferenceTime               UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly             INTEGER (0..604799999)
    },
    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)),

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    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-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 {
    modeSpecificInfo CHOICE {
        fdd      SEQUENCE {
            referenceIdentity PrimaryCPICH-Info          OPTIONAL
        },
        tdd      SEQUENCE {
            referenceIdentity CellParametersID          OPTIONAL
        }
    },
    referenceSFN      ReferenceSFN          OPTIONAL,
    gps-TOW-lmsec     GPS-TOW-lmsec,
    gps-TOW-rem-usec  GPS-TOW-rem-usec      OPTIONAL,
    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..167),
    tToeLimit     INTEGER (0..10),
    satDataList   SatDataList
}

UE-Positioning-GPS-ReferenceTime ::= SEQUENCE {
    gps-Week      INTEGER (0..1023),
    gps-tow-lmsec GPS-TOW-lmsec,
    gps-tow-rem-usec GPS-TOW-rem-usec      OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd      SEQUENCE {
            referenceIdentity PrimaryCPICH-Info          OPTIONAL
        },
        tdd      SEQUENCE {
            referenceIdentity CellParametersID          OPTIONAL
        }
    },
}

```

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    sfn                INTEGER (0..4095)                OPTIONAL,
    sfn-towUncertainty SFN-TOW-Uncertainty              OPTIONAL,
    nodeBClockDrift    NodeB-ClockDrift                 OPTIONAL,
    gps-TOW-AssistList GPS-TOW-AssistList                OPTIONAL
}

UE-Positioning-GPS-UTC-Model ::=
    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 ::=
    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 ::=
    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
}

UP-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-Measurement UE-Positioning-GPS-MeasurementResults
    OPTIONAL,
    ue-positioning-Error UE-Positioning-Error
    OPTIONAL
}

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-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 {
    event7a      UE-Positioning-PositionEstimateInfo,
    event7b      UE-Positioning-OTDOA-Measurement,
    event7c      UE-Positioning-GPS-MeasurementResults
}

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-Measurement ::= SEQUENCE {
    sfn          INTEGER (0..4095),
    modeSpecificInfo CHOICE {
        fdd      SEQUENCE {
            referenceCellIdentity      PrimaryCPICH-Info,
            ue-RX-TX-TimeDifferenceType2 UE-RX-TX-TimeDifferenceType2
        },
        tdd      SEQUENCE {
            referenceCellIdentity      CellParametersID
        }
    },
    neighbourList      NeighbourList      OPTIONAL
}

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 {
            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
        },
        ueAssisted      SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellInfo-r4 ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd      SEQUENCE {
            primaryCPICH-Info      PrimaryCPICH-Info

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    },
    tdd
        cellAndChannelIdentity
    }
},
frequencyInfo
ue-positioning-IPDL-Parameters
OPTIONAL,
sfn-SFN-RelTimeDifference
sfn-SFN-Drift
searchWindowSize
positioningMode CHOICE{
    ueBased
        relativeNorth
        relativeEast
        relativeAltitude
        fineSFN-SFN
        -- actual value = (IE value * 0.0625) + 876
        roundTripTime
    },
    ueAssisted
}
}

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-Quality ::= SEQUENCE {
    stdResolution
    numberOfOTDOA-Measurements
    stdOfOTDOA-Measurements
}

UE-Positioning-OTDOA-ReferenceCellInfo ::= SEQUENCE {
    sfn
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd
            primaryCPICH-Info
        },
        tdd
            cellAndChannelIdentity
    }
},
frequencyInfo
positioningMode CHOICE {
    ueBased
        cellPosition
        -- actual value = (IE value * 0.0625) + 876
        roundTripTime
    },
    ueAssisted
},
ue-positioning-IPDL-Parameters
}

UE-Positioning-OTDOA-ReferenceCellInfo-r4 ::= SEQUENCE {
    sfn
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd
            primaryCPICH-Info
        },
        tdd
            cellAndChannelIdentity
    }
},
frequencyInfo
positioningMode CHOICE {
    ueBased
        cellPosition
        -- actual value = (IE value * 0.0625) + 876
        roundTripTime
    },
    ueAssisted
}

```

```

    },
    ue-positioning-IPDL-Parameters          UE-Positioning-IPDL-Parameters-r4  OPTIONAL
}

UE-Positioning-PositionEstimateInfo ::=          SEQUENCE {
    modeSpecificInfo          CHOICE {
        fdd          SEQUENCE {
            referenceIdentity          PrimaryCPICH-Info          OPTIONAL
        },
        tdd          SEQUENCE {
            referenceIdentity          CellParametersID          OPTIONAL
        }
    },
    referenceSFN          ReferenceSFN,
    gps-tow-lmsec          GPS-TOW-lmsec          OPTIONAL,
    gps-tow-rem-usec          GPS-TOW-rem-usec          OPTIONAL,
    positionEstimate          PositionEstimate
}

UE-Positioning-ReportCriteria ::=          CHOICE {
    ue-positioning-ReportingCriteria          UE-Positioning-EventParamList,
    periodicalReportingCriteria          PeriodicalReportingCriteria,
    noReporting          NULL
}

UE-Positioning-ReportingQuantity ::=          SEQUENCE {
    methodType          UE-Positioning-MethodType,
    positioningMethod          PositioningMethod,
    responseTime          UE-Positioning-ResponseTime,
    accuracy          UE-Positioning-Accuracy          OPTIONAL,
    gps-TimingOfCellWanted          BOOLEAN,
    multipleSets          BOOLEAN,
    additionalAssistanceDataReq          BOOLEAN,
    environmentCharacterisation          EnvironmentCharacterisation          OPTIONAL
}

UE-Positioning-ResponseTime ::=          ENUMERATED {
    s1, s2, s4, s8, s16,
    s32, s64, s128 }

UTRA-CarrierRSSI ::=          INTEGER (0..76)

UTRAN-ReferenceTime ::=          SEQUENCE {
    gps-tow-lmsec          GPS-TOW-lmsec,
    gps-tow-rem-usec          GPS-TOW-rem-usec,
    modeSpecificInfo          CHOICE {
        fdd          SEQUENCE {
            referenceIdentity          PrimaryCPICH-Info          OPTIONAL
        },
        tdd          SEQUENCE {
            referenceIdentity          CellParametersID          OPTIONAL
        }
    },
    sfn          INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::=          ENUMERATED {
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k }

-- Actual value = IE value * 0.1
W ::=          INTEGER (0..20)

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

InterRATMessage ::= CHOICE {
    gsm                SEQUENCE {
        gsm-MessageList  GSM-MessageList
    },
    cdma2000           SEQUENCE {
        cdma2000-MessageList  CDMA2000-MessageList
    }
}

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,
        spare1, spare2, spare3, spare4,
        spare5
    }
}

Rplmn-Information ::= SEQUENCE {
    gsm-BA-Range-List          GSM-BA-Range-List          OPTIONAL,
    fdd-UMTS-Frequency-List    FDD-UMTS-Frequency-List
    OPTIONAL,
    tdd-UMTS-Frequency-List    FDD-UMTS-Frequency-List
    OPTIONAL,
    cdma2000-UMTS-Frequency-List    CDMA2000-UMTS-Frequency-
List    OPTIONAL
}

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                    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,
    spare1, spare2, spare3 }

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
}

SIBSb-TypeAndTag ::=
  sysInfoType1        CHOICE {
    sysInfoType2      PLMN-ValueTag,
    sysInfoType3      CellValueTag,
    sysInfoType4      CellValueTag,
    sysInfoType5      CellValueTag,
    sysInfoType6      CellValueTag,
    sysInfoType7      NULL,
    sysInfoType8      CellValueTag,
    sysInfoType9      NULL,
    sysInfoType10     NULL,
    sysInfoType11     CellValueTag,
    sysInfoType12     CellValueTag,
    sysInfoType13     CellValueTag,
    sysInfoType13-1   CellValueTag,
    sysInfoType13-2   CellValueTag,
    sysInfoType13-3   CellValueTag,
    sysInfoType13-4   CellValueTag,
    sysInfoType14     NULL,
    sysInfoType15     CellValueTag,
    sysInfoType16     PredefinedConfigIdentityAndValueTag,
    sysInfoType17     NULL,
    sysInfoTypeSB1    CellValueTag,
    sysInfoTypeSB2    CellValueTag,
    sysInfoType15-1   CellValueTag,
    sysInfoType15-2   SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-3   SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-4   CellValueTag,
    sysInfoType18     CellValueTag
  }

SibOFF ::=
  ENUMERATED {
    so2, so4, so6, so8, so10,
    so12, so14, so16, so18,
    so20, so22, so24, so26,
    so28, so30, so32 }

SibOFF-List ::=
  SEQUENCE (SIZE (1..15)) OF
  SibOFF

SysInfoType1 ::=
  SEQUENCE {
    -- 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-IEs ::= SEQUENCE {
            nonCriticalExtensions      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-IEs  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-IEs  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, and the following IE shall describe
    -- the PRACH-RACH-Information.
    prach-RACH-Info-LCR              PRACH-RACH-Info-LCR-r4      OPTIONAL,
    -- If SysInfoType5 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-Partitioning in
    -- PRACH-SystemInformationList shall be absent, and the following IE shall describe
    -- the PRACH-Partitioning.
    prach-Partitioning-LCR           PRACH-Partitioning-LCR-r4    OPTIONAL,
    -- If SysInfoType5 is sent to describe a 1.28Mcps TDD cell, the IE rach-TransportFormatSet in
    -- PRACH-SystemInformationList shall be absent, and the following IE shall describe
    -- the rach-TransportFormatSet.
    rach-TransportFormatSet-LCR      TransportFormatSet-LCR      OPTIONAL,
    tdd128SpecificInfo               SEQUENCE {
        pusch-SysInfoList-SFN        PUSCH-SysInfoList-SFN-LCR-r4  OPTIONAL,
        pdsch-SysInfoList-SFN        PDSCH-SysInfoList-SFN-LCR-r4  OPTIONAL,
        pCCPCH-LCR-Extensions        PrimaryCCPCH-Info-LCR-r4-ext  OPTIONAL,
        sCCPCH-LCR-ExtensionsList     SCCPCH-SystemInformationList-LCR-r4-ext
    }
}
OPTIONAL

```

```

}

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 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 OPTIONAL,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList OPTIONAL,
        cbs-DRX-LevellInformation  CBS-DRX-LevellInformation OPTIONAL,
        -- Conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
        -- Extension mechanism for non- release99 information
        nonCriticalExtensions      SEQUENCE {
            sysInfoType6-r3-r4-ext      SysInfoType6-r3-r4-ext-IEs,
            -- Extension mechanism for non- rel-4 information
            nonCriticalExtensions      SEQUENCE {}          OPTIONAL
        }
    }
}

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, and the following IE shall describe
    -- the PRACH-RACH-Information.
    prach-RACH-Info-LCR            PRACH-RACH-Info-LCR-r4          OPTIONAL,
    -- If SysInfoType6 is sent to describe a 1.28Mcps TDD cell, the IE PRACH-Partitioning in
    -- PRACH-SystemInformationList shall be absent, and the following IE shall describe
    -- the PRACH-Partitioning.
    prach-Partitioning-LCR         PRACH-Partitioning-LCR-r4        OPTIONAL,
    -- If SysInfoType6 is sent to describe a 1.28Mcps TDD cell, the IE rach-TransportFormatSet in
    -- PRACH-SystemInformationList shall be absent, and the following IE shall describe
    -- the rach-TransportFormatSet.
    rach-TransportFormatSet-LCR     TransportFormatSet-LCR          OPTIONAL,
    tdd128SpecificInfo             SEQUENCE {
        pusch-SysInfoList-SFN        PUSCH-SysInfoList-SFN-LCR-r4  OPTIONAL,
        pdsch-SysInfoList-SFN        PDSCH-SysInfoList-SFN-LCR-r4  OPTIONAL,
        pCCPCH-LCR-Extensions        PrimaryCCPCH-Info-LCR-r4-ext  OPTIONAL,
        sCCPCH-LCR-ExtensionsList    SCCPCH-SystemInformationList-LCR-r4-ext OPTIONAL
    }
}

SysInfoType7 ::=
    SEQUENCE {
        -- Physical channel IEs
        modeSpecificInfo          CHOICE {
            fdd                    SEQUENCE {
                ul-Interference      UL-Interference
            },
            tdd                    NULL
        },
        prach-Information-SIB5-List  DynamicPersistenceLevellList,
        prach-Information-SIB6-List  DynamicPersistenceLevellList          OPTIONAL,
        expirationTimeFactor         ExpirationTimeFactor          OPTIONAL,
        -- Extension mechanism for non- release99 information
        nonCriticalExtensions      SEQUENCE {}          OPTIONAL
    }
}

SysInfoType8 ::=
    SEQUENCE {
        -- User equipment IEs
        cpch-Parameters            CPCH-Parameters,
        -- Physical channel IEs
        cpch-SetInfoList           CPCH-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 ::=
-- ANSI-41 IEs
ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType13-4 ::=
-- ANSI-41 IEs
ansi-41-GlobalServiceRedirectInfo
ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType14 ::=
-- Physical channel IEs
individualTS-InterferenceList IndividualTS-InterferenceList,
expirationTimeFactor          ExpirationTimeFactor          OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

SysInfoType15 ::=
-- 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      UP-IPDL-Parameters-TDD-r4-ext          OPTIONAL
}

SysInfoType15-1 ::=
-- DGPS corrections
ue-positioning-GPS-DGPS-Corrections UE-Positioning-GPS-DGPS-Corrections,

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

SysInfoType15-2 ::=
-- Ephemeris and clock corrections
transmissionTOW                INTEGER (0..604799),
satID                           SatID,
ephemerisParameter             EphemerisParameter,

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

SysInfoType15-3 ::=
-- 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
}

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 tdd128SpecificInfo 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
  }
  }

SysInfoType17-r3-r4-ext-IEs ::= SEQUENCE {
  tdd128SpecificInfo                    SEQUENCE {
    pusch-SysInfoList                    PUSCH-SysInfoList-LCR-r4              OPTIONAL,
    pdsch-SysInfoList                    PDSCH-SysInfoList-LCR-r4              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
maxDPCHeodesPerTS      INTEGER ::= 16
***TODO**
maxDPDCH-UL            INTEGER ::= 6
maxDRACclasses         INTEGER ::= 8
***TODO**
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
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 ::= 6
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
***TODO**
maxSIB-FACH             INTEGER ::= 8
maxSIBperMsg            INTEGER ::= 16
```

```

maxSig INTEGER ::= 16
maxSRBsetup          INTEGER ::= 8
maxSubCh INTEGER ::= 12
maxSystemCapability  INTEGER ::= 16
maxTF                INTEGER ::= 32
maxTF-CPCH          INTEGER ::= 16
maxTFC              INTEGER ::= 1024
maxTF-CI-2-Combs    INTEGER ::= 512
maxTGPS             INTEGER ::= 6
maxTrCH             INTEGER ::= 32
maxTrCHpreconf      INTEGER ::= 16
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,
    TransportChannelReconfiguration,
UECapabilityInformation
FROM PDU-definitions

```

```

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    FailureCauseWithProtErr,
    RRC-MessageSequenceNumber,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
-- Radio Bearer IEs :
PDCP-InfoReconfig,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
RB-Identity,
RB-MappingInfo,
RLC-Info,
    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,
    UP-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements

```

```

maxCNdomains,
maxNoOfMeas,
maxPredefConfig,
maxRABsetup,
maxRB,
maxSRBsetup,
maxTrCH
FROM Constant-definitions

UE-SecurityInformation,
UE-CapabilityInformation-Withv370ext
FROM UetoOtherRAT-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 {
    handoverToUTRAN                HandoverToUTRANInfo-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-InformationContainerFailureInfo RRC-InformationContainerFailureInfo-r3,
    extension                      NULL
}

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

TargetRNC-ToSourceRAT-Container ::= CHOICE {
    handoverToUTRAN                HandoverToUTRANCommand,
    rrc-InformationContainerFailureInfo RRC-InformationContainerFailureInfo-r3,
    extension                      NULL
}

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order

-- *****
--
-- Handover to UTRAN information
--
-- *****

HandoverToUTRANInfo-r3 ::= CHOICE {
    r3                             SEQUENCE {
        handoverToUTRANInfo-r3    HandoverToUTRANInfo-r3-IEs,
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    criticalExtensions             SEQUENCE {}
}

HandoverToUTRANInfo-r3-IEs ::= SEQUENCE {

```

```

-- User equipment IEs
ue-CapabilityInformation-Withv370ext UE-CapabilityInformation-Withv370ext,
ue-SecurityInformation UE-SecurityInformation ue-
RadioAccessCapability UE-RadioAccessCapability OPTIONAL,
startList STARTList OPTIONAL,
-- Other IEs
ue-RATSpecificCapability InterRAT-UE-RadioAccessCapabilityList OPTIONAL,
predefinedConfigStatusList PredefinedConfigStatusList OPTIONAL
}

-- *****
--
-- RRC information container failure info
--
-- *****

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

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

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo-r3 ::= CHOICE {
  r3 SEQUENCE {
    sRNC-RelocationInfo-r3 SRNC-RelocationInfo-r3-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  criticalExtensions SEQUENCE {}
}

SRNC-RelocationInfo-r3-IEs ::= SEQUENCE {
  -- Non-RRC IEs
  stateOfRRC StateOfRRC,
  stateOfRRC-Procedure StateOfRRC-Procedure,
  cipheringStatus CipheringStatus,
  calculationTimeForCiphering CalculationTimeForCiphering OPTIONAL,
  cipheringInfoPerRB-List CipheringInfoPerRB-List OPTIONAL,
  count-C-List COUNT-C-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 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                UP-IPDL-Parameters-TDD-r4-ext  OPTIONAL,
-- Extension mechanism for non- release4 information
nonCriticalExtensions                  SEQUENCE {}                    OPTIONAL
}
}

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-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-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                UP-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 }

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

PredefinedConfigStatusList ::=       SEQUENCE (SIZE (maxPredefConfig16)) OF
                                      PredefinedConfigStatusInfo

PredefinedConfigStatusInfo ::=       SEQUENCE {
  predefinedConfigValueTag             PredefinedConfigValueTag       OPTIONAL
  -- Absence of the IE indicates that the UE has not stored the corresponding preconfiguration
}

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
    
```

## 11.6 RRC information between UE and other RATs

```

UEtoOtherRAT-definitions DEFINITIONS AUTOMATIC TAGS ::=
BEGIN

IMPORTS

-- User Equipment IEs :
    START-Value,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
-- Radio Bearer IEs :
    PredefinedConfigValueTag
FROM InformationElements;


-- maxPredefConfig
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

-- Currently not used

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

-- Currently not used

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

-- Currently not used

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
    
```

```
-- Currently not used
```

```
-- Part 3: Non- extensible IE definitions  
-- In alphabetical order
```

```
PredefConfigStatusInfo ::= SEQUENCE {  
  predefinedConfigValueTag PredefinedConfigValueTag  
}
```

```
PredefConfigStatusInfoList ::= SEQUENCE (SIZE (maxPredefConfig)) OF  
  PredefConfigStatusInfo
```

```
UE-CapabilityInformation-Withv370ext ::= SEQUENCE {  
  ue-RadioAccessCapability UE-RadioAccessCapability OPTIONAL,  
  ue-RadioAccessCapabilityExt1 UE-RadioAccessCapability-v370ext OPTIONAL  
}
```

```
UE-SecurityInformation ::= SEQUENCE {  
  start-CS START-Value  
}
```

```
END
```

CR-Form-v4

## CHANGE REQUEST

⌘ **25.331 CR 956** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ TDD PICH corrections and clarifications		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2.7.2001
<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 <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>	⌘ Handling of procedures specific to one mode needs clarification.  Insufficient information for PICH in TDD completed.
<b>Summary of change:</b>	⌘ Procedure handling relevant for one mode only is clarified. No impact on implementation.  Configuration for the SHCCH in TDD is included in section 13.6c. Therefore the information in section 6.3 is removed which is partly contradicting to section 13.  For setting of IE "Uplink Timing Advance" a reference to section 8.6 is included.  Description for handling of IE "UL Timing Advance" on UTRAN side is changed from SHALL to SHOULD.  In TDD for the PICH the configuration of the Midamble is erroneously. Same information are required as for SCCPCH and other channels. This is corrected. This change has an impact on PICH configuration in TDD.
<b>Consequences if not approved:</b>	⌘ Insufficient configuration for TDD PICH. Differences between modes not outlined

<b>Clauses affected:</b>	⌘ 6.3, 8.1.1.3, 8.2.2.3, 8.2.2.5, 8.3.5.1.2, 10.3.6.49, 11.3		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v4.1.0, CR 957
<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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## 6.3 Signalling Radio Bearers

The Radio Bearers (RB) available for transmission of RRC messages are defined as "signalling radio bearers" and are specified in the following. The UE and UTRAN shall select the signalling radio bearers for RRC messages using RLC-TM, RLC-UM or RLC-AM on the DCCH and CCCH, according to the following:

- Signalling radio bearer RB0 shall be used for all messages sent on the CCCH (UL: RLC-TM, DL: RLC-UM).
- Signalling radio bearer RB1 shall be used for all messages sent on the DCCH, when using RLC unacknowledged mode (RLC-UM).
- Signalling radio bearer RB2 shall be used for all messages sent on the DCCH, when using RLC acknowledged mode (RLC-AM), except for the RRC messages carrying higher layer (NAS) signalling.
- Signalling radio bearer RB3 and optionally Signalling radio bearer RB4 shall be used for the RRC messages carrying higher layer (NAS) signalling and sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclauses 8.1.8., 8.1.9 and 8.1.10.
- Additionally, RBs whose identities shall be set between 5 and 31 may be used as signalling radio bearer for the RRC messages on the DCCH sent in RLC transparent mode (RLC-TM).
- RRC messages on the SHCCH are mapped either on RACH or on the USCH **with the lowest assigned Transport Channel Id** in the uplink **using TM** and either on FACH or on the DSCH **with the lowest assigned Transport Channel Id** using RLC-TM. These messages are only specified for TDD mode.

The Radio Bearer configuration for signalling radio bearer RB0, SHCCH, BCCH on FACH and PCCH on PCH are specified in subclauses 13.6, 13.6a, 13.6b and 13.6c.

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

### 8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall read SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode and in the connected mode in states CELL\_FACH, CELL\_PCH, URA\_PCH and CELL\_DCH (TDD only). In addition, UEs **in FDD mode** which support simultaneous reception of one SCCPCH and one DPCH shall read system information on a FACH transport channel when in CELL\_DCH state.

In idle mode and connected mode different combinations of system information blocks are valid. The UE shall acquire the system information blocks that are needed according to Table 8.1.1.

The UE may store system information blocks with cell or PLMN area scope (including their value tag if applicable) for different cells and different PLMNs, to be used if the UE returns to these cells.

The UE shall consider all stored system information blocks as invalid after it has been switched off. Some information obtained from system information may be stored by the UE or in the USIM for use in a stored information cell selection.

When selecting a new cell within the currently used PLMN, the UE shall consider all current system information blocks with area scope cell to be invalid. If the UE has stored valid system information blocks for the newly selected cell, the UE may set those as current system information blocks.

After selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has previously stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks. Upon selection of a new PLMN the UE shall store all information elements specified within variable SELECTED\_PLMN for the new PLMN within this variable.

### 8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall be able to receive any of the following messages:

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

and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency.

If the UE receives:

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

it shall:

- set the variable ORDERED\_RECONFIGURATION to TRUE;
- perform the physical layer synchronisation procedure as specified in [29];
- act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

- in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:
  - act upon the IE "PDSCH code mapping" as specified in subclause 8.6 and;
  - infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted;
- enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

- handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If the UE was in CELL\_DCH state upon reception of the reconfiguration message and remains in CELL\_DCH state, the UE shall:

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

If after state transition the UE enters CELL\_FACH state, the UE shall, after the state transition:

- if the IE "Frequency info" is included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4] on that frequency;
- if the IE "Frequency info" is not included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4];
- if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
  - when the cell update procedure completed successfully:
    - if the UE is in CELL\_PCH or URA\_PCH state:
      - initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
      - proceed as below;
- start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;
- select PRACH according to subclause 8.5.17;
- select Secondary CCPCH according to subclause 8.5.19;
- use the transport format set given in system information;
- if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
  - ignore that IE and stop using DRX;
- if the contents of the variable C\_RNTI is empty:
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
  - when the cell update procedure completed successfully:
    - if the UE is in CELL\_PCH or URA\_PCH state:
      - initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
      - proceed as below;

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

- if the received reconfiguration message included the IE "Downlink counter synchronisation info":
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info";
- if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":
  - if the variable START\_VALUE\_TO\_TRANSMIT is set:
    - include and set the IE "START" to the value of that variable;

- if the variable START\_VALUE\_TO\_TRANSMIT is not set and the IE "New U-RNTI" is included:
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info";
- if the received reconfiguration message contained the IE "Ciphering mode info":
  - include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB\_UPLINK\_CIPHERING\_ACTIVATION\_TIME\_INFO;
- if the received reconfiguration message contained the IE "Integrity protection mode info" with the IE "Integrity protection mode command" set to "Modify":
  - include and set the IE "Integrity protection activation info" to the value of the variable INTEGRITY\_PROTECTION\_ACTIVATION\_INFO;
- if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":
  - if prior to this procedure there exist no transparent mode RLC radio bearers:
    - if, at the conclusion of this procedure, the UE will be in CELL\_DCH state; and
    - if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:
      - include the IE "COUNT-C activation time" and specify a CFN value other than the default, "Now", for this IE;
  - if prior to this procedure there exists at least one transparent mode RLC radio bearer:
    - if, at the conclusion of this procedure, no transparent mode RLC radio bearers exist:
      - include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now", for this IE;
- set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- if the variable PDCP\_SN\_INFO is not empty:
  - include the IE "RB with PDCP information list" and set it to the value of the variable PDCP\_SN\_INFO;
- in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):
  - set the IE "Uplink Timing Advance" according to the calculated value 8.6.6.26;
- if the IE "Integrity protection mode info" was present in the received reconfiguration message:
  - start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message;

If after state transition the UE enters CELL\_PCH or URA\_PCH state, the UE shall, after the state transition and transmission of the response message:

- if the IE "Frequency info" is included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4] on that frequency;
- if the IE "Frequency info" is not included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4];
- prohibit periodical status transmission in RLC;



- remove any C-RNTI from MAC;
- clear the variable C\_RNTI;
- start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;
- select Secondary CCPCH according to subclause 8.5.19;
- if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
  - use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2;
- if the UE enters CELL\_PCH state from CELL\_DCH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
  - when the cell update procedure completed successfully:
    - the procedure ends;
- if the UE enters CELL\_PCH state from CELL\_FACH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE:
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
  - when the cell update procedure is successfully completed:
    - the procedure ends;
- if the UE enters URA\_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 is fulfilled:
  - initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";
  - when the URA update procedure is successfully completed:
    - the procedure ends.

#### 8.2.2.5 Reception of a response message by the UTRAN, normal case

When UTRAN has received

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

UTRAN may:

- delete the old configuration.

If the procedure caused the UE to leave the CELL\_FACH state, UTRAN may:

- delete the C-RNTI of the UE.

If the IE "UL Timing Advance" is included **in TDD**, UTRAN should:

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

If the IE "START" or the IE "START list" is included, UTRAN should:

- set the START value for each CN domain with the corresponding values as received in this response message;
- consequently, then use the START values to initialise the hyper frame numbers, in the same way as specified for the UE in subclause 8.2.2.3, for any new radio bearers that are established.

For radio bearers using RLC-AM or RLC-UM, UTRAN should:

- use the old ciphering configuration for received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
- use the new ciphering configuration for received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
- if an RLC reset or re-establishment occurs after this response message has been received by UTRAN before the activation time for the new ciphering configuration has been reached:
  - ignore the activation time; and
  - apply the new ciphering configuration immediately after the RLC reset or RLC re-establishment.

For radio bearers using RLC-TM:

- use the new ciphering configuration and only begin incrementing the COUNT-C at the CFN as indicated in:
  - the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info", if included in the message that triggered the radio bearer control procedure; or
  - the IE "COUNT-C activation time", if included in the response message for this procedure.

The procedure ends on the UTRAN side.

### 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.

If the IE "Default DPCH Offset Value" is included:

- **in FDD mode** UTRAN should:
  - set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation

$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}$$

- 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;
- **in FDD mode T** 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:
  - 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 T** the UE shall:
  - if the UE receives a message where the above relations are not respected:
    - set the variable INVALID\_CONFIGURATION to true.

### 10.3.6.49 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	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.
>>>>CHOICE <i>Burst Type</i>	MP			
>>>>>Type 1				
>>>>>>Midamble Shift	MP		Integer(0..15)	
>>>>>>Type 2				
>>>>>>>Midamble Shift	MP		Integer(0..5)	
>>>>>>>>Midamble shift and burst type	MP		Midamble shift and burst type 10.3.6.41	
>>>>>>>>>Repetition period/length	MD		Enumerated( (4/2),(8/2), (8/4),(16/2), (16/4), (32/2),(32/4), (64/2),(64/4) )	Default value is "(64/2)".
>>>>>>>>>>Offset	MP		Integer (0...Repetition period -1)	SFN mod Repetitionperiod = Offset.
>>>>>>>>>>>Paging indicator length	MD		Integer (4, 8, 16)	Indicates the length of one paging indicator in Bits. Default value is 4.
>>>>>>>>>>>>N <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.

### 11.3 Information element definitions

```

MidambleShiftAndBurstType ::=          SEQUENCE {
  burstType                             CHOICE {
    type1                                SEQUENCE {
      midambleConfigurationBurstTypeand3 MidambleConfigurationBurstTypeand3,
      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 {
      midambleConfigurationBurstTypeand3 MidambleConfigurationBurstTypeand3,
      midambleAllocationMode             CHOICE {
        defaultMidamble                 NULL,
        ueSpecificMidamble             SEQUENCE {
          midambleShift                 MidambleShiftLong
        }
      }
    }
  }
}

...

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,
    burstType                           CHOICE {
      type-1                               MidambleShiftLong,
      type-2                               MidambleShiftShort
    }
    repetitionPeriodLengthOffset         RepPerLengthOffset-PICH    OPTIONAL,
    pagingIndicatorLength                 PagingIndicatorLength      DEFAULT pi4,
    n-GAP                                 N-GAP                      DEFAULT f4,
    n-PCH                                 N-PCH                      DEFAULT 2
  }
}

```

CR-Form-v4

## CHANGE REQUEST

⌘ **25.331 CR 956** ⌘ ev - ⌘ Current version: **4.1.0** ⌘

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>	⌘ TDD PICH corrections and clarifications		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 2.7.2001
<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>	⌘ Handling of procedures specific to one mode needs clarification.  Insufficient information for PICH in TDD completed.
<b>Summary of change:</b>	⌘ Procedure handling relevant for one mode only is clarified. No impact on implementation.  Configuration for the SHCCH in TDD is included in section 13.6c. Therefore the information in section 6.3 is removed which is partly contradicting to section 13.  For setting of IE "Uplink Timing Advance" a reference to section 8.6 is included.  Description for handling of IE "UL Timing Advance" on UTRAN side is changed from SHALL to SHOULD.  In TDD for the PICH the configuration of the Midamble is erroneously. Same information are required as for SCCPCH and other channels. This is corrected. This change has an impact on PICH configuration in TDD.
<b>Consequences if not approved:</b>	⌘ Insufficient configuration for TDD PICH. Differences between modes not outlined

<b>Clauses affected:</b>	⌘ 6.3, 8.1.1.3, 8.2.2.3, 8.2.2.5, 8.3.5.1.2, 10.3.6.49, 11.3		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.7.0, CR 956
<b>Other comments:</b>	⌘		

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- Signalling radio bearer RB3 and optionally Signalling radio bearer RB4 shall be used for the RRC messages carrying higher layer (NAS) signalling and sent on the DCCH in RLC acknowledged mode (RLC-AM), as specified in subclauses 8.1.8., 8.1.9 and 8.1.10.
- Additionally, RBs whose identities shall be set between 5 and 31 may be used as signalling radio bearer for the RRC messages on the DCCH sent in RLC transparent mode (RLC-TM).
- RRC messages on the SHCCH are mapped either on RACH ~~or on the USCH with the lowest assigned Transport Channel Id~~ in the uplink using TM and either on FACH or on the DSCH ~~with the lowest assigned Transport Channel Id~~ using RLC-TM. These messages are only specified for TDD mode.

The Radio Bearer configuration for signalling radio bearer RB0, SHCCH, BCCH on FACH and PCCH on PCH are specified in subclauses 13.6, 13.6a, 13.6b and 13.6c.

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

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In idle mode and connected mode different combinations of system information blocks are valid. The UE shall acquire the system information blocks that are needed according to Table 8.1.1.

The UE may store system information blocks with cell or PLMN area scope (including their value tag if applicable) for different cells and different PLMNs, to be used if the UE returns to these cells.

The UE shall consider all stored system information blocks as invalid after it has been switched off. Some information obtained from system information may be stored by the UE or in the USIM for use in a stored information cell selection.

When selecting a new cell within the currently used PLMN, the UE shall consider all current system information blocks with area scope cell to be invalid. If the UE has stored valid system information blocks for the newly selected cell, the UE may set those as current system information blocks.

After selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has previously stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks. Upon selection of a new PLMN the UE shall store all information elements specified within variable SELECTED\_PLMN for the new PLMN within this variable.



### 8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall be able to receive any of the following messages:

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

and perform a hard handover, even if no prior UE measurements have been performed on the target cell and/or frequency.

If the UE receives:

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

it shall:

- set the variable ORDERED\_RECONFIGURATION to TRUE;
- perform the physical layer synchronisation procedure as specified in [29];
- act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

- in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:
  - act upon the IE "PDSCH code mapping" as specified in subclause 8.6 and;
  - infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted;
- enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

- handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If the UE was in CELL\_DCH state upon reception of the reconfiguration message and remains in CELL\_DCH state, the UE shall:

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

If after state transition the UE enters CELL\_FACH state, the UE shall, after the state transition:

- if the IE "Frequency info" is included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4] on that frequency;
- if the IE "Frequency info" is not included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4];
- if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
  - when the cell update procedure completed successfully:
    - if the UE is in CELL\_PCH or URA\_PCH state:
      - initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
      - proceed as below;
- start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;
- select PRACH according to subclause 8.5.17;
- select Secondary CCPCH according to subclause 8.5.19;
- use the transport format set given in system information;
- if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
  - ignore that IE and stop using DRX;
- if the contents of the variable C\_RNTI is empty:
  - perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";
  - when the cell update procedure completed successfully:
    - if the UE is in CELL\_PCH or URA\_PCH state:
      - initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";
      - proceed as below;

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

- if the received reconfiguration message included the IE "Downlink counter synchronisation info":
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info";
- if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":
  - if the variable START\_VALUE\_TO\_TRANSMIT is set:
    - include and set the IE "START" to the value of that variable;

- if the variable START\_VALUE\_TO\_TRANSMIT is not set and the IE "New U-RNTI" is included:
  - calculate the START value according to subclause 8.5.9;
  - include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info";
- if the received reconfiguration message contained the IE "Ciphering mode info":
  - include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB\_UPLINK\_CIPHERING\_ACTIVATION\_TIME\_INFO;
- if the received reconfiguration message contained the IE "Integrity protection mode info" with the IE "Integrity protection mode command" set to "Modify":
  - include and set the IE "Integrity protection activation info" to the value of the variable INTEGRITY\_PROTECTION\_ACTIVATION\_INFO;
- if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":
  - if prior to this procedure there exist no transparent mode RLC radio bearers:
    - if, at the conclusion of this procedure, the UE will be in CELL\_DCH state; and
    - if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:
      - include the IE "COUNT-C activation time" and specify a CFN value other than the default, "Now", for this IE;
  - if prior to this procedure there exists at least one transparent mode RLC radio bearer:
    - if, at the conclusion of this procedure, no transparent mode RLC radio bearers exist:
      - include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now", for this IE;
- set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry;
- if the variable PDCP\_SN\_INFO is not empty:
  - include the IE "RB with PDCP information list" and set it to the value of the variable PDCP\_SN\_INFO;
- in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):
  - set the IE "Uplink Timing Advance" according to the calculated value 8.6.6.26;
- if the IE "Integrity protection mode info" was present in the received reconfiguration message:
  - start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message;

If after state transition the UE enters CELL\_PCH or URA\_PCH state, the UE shall, after the state transition and transmission of the response message:

- if the IE "Frequency info" is included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4] on that frequency;
- if the IE "Frequency info" is not included in the received reconfiguration message:
  - select a suitable UTRA cell according to [4];
- prohibit periodical status transmission in RLC;

- remove any C-RNTI from MAC;
- clear the variable C\_RNTI;
- start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;
- select Secondary CCPCH according to subclause 8.5.19;
- if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
  - use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2;
- if the UE enters CELL\_PCH state from CELL\_DCH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
  - when the cell update procedure completed successfully:
    - the procedure ends;
- if the UE enters CELL\_PCH state from CELL\_FACH state, and the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE:
  - initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";
  - when the cell update procedure is successfully completed:
    - the procedure ends;
- if the UE enters URA\_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 is fulfilled:
  - initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";
  - when the URA update procedure is successfully completed:
    - the procedure ends.

#### 8.2.2.5 Reception of a response message by the UTRAN, normal case

When UTRAN has received

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

UTRAN may:

- delete the old configuration.

If the procedure caused the UE to leave the CELL\_FACH state, UTRAN may:

- delete the C-RNTI of the UE.

If the IE "UL Timing Advance" is included in TDD, UTRAN ~~shall~~should:

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

If the IE "START" or the IE "START list " is included, UTRAN should:

- set the START value for each CN domain with the corresponding values as received in this response message;
- consequently, then use the START values to initialise the hyper frame numbers, in the same way as specified for the UE in subclause 8.2.2.3, for any new radio bearers that are established.

For radio bearers using RLC-AM or RLC-UM, UTRAN should:

- use the old ciphering configuration for received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
- use the new ciphering configuration for received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;
- if an RLC reset or re-establishment occurs after this response message has been received by UTRAN before the activation time for the new ciphering configuration has been reached:
  - ignore the activation time; and
  - apply the new ciphering configuration immediately after the RLC reset or RLC re-establishment.

For radio bearers using RLC-TM:

- use the new ciphering configuration and only begin incrementing the COUNT-C at the CFN as indicated in:
  - the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info", if included in the message that triggered the radio bearer control procedure; or
  - the IE "COUNT-C activation time", if included in the response message for this procedure.

The procedure ends on the UTRAN side.

### 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.

If the IE "Default DPCH Offset Value" is included:

- in FDD mode UTRAN should:
  - set "Default DPCH Offset Value" and "DPCH frame offset" respecting the following relation

$$(\text{Default DPCH Offset Value}) \bmod 38400 = \text{DPCH frame offset}$$

- 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;
- **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:
  - 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.

### 10.3.6.49 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE <i>mode</i>	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					
>>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		
>>>>CHOICE <i>TDD option</i>	MP				REL-4
>>>>>3.84 Mcps TDD					REL-4
>>>>>>Channelisation code	MD		Enumerated ( (16/1)...(16/16) )	Default value is the channelisation code used by the SCCPCH carrying the associated PCH.	
>>>>>>>CHOICE <i>Burst Type</i>	MP				
>>>>>>>>Type 1					
>>>>>>>>>Midamble Shift	MP		Integer(0..15)		
>>>>>>>>>>Type 2					
>>>>>>>>>>>Midamble Shift	MP		Integer(0..5)		
>>>>1.28 Mcps TDD				(No data)	REL-4
>>>>>>>Midamble shift and burst type	MP		Midamble shift and burst type 10.3.6.41		REL-4
>>Repetition period/length	MD		Enumerated( (4/2),(8/2), (8/4),(16/2), (16/4), (32/2),(32/4), (64/2),(64/4) )	Default value is "(64/2)".	
>>Offset	MP		Integer (0...Repetition period -1)	SFN mod Repetitionperiod = Offset.	
>>Paging indicator length	MD		Integer (4, 8, 16)	Indicates the length of one paging indicator in Bits. Default value is 4.	
>>N <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 ..	Number of paging	

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>	<b>Version</b>
			8)	groups. Default value is 2.	



### 11.3 Information element definitions

```

PICH-Info ::=
    fdd
        channelisationCode256
        pi-CountPerFrame
        sttd-Indicator
    },
    tdd
        channelisationCode
        timeslot
        midambleShiftAndBurstType
        burstType
        type 1
        type 2
        repetitionPeriodLengthOffset
        pagingIndicatorLength
        n-GAP
        n-PCH
    }
}

CHOICE {
    SEQUENCE {
        ChannelisationCode256,
        PI-CountPerFrame,
        BOOLEAN
    }
    SEQUENCE {
        TDD-PICH-CCode
        TimeslotNumber
        MidambleShiftAndBurstType,
        CHOICE {
            MidambleShiftLong,
            MidambleShiftShort
        }
        RepPerLengthOffset-PICH
        PagingIndicatorLength
        N-GAP
        N-PCH
    }
    OPTIONAL,
    OPTIONAL,
    OPTIONAL,
    DEFAULT pi4,
    DEFAULT f4,
    DEFAULT 2
}

PICH-Info-LCR-r4 ::=
    timeslot
    midambleShiftAndBurstType
    repetitionPeriodLengthOffset
    pagingIndicatorLength
    n-GAP
    n-PCH
}

SEQUENCE {
    TimeslotNumber-LCR-r4
    MidambleShiftAndBurstType-LCR-r4,
    RepPerLengthOffset-PICH
    PagingIndicatorLength
    N-GAP
    N-PCH
    OPTIONAL,
    OPTIONAL,
    DEFAULT pi4,
    DEFAULT f4,
    DEFAULT 2
}
    
```

## CHANGE REQUEST

⌘ **25.331 CR 958** ⌘ ev **r1** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Messages on CCCH		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 19.08.2001
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (correction)</p> <p><b>A</b> (corresponds to a correction in an earlier release)</p> <p><b>B</b> (addition of feature),</p> <p><b>C</b> (functional modification of feature)</p> <p><b>D</b> (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>

<b>Reason for change:</b>	⌘ Some details relevant for message generation for messages on CCCH are not sufficiently specified. I.e. Information to be included in Measured results on RACH  Transport formats to be used for messages on CCCH
<b>Summary of change:</b>	⌘ Specification of what kind of information the UE is supposed to include in the IE "Measured Results on RACH". The UE shall include complete measurements for those cells that are included in order to allow UTRAN to benefit from the information.  Clarification included that message sizes shall be taken into account in case of CCCH messages when messages are generated.  Clarification on that RB mapping procedure description shall not be applied for CCCH because the description is not suitable with respect to for example RLC sizes.  Clarification of transport formats to be used for CCCH messages. Currently, this is only mentioned in a comment column of the table in section 13.6
<b>Consequences if not approved:</b>	⌘ Specification of CCCH messages ambiguous.  Features affected: Message generation for CCCH messages in uplink  UEs not behaving as indicated in this CR regarding  Measured results on RACH: Would report measurements in a not reasonable way  Taking into account maximum message sizes: Would lead to that UEs are not capable

to send CCCH messages under certain circumstances

Transport formats: Is currently defined the same way. However, not sufficiently clear.

- Provide necessary clarifications
- State
- « Correction to a function where the specification was :
  - ambiguous or not sufficiently explicit.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

**Clauses affected:** ⌘ 8.1.1.6.5, 8.1.3.3, 8.1.8.2, 8.3.1.3, 13.6

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v4.1.0, CR 959  
 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.

### 8.1.1.6.5 System Information Block type 5

The UE should store all relevant IEs included in this system information block. The UE shall:

- if in connected mode, and System Information Block type 6 is indicated as used in the cell:
  - read and act on information sent in System Information Block type 6.
- replace the TFS of the RACH with the one stored in the UE if any;
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink for the PRACH if UE is in CELL\_FACH state;
- use the first instance of the list of transport formats as in the IE "RACH TFS" for the used RACH received in the IE "PRACH system information list" when using the CCCH;
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only) when given allocated PRACH is used;
- replace the TFS of the FACH/PCH with the one stored in the UE if any;
- select a Secondary CCPCH as specified in subclause 8.6, and start to receive the physical channel of type PICH associated with the PCH carried by the selected Secondary CCPCH using the parameters given by the IE "PICH info" if UE is in Idle mode or in CELL\_PCH or URA\_PCH state;
- start to monitor its paging occasions on the selected PICH if UE is in Idle mode or in CELL\_PCH or URA\_PCH state;
- start to receive the selected physical channel of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL\_FACH state;
- in TDD:
  - use the IE "TDD open loop power control" as defined in subclause 8.5.7 when allocated PRACH is used;
  - if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included:
    - store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or "PUSCH Identity" respectively. For every configuration, for which the IE "SFN Time info" is included, the information shall be stored for the duration given there.

### 8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

- set the IE "Establishment cause" to the value of the variable ESTABLISHMENT\_CAUSE;
- set the IE "Initial UE identity" to the value of the variable INITIAL\_UE\_IDENTITY;
- set the IE "Protocol error indicator" to the value of the variable PROTOCOL\_ERROR\_INDICATOR;
- include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 11. The UE shall include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported. The UE shall take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

### 8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

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

- set the variable ESTABLISHMENT\_CAUSE to the cause for establishment indicated by upper layers;
- perform an RRC connection establishment procedure, according to subclause 8.1.3;
- if the RRC connection establishment procedure was not successful:
  - indicate failure to establish the signalling connection to upper layers and end the procedure;
- when the RRC connection establishment procedure is completed successfully:
  - continue with the initial direct transfer procedure as below;

Upon initiation of the initial direct transfer procedure when the UE is in CELL\_PCH or URA\_PCH state, the UE shall:

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

The UE shall, in the INITIAL DIRECT TRANSFER message:

- set the IE "NAS message" as received from upper layers; and
- set the IE "CN domain identity" as indicated by the upper layers; and
- set the IE "Intra Domain NAS Node Selector" as indicated by the upper layers.

In CELL\_FACH state, the UE shall:

- include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12 is not being broadcast). The UE shall include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported. — if RACH measurement reporting has been requested in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in "System Information Block type 12" (or "System Information Block type 11" if "System Information Block type 12" is not being broadcast):
  - include IE "Measured results on RACH" in the INITIAL DIRECT TRANSFER message.

The UE shall:

- transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;
- when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:
  - confirm the establishment of a signalling connection to upper layers; and
  - add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS; and
- the procedure ends.

When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

A new signalling connection request may be received from upper layers subsequent to the indication of the release of a previously established signalling connection to upper layers. From the time of the indication of release to upper layers

until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode.

### 8.3.1.3 CELL UPDATE / URA UPDATE message contents to set

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

In case of URA update procedure the UE shall transmit a URA UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

- set the IE "Cell update cause" corresponding to the cause specified in subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

- set the IE "U-RNTI" to the value of the variable U\_RNTI;
- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - include and set the IE "failure cause" to the cause value "protocol error";
  - set the IE "Protocol error information" set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- if the value of the variable FAILURE\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - include and set the IE "failure cause" to the value of the variable FAILURE\_CAUSE;
- include the START values for each CN domain, calculated according to subclause 8.5.9;
- if an unrecoverable error [16] in any of the AM RLC entities for the signalling radio bearer RB2 or signalling radio bearer RB3 is detected:
  - set the IE "AM\_RLC error indication (RB2 or RB3)" to TRUE;
- otherwise:
  - set the IE "AM\_RLC error indication (RB2 or RB3)" to FALSE;
- if an unrecoverable error [16] in any of the AM RLC entities for the RB4 or upward is detected:
  - set the IE "AM\_RLC error indication (RB>3)" to TRUE;
- otherwise:
  - set the IE "AM\_RLC error indication (RB>3)" to FALSE;
- set the IE "RB Timer indicator" to the value of the variable RB\_TIMER\_INDICATOR;
- include an intra-frequency measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12 (or System Information Block type 11, if System Information Block type 12 is not being broadcast). The UE shall include in the IE "Measured results on RACH" all requested reporting quantities for all included measurement objects. The UE shall take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall set the IEs in the URA UPDATE message as follows:



- set the IE "U-RNTI" to the value of the variable U\_RNTI;
- set the IE "URA update cause" corresponding to which cause as specified in subclause 8.3.1.2 that is valid when the URA UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a URA update procedure is initiated by the UE until when the procedure ends, additional URA UPDATE messages may be transmitted by the UE with different causes, depending on which causes are valid for the respective URA UPDATE message.

- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - set the IE "Protocol error indicator" to TRUE;
  - include the IE "Protocol error information" set to the value of the variable PROTOCOL\_ERROR\_INFORMATION.
- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is FALSE:
  - if the value of the variable INVALID\_CONFIGURATION is TRUE:
    - include the IE "RRC transaction identifier"; and
      - set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
    - set the IE "Protocol error indicator" to TRUE;
    - include the IE "Protocol error information" set to "Information element value not comprehended";
  - if the value of the variable INVALID\_CONFIGURATION is FALSE:
- set the IE "Protocol error indicator" to FALSE.

#### 8.6.4.8 RB mapping info.

If the IE "RB mapping info" is included, the UE shall, for each multiplexing option of that RB:

- if the value of the IE "RLC size list" is set to "Explicit list":
  - if a "Transport format set" for that transport channel is included in the same message, and the value (index) of any IE "RLC size index" in the IE "RLC size index list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or
  - if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "RLC size index list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
  - if a "Transport format set" for that transport channel 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 that transport channel is 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 that transport channel 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 that transport channel is 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 that transport channel is included in the same message, and the IE "Logical channel list" in the transport format set indicates that no "RLC size" is applicable for that RB; or
  - if a "Transport format set" for that transport channel is included in the same message, and the IE "Logical channel list" in the stored transport format set of that transport channel indicates that no "RLC size" is applicable for that RB:
    - 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, it is mapped onto the same transport channel as another RB:
  - set the variable INVALID\_CONFIGURATION to true;
- else:
  - 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 "RLC size list" and/or the "Logical Channel List" included in the applicable "Transport format set" (either the one received in the same message or the one stored if none were received);

- 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 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;
  - if the variable CIPHERING\_STATUS 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 the CN domain stored in the variable LATEST\_CONFIGURED\_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 the CN domain stored in the variable LATEST\_CONFIGURED\_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 the CN domain stored in the variable LATEST\_CONFIGURED\_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;
- 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 a transport channel that would not exist as a result of the message 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 a multiplexing option is included that 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 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" includes IE "Downlink RLC logical channel info" but IE "Number of downlink RLC logical channels" is absent, the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards

the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

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

## 13.6 RB information parameters for signalling radio bearer RB 0

The following Radio Bearer parameter values apply for signalling radio bearer RB0:

Information element/ Group name	Value	Comment
RLC info		
>Uplink RLC mode	TM	
>>Transmission RLC discard	omitted	Neither discard is used, nor will there be a reset
>>Segmentation indication	FALSE	
>Downlink RLC mode	UM	
RB mapping info		Single multiplexing option
>Uplink mapping info		
>>UL transport channel	RACH	RACH corresponding with selected PRACH
>>RLC size list	N/A	The first TEB defined in the Transport Format Set for the transport channel that is used
>Downlink mapping info		
>>DL transport channel	FACH	

Procedure descriptions in 8.6.4.8 shall not be applied for the IE "RB mapping info" that is used for signalling radio bearer RB0.

**3GPP TSG-RAN WG2 Meeting #23**  
**Helsinki, Finland, 27 - 31 August 2001**

**Tdoc R2-012192**

CR-Form-v4	<b>CHANGE REQUEST</b>
⌘ <b>25.331 CR 959</b> ⌘ ev <b>-</b> ⌘ Current version: <b>4.1.0</b> ⌘	

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

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

<b>Title:</b>	⌘ Messages on CCCH		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 19.08.2001
<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>	⌘ Some details relevant for message generation for messages on CCCH are not sufficiently specified. I.e. Information to be included in Measured results on RACH  Transport formats to be used for messages on CCCH
<b>Summary of change:</b>	⌘ Specification of what kind of information the UE is supposed to include in the IE "Measured Results on RACH". The UE shall include complete measurements for those cells that are included in order to allow UTRAN to benefit from the information.  Clarification included that message sizes shall be taken into account in case of CCCH messages when messages are generated.  Clarification on that RB mapping procedure description shall not be applied for CCCH because the description is not suitable with respect to for example RLC sizes.  Clarification of transport formats to be used for CCCH messages. Currently, this is only mentioned in a comment column of the table in section 13.6
<b>Consequences if not approved:</b>	⌘ Specification of CCCH messages ambiguous.  Features affected: Message generation for CCCH messages in uplink  UEs not behaving as indicated in this CR regarding  Measured results on RACH: Would report measurements in a not reasonable way  Taking into account maximum message sizes: Would lead to that UEs are not capable

to send CCCH messages under certain circumstances

Transport formats: Is currently defined the same way. However, not sufficiently clear.

- Provide necessary clarifications
- State
- « Correction to a function where the specification was :
  - ambiguous or not sufficiently explicit.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

<b>Clauses affected:</b>	⌘	8.1.1.6.5, 8.1.3.3, 8.1.8.2, 8.3.1.3, 13.6		
<b>Other specs affected:</b>	⌘	Other core specifications	⌘	25.331 v3.7.0, CR 958r1
		Test specifications		
		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.

### 8.1.1.6.5 System Information Block type 5

The UE should store all relevant IEs included in this system information block. The UE shall:

- if in connected mode, and System Information Block type 6 is indicated as used in the cell:
  - read and act on information sent in System Information Block type 6.
- replace the TFS of the RACH with the one stored in the UE if any;
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink for the PRACH if UE is in CELL\_FACH state;
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only) when given allocated PRACH is used;
- **use the first instance of the list of transport formats as in the IE "RACH TFS" for the used RACH received in the IE "PRACH system information list" when using the CCCH.**
- replace the TFS of the FACH/PCH with the one stored in the UE if any;
- select a Secondary CCPCH as specified in subclause 8.6, and start to receive the physical channel of type PICH associated with the PCH carried by the selected Secondary CCPCH using the parameters given by the IE "PICH info" if UE is in Idle mode or in CELL\_PCH or URA\_PCH state;
- start to monitor its paging occasions on the selected PICH if UE is in Idle mode or in CELL\_PCH or URA\_PCH state;
- start to receive the selected physical channel of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL\_FACH state;
- in 3.84 Mcps TDD:
  - use the IE "TDD open loop power control" as defined in subclause 8.5.7 when allocated PRACH is used;
- in TDD:
  - if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included:
    - store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or "PUSCH Identity" respectively. For every configuration, for which the IE "SFN Time info" is included, the information shall be stored for the duration given there.

### 8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

- set the IE "Establishment cause" to the value of the variable ESTABLISHMENT\_CAUSE;
- set the IE "Initial UE identity" to the value of the variable INITIAL\_UE\_IDENTITY;
- set the IE "Protocol error indicator" to the value of the variable PROTOCOL\_ERROR\_INDICATOR;
- include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 11. **The UE shall include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported. The UE shall take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".**



### 8.1.8.2 Initiation of Initial direct transfer procedure in the UE

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

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

- set the variable ESTABLISHMENT\_CAUSE to the cause for establishment indicated by upper layers;
- perform an RRC connection establishment procedure, according to subclause 8.1.3;
- if the RRC connection establishment procedure was not successful:
  - indicate failure to establish the signalling connection to upper layers and end the procedure;
- when the RRC connection establishment procedure is completed successfully:
  - continue with the initial direct transfer procedure as below;

Upon initiation of the initial direct transfer procedure when the UE is in CELL\_PCH or URA\_PCH state, the UE shall:

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

The UE shall, in the INITIAL DIRECT TRANSFER message:

- set the IE "NAS message" as received from upper layers; and
- set the IE "CN domain identity" as indicated by the upper layers; and
- set the IE "Intra Domain NAS Node Selector" as indicated by the upper layers.

In CELL\_FACH state, the UE shall:

- ~~include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12 is not being broadcast). The UE shall include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported. — if RACH measurement reporting has been requested in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in "System Information Block type 12" (or "System Information Block type 11" if "System Information Block type 12" is not being broadcast):~~
  - ~~include IE "Measured results on RACH" in the INITIAL DIRECT TRANSFER message.~~

The UE shall:

- transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;
- when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:
  - confirm the establishment of a signalling connection to upper layers; and
  - add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED\_SIGNALLING\_CONNECTIONS; and
  - the procedure ends.

When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

A new signalling connection request may be received from upper layers subsequent to the indication of the release of a previously established signalling connection to upper layers. From the time of the indication of release to upper layers

until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode.

### 8.3.1.3 CELL UPDATE / URA UPDATE message contents to set

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

In case of URA update procedure the UE shall transmit a URA UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

- set the IE "Cell update cause" corresponding to the cause specified in subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

- set the IE "U-RNTI" to the value of the variable U\_RNTI;
- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - include and set the IE "failure cause" to the cause value "protocol error";
  - set the IE "Protocol error information" set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- if the value of the variable FAILURE\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - include and set the IE "failure cause" to the value of the variable FAILURE\_CAUSE;
- include the START values for each CN domain, calculated according to subclause 8.5.9;
- if an unrecoverable error [16] in any of the AM RLC entities for the signalling radio bearer RB2 or signalling radio bearer RB3 is detected:
  - set the IE "AM\_RLC error indication (RB2 or RB3)" to TRUE;
- otherwise:
  - set the IE "AM\_RLC error indication (RB2 or RB3)" to FALSE;
- if an unrecoverable error [16] in any of the AM RLC entities for the RB4 or upward is detected:
  - set the IE "AM\_RLC error indication (RB>3)" to TRUE;
- otherwise:
  - set the IE "AM\_RLC error indication (RB>3)" to FALSE;
- set the IE "RB Timer indicator" to the value of the variable RB\_TIMER\_INDICATOR;
- include an intra-frequency measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12 (or System Information Block type 11, if System Information Block type 12 is not being broadcast). **The UE shall include in the IE "Measured results on RACH" all requested**

reporting quantities for all included measurement objects. The UE shall take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall set the IEs in the URA UPDATE message as follows:

- set the IE "U-RNTI" to the value of the variable U\_RNTI;
- set the IE "URA update cause" corresponding to which cause as specified in subclause 8.3.1.2 that is valid when the URA UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a URA update procedure is initiated by the UE until when the procedure ends, additional URA UPDATE messages may be transmitted by the UE with different causes, depending on which causes are valid for the respective URA UPDATE message.

- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is TRUE:
  - include the IE "RRC transaction identifier"; and
    - set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;
  - set the IE "Protocol error indicator" to TRUE;
  - include the IE "Protocol error information" set to the value of the variable PROTOCOL\_ERROR\_INFORMATION.
- if the value of the variable PROTOCOL\_ERROR\_INDICATOR is FALSE:
  - if the value of the variable INVALID\_CONFIGURATION is TRUE:
    - include the IE "RRC transaction identifier"; and
      - set it to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS;
    - set the IE "Protocol error indicator" to TRUE;
    - include the IE "Protocol error information" set to "Information element value not comprehended";
  - if the value of the variable INVALID\_CONFIGURATION is FALSE:
    - set the IE "Protocol error indicator" to FALSE.

#### 8.6.4.8 RB mapping info

If the IE "RB mapping info" is included, the UE shall, for each multiplexing option of that RB:

- if the value of the IE "RLC size list" is set to "Explicit list":
  - if a "Transport format set" for that transport channel is included in the same message, and the value (index) of any IE "RLC size index" in the IE "RLC size index list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or
  - if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "RLC size index list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or
  - if a "Transport format set" for that transport channel 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 that transport channel is 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 that transport channel 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 that transport channel is 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 that transport channel is included in the same message, and the IE "Logical channel list" in the transport format set indicates that no "RLC size" is applicable for that RB; or
  - if a "Transport format set" for that transport channel is included in the same message, and the IE "Logical channel list" in the stored transport format set of that transport channel indicates that no "RLC size" is applicable for that RB:
    - 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, it is mapped onto the same transport channel as another RB:
  - set the variable INVALID\_CONFIGURATION to true;
- else:
  - 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 "RLC size list" and/or the "Logical Channel List" included in the applicable "Transport format set" (either the one received in the same message or the one stored if none were received);
  - 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 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;
  - if the variable CIPHERING\_STATUS 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 the CN domain stored in the variable LATEST\_CONFIGURED\_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 the CN domain stored in the variable LATEST\_CONFIGURED\_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 the CN domain stored in the variable LATEST\_CONFIGURED\_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;
- 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 a transport channel that would not exist as a result of the message 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 a multiplexing option is included that 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 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" includes IE "Downlink RLC logical channel info" but IE "Number of downlink RLC logical channels" is absent, the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards 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

## 13.6 RB information parameters for signalling radio bearer RB 0

The following Radio Bearer parameter values apply for signalling radio bearer RB0:

Information element/ Group name	Value	Comment
RLC info		
>Uplink RLC mode	TM	
>>Transmission RLC discard	omitted	Neither discard is used, nor will there be a reset
>>Segmentation indication	FALSE	
>Downlink RLC mode	UM	
RB mapping info		Single multiplexing option
>Uplink mapping info		
>>UL transport channel	RACH	RACH corresponding with selected PRACH
>>RLC size list	N/A	The first TFB defined in the Transport Format Set for the transport channel that is used
>Downlink mapping info		
>>DL transport channel	FACH	

Procedure descriptions in 8.6.4.8 shall not be applied for the IE “RB mapping info” that is used for signalling radio bearer RB0.

## CHANGE REQUEST

⌘ **25.331 CR 960** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification of Parameter Values for Default Radio Configurations		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 14.08.2001
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (correction)</p> <p><b>A</b> (corresponds to a correction in an earlier release)</p> <p><b>B</b> (addition of feature),</p> <p><b>C</b> (functional modification of feature)</p> <p><b>D</b> (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p>

<b>Reason for change:</b>	⌘ <ul style="list-style-type: none"> <li>• A few inconsistencies between PhyCH INFORMATION TDD in 25.331 and Reference Radio Bearer configurations have been identified.</li> <li>• Some inconsistencies between clause 13.7 and 10.2.48.8.19 (SIB16) have been identified</li> </ul>
<b>Summary of change:</b>	⌘ <p><b>1) Predefined configuration, PhCH Information for TDD:</b></p> <p>The value of the IE puncturingLimit in some configurations has been corrected according to the Reference Radio Bearer configurations</p> <p><b>2) The name of following IEs has been changed according to the ASN1 and SIB16 table in 25.331:</b></p> <p>lastTransmissionPU-Poll changed to lastTransmissionPDU-Poll</p> <p>lastRetransmissionPU-Poll changed to lastRetransmissionPDU-Poll</p> <p>missingPU-Indicator changed to missingPDU-Indicator</p> <p><b>3) semistatic TF-Information IE has been inserted according to ASN1 and SIB16 table in 25.331 to transportFormatSet IE</b></p> <p><b>4) Uplink transport channel type IE has been inserted according to ASN1 and SIB16 table in 25.331 in UL-AddReconfTransChInfoList IE</b></p> <p><b>5) Downlink transport channel type IE has been inserted according to ASN1 and SIB16 table in 25.331 in DL-AddReconfTransChInfoList IE</b></p>

**Isolated Impact Analysis:**

- Correction to a function where the specification was:
  - ambiguous or not sufficiently explicit.
  - containing some contradictions
  - Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Affected function:

Parameter values for default radio configurations: values of puncturingLimit, names of IE lastTransmissionPU-Poll, lastRetransmissionPU-Poll, missingPU-Indicator, added IEs semistatic TF-Information, Uplink transport channel type and Downlink transport channel type

It is proposed to align the values of puncturingLimit IE to those from Reference Radio Bearer configurations to avoid the contradiction

It is further proposed to change the names of IE lastTransmissionPU-Poll, lastRetransmissionPU-Poll, missingPU-Indicator to IE lastTransmissionPDU-Poll, lastRetransmissionPDU-Poll, missingPDU-Indicator

It is further proposed to add the IEs semistatic TF-Information, Uplink transport channel type and Downlink transport channel type according to ASN1 and SIB16 table in 25.331

The CR intends to remove inconsistencies between Information Elements Reference Radio Bearer configurations and 25.331 and between clause 13.7 and SIB16 within 25.331

**Consequences if not approved:** ⌘ Inconsistency between PhyCH INFORMATION TDD in 25.331 and Reference Radio Bearer configurations, and between clause 13.7 and ASN1 and SIB16

**Clauses affected:** ⌘ 13.7

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v4.1.0, CR 961  
 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.



## 13.7 Parameter values for default radio configurations

The UE shall support the use of the default radio configurations that are specified in the following.

NOTE 1: These configurations are based on [41] and cover a number of RAB and signalling connection configurations.

In the table that is used to specify the parameter values for these default configurations, the following principles are used:

- Optional IEs that are not used are omitted;
- In case no parameter value is specified in a column, this means the value given the previous (left side) column applies.

NOTE 2: If needed, signalling radio bearer RB4 is established after the completion of handover.

NOTE 3: For each default configuration, the value of both FDD and TDD parameters are specified. All parameters apply to both FDD and TDD modes, unless explicitly stated otherwise. It should be noted that in this respect default configurations differ from pre-defined configurations, which only include parameter values for one mode.

NOTE 4: The transport format sizes, indicated in the following table, concern the RLC PDU size, since all configurations concern dedicated channels. The transport block sizes indicated in TS 34.108 are different since these include the size of the MAC header.

Configuration	3.4 kbps signalling	13.6 kbps signalling	7.95 kbps speech + 3.4 kbps signalling	12.2 kbps speech + 3.4 kbps signalling
Ref 34.108	2	3	6	4
Default configuration identity	0	1	2	3
RB INFORMATION				
rb-Identity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3, RB5: 5, RB6: 6	RB1: 1, RB2: 2, RB3: 3, RB5: 5, RB6: 6, RB7: 7
rlc-InfoChoice	Rlc-info	Rlc-info	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM RB5-RB6: TM	RB1: UM RB2- RB3: AM RB5-RB7: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard	RB1: N/A RB2- RB3: NoDiscard	RB1: N/A RB2- RB3: NoDiscard RB5- RB6: N/A	RB1: N/A RB2- RB3: NoDiscard RB5- RB7: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15	RB1: N/A RB2- RB3: 15	RB1: N/A RB2- RB3: 15 RB5- RB6: N/A	RB1: N/A RB2- RB3: 15 RB5- RB7: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128 RB5- RB6: N/A	RB1: N/A RB2- RB3: 128 RB5- RB7: N/A
>>timerRST	RB1: N/A RB2- RB3: 300	RB1: N/A RB2- RB3: 300	RB1: N/A RB2- RB3: 300 RB5- RB6: N/A	RB1: N/A RB2- RB3: 300 RB5- RB7: N/A
>>max-RST	RB1: N/A RB2- RB3: 1	RB1: N/A RB2- RB3: 1	RB1: N/A RB2- RB3: 1 RB5- RB6: N/A	RB1: N/A RB2- RB3: 1 RB5- RB7: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below RB5- RB6: N/A	RB1: N/A RB2- RB3: as below RB5- RB7: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A	RB1- RB3: N/A	RB1- RB3: N/A RB5- RB6: FALSE	RB1- RB3: N/A RB5- RB7: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM RB5- RB6: TM	RB1: UM RB2- RB3: AM RB5- RB7: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE	RB1: N/A RB2- RB3: TRUE	RB1: N/A RB2- RB3: TRUE RB5- RB6: N/A	RB1: N/A RB2- RB3: TRUE RB5- RB7: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128 RB5- RB6: N/A	RB1: N/A RB2- RB3: 128 RB5- RB7: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below RB5- RB6: N/A	RB1: N/A RB2- RB3: as below RB5- RB7: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A	RB1- RB3: N/A	RB1- RB3: N/A RB5- RB6: FALSE	RB1- RB3: N/A RB5- RB7: FALSE
rb-MappingInfo				
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 1	RB1- RB3: 1	RB1- RB3: 3 RB5: 1, RB6: 2	RB1- RB3: 4 RB5: 1, RB6: 2, RB7: 3
>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: N/A	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: N/A

>>rlc-SizeList	RB1- RB3: all	RB1- RB3: all	RB1- RB3: all RB5- RB6: N/A	RB1- RB3: all RB5- RB7: N/A
>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: 5	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: 5
>DL- logicalChannelMappingList				
>>Mapping option 1	One mapping option	One mapping option	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 1	RB1- RB3: 1	RB1- RB3: 3 RB5: 1, RB6: 2	RB1- RB3: 4 RB5: 1, RB6: 2, RB7: 3
>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: N/A	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: N/A
TrCH INFORMATION PER TrCH				
UL-AddReconfTransChInfoList				
>Uplink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>transportFormatSet	DedicatedTransChT FS	DedicatedTransChT FS	DedicatedTransChT FS	DedicatedTransChT FS
>>>dynamicTF-information				
>>>>tf0/ tf0,1	TrCH1: (0x144, 1x144)	TrCH1: (0x144, 1x144)	TrCH1: (0x75) TrCH2: (0x 84 1x84) TrCH3: (0x144, 1x144)	TrCH1: (0x81) TrCH2: (0x 103, 1x103) TrCH3: (0x 60, 1x60) TrCH4: (0x144, 1x144)
>>>>>rlcSize	BitMode	BitMode	BitMode	BitMode
>>>>>>sizeType	TrCH1: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 2, part2= 0 (144)	TrCH1: type 1: 75 TrCH2: type 1: 84 TrCH3: 2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 1: 81 TrCH2: type 1: 103 TrCH3: type 1: 60 TrCH4: 2: type 2, part1= 2, part2= 0 (144)
>>>>>numberOfTbSizeList	TrCH1: Zero, one	TrCH1: Zero, one	TrCH1: Zero TrCH2-3: Zero, one	TrCH1: Zero TrCH2-4: Zero, one
>>>>>logicalChannelList	All	All	All	All
>>>>>tf 1	N/A	N/A	TrCH1: (1x39) TrCH2- TrCH4: N/A	TrCH1: (1x39) TrCH2- TrCH4: N/A
>>>>>>numberOfTransportBlock s			TrCH1: One	TrCH1: One
>>>>>>rlc-Size			TrCH1: BitMode	TrCH1: BitMode
>>>>>>>sizeType			TrCH1: 1: 39	TrCH1: 1: 39
>>>>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>>>>logicalChannelList			TrCH1: all	TrCH1: all
>>>>>>>tf 2	N/A	N/A	TrCH1: (1x75) TrCH2- TrCH3: N/A	TrCH1: (1x81) TrCH2- TrCH4: N/A
>>>>>>>>numberOfTransportBlock s			TrCH1: Zero	TrCH1: Zero
>>>>>>>>rlc-Size			TrCH1: BitMode	TrCH1: BitMode
>>>>>>>>>sizeType			TrCH1: type 1: 75	TrCH1: type 1: 81
>>>>>>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>>>>>>logicalChannelList			TrCH1: all	TrCH1: all
>>>>>>>>>>semistaticTF-Information				
>>>>>>>>>>tti	TrCH1: 40	TrCH1: 10	TrCH1- TrCH2: 20 TrCH3: 40	TrCH1- TrCH3: 20 TrCH4: 40
>>>>>>>>>>>channelCodingType	Convolutional	Convolutional	Convolutional	Convolutional
>>>>>>>>>>>>codingRate	TrCH1: Third	TrCH1: Third	TrCH1- TrCH2: Third TrCH3: Third	TrCH1- TrCH2: Third TrCH3: Half TrCH4: Third

>>>rateMatchingAttribute	TrCH1: 160	TrCH1: 160	TrCH1: 200 TrCH2: 190 TrCH3: 160	TrCH1: 200 TrCH2: 190 TrCH3: 235 TrCH4: 160
>>>crc-Size	TrCH1: 16	TrCH1: 16	TrCH1: 12 TrCH2: 0 TrCH3: 16	TrCH1: 12 TrCH2- TrCH3: 0 TrCH4: 16
DL-AddReconfTransChInfoList				
>Downlink transport channel type	dch	dch	dch	dch
>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>fs-SignallingMode	SameAsUL	SameAsUL	Independent <Only tf0 on TrCH1 is different and shown below>	Independent <Only tf0 on TrCH1 is different and shown below>
>>transportFormatSet			DedicatedTransChTFS	DedicatedTransChTFS
>>>dynamicTF-information				
>>>>tf0/ tf0,1			TrCH1: (1x0)	TrCH1: (1x0)
>>>>rlcSize			BitMode	bitMode
>>>>>sizeType			TrCH1: type 1: 0	TrCH1: type 1: 0
>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>logicalChannelList			All	All
>>ULTrCH-Id	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>dch-QualityTarget				
>>bler-QualityValue	TrCH1: $5 \times 10^{-2}$	TrCH1: $5 \times 10^{-2}$	TrCH1: $7 \times 10^{-3}$ TrCH2- TrCH3: Absent	TrCH1: $7 \times 10^{-3}$ TrCH2- TrCH4: Absent
TrCH INFORMATION, COMMON				
ul-CommonTransChInfo				
>tfcs-ID (TDD only)	1	1	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE	FALSE	FALSE
>tfcs-Subset	Absent, not required	Absent, not required	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCS signalling	Normal TFCS signalling	Normal TFCS signalling	Normal TFCS signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete	Complete	Complete
>>>ctfcSize	Ctfc2Bit	Ctfc2Bit	Ctfc4Bit	Ctfc6Bit
>>>>TFCS representation	Addition	Addition	Addition	Addition
>>>>>TFCS list				
>>>>>>TFCS 1	(TF0)	(TF0)	(TF0, TF0, TF0)	(TF0, TF0, TF0, TF0)
>>>>>>>ctfc	0	0	0	0
>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>referenceTFCSId	0	0	0	0
>>>>>>>>>TFCS 2	(TF1)	(TF1)	(TF1, TF0, TF0)	(TF1, TF0, TF0, TF0)
>>>>>>>>>ctfc	1	1	1	1
>>>>>>>>>>gainFactorInformation	Signalled	Signalled	Computed	Computed
>>>>>>>>>>> $\beta$ c (FDD only)	11	11	N/A	N/A
>>>>>>>>>>> $\beta$ d	15	15	N/A	N/A
>>>>>>>>>>>>referenceTFCSId	N/A	N/A	0	0
>>>>>>>>>>>>>TFCS 3			(TF2, TF1, TF0)	(TF2, TF1, TF1, TF0)
>>>>>>>>>>>>>ctfc			5	11
>>>>>>>>>>>>>>gainFactorInformation			Computed	Computed
>>>>>>>>>>>>>>>referenceTFCSId			0	0

>>>>>TFCS 4			(TF0, TF0, TF1)	(TF0, TF0, TF0, TF1)
>>>>>ctfc			6	12
>>>>>gainFactorInformation			Computed	Computed
>>>>>βc (FDD only)			N/A	N/A
>>>>>βd			N/A	N/A
>>>>>referenceTFCId			0	0
>>>>>TFCS 5			(TF1, TF0, TF1)	(TF1, TF0, TF0, TF1)
>>>>>ctfc			7	13
>>>>>gainFactorInformation			Computed	Computed
>>>>>referenceTFCId			0	0
>>>>>TFCS 6			(TF2, TF1, TF1)	(TF2, TF1, TF1, TF1)
>>>>>ctfc			11	23
>>>>>gainFactorInformation			Signalled	Signalled
>>>>>βc (FDD only)			11	11
>>>>>βd			15	15
>>>>>referenceTFCId			0	0
>dl-CommonTransChInfo				
>tfcs-SignallingMode	Same as UL	Same as UL	Same as UL	Same as UL
PhyCH INFORMATION FDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControllInfo				
>>powerControlAlgorithm	Algorithm 1	Algorithm 1	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1	1	1
>tfci-Existence	TRUE	TRUE	TRUE	TRUE
>puncturingLimit	1	1	1	0.88
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>spreadingFactor	256	128	128	128
>>pilotBits	4	4	4	4
>>positionFixed	N/A	N/A	Fixed	Fixed
PhyCH INFORMATION TDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControllInfo				
>>dpch-ConstantValue	-20	-20	-20	-20
>commonTimeslotInfo				
>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>tfci-Coding	4	4	16	16
>>puncturingLimit	<u>10.80</u>	<u>0.800.92</u>	<u>0.5280</u>	<u>0.880.80</u>
>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>commonTimeslotInfo				
>>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>tfci-Coding	4	4	16	16
>>>puncturingLimit	<u>10.74</u>	<u>0.740.92</u>	<u>0.5280</u>	<u>0.920.80</u>
>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1

Configuration	28.8 kbps conv. CS- data + 3.4 kbps signalling	32 kbps conv. CS- data + 3.4 kbps signalling	64kbps conv. CS- data + 3.4 kbps signalling	14.4 kbps streaming CS- data + 3.4 kbps signalling
Ref 34.108	12	14	13	15
Default configuration identity	4	5	6	7
RB INFORMATION				
rb-Identity	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5
rlc-InfoChoice	Rlc-info	Rlc-info	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>timerRST	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A
>>max-RST	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
rb-MappingInfo				
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
>>>rlc-SizeList	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A

>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5
>DL-logicalChannelMappingList				
>>Mapping option 1	One mapping option	One mapping option	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
TrCH INFORMATION PER TrCH				
UL-AddReconfTransChInfoList				
>Uplink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>transportFormatSet	DedicatedTransChTFS	DedicatedTransChTFS	DedicatedTransChTFS	DedicatedTransChTFS
>>dynamicTF-information				
>>>tf0/ tf0,1	TrCH1: (0x576, 1x576, 2x576) TrCH2: (0x144, 1x144)	TrCH1: (0x640, 1x640) TrCH2: (0x144, 1x144)	TrCH1: (0x640, 2x640) TrCH2: (0x144, 1x144)	TrCH1: (0x576, 1x576) TrCH2: (0x144, 1x144)
>>>>rlcSize	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode
>>>>>sizeType	TrCH1: type 2, part1= 11, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 11, part2= 2 (640) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 11, part2= 2 (640) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)
>>>>>numberOfTbSizeList	TrCH1: Zero,1, 2 (4) TrCH2: Zero, one	TrCH1: Zero, one TrCH2: Zero, one	TrCH1: Zero, 2 (4) TrCH2: Zero, one	TrCH1: Zero, one, TrCH2: Zero, one
>>>>>logicalChannelList	All	All	All	All
>>semiStaticTF-Information				
>>>tfti	TrCH1: 40 TrCH2: 40	TrCH1: 20 TrCH2: 40	TrCH1: 20 TrCH2: 40	TrCH1: 40 TrCH2: 40
>>>>channelCodingType	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional
>>>>>codingRate	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third
>>>>>rateMatchingAttribute	TrCH1: 180 TrCH2: 160	TrCH1: 185 TrCH2: 160	TrCH1: 170 TrCH2: 160	TrCH1: 165 TrCH2: 160
>>>>>crc-Size	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16
DL-AddReconfTransChInfoList				
>Downlink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>tfs-SignallingMode	SameAsUL	SameAsUL	SameAsUL	SameAsUL
>>transportFormatSet				
>>>dynamicTF-information				
>>>>tf0/ tf0,1				
>>>>>rlcSize				
>>>>>>sizeType				
>>>>>>>numberOfTbSizeList				
>>>>>>>logicalChannelList				
>>ULTrCH-Id	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>dch-QualityTarget				
>>bler-QualityValue	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent

TrCH INFORMATION, COMMON				
ul-CommonTransChInfo				
>tfc-ID (TDD only)	1	1	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE	FALSE	FALSE
>tfc-Subset	Absent, not required	Absent, not required	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCI signalling	Normal TFCI signalling	Normal TFCI signalling	Normal TFCI signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete	Complete	Complete
>>>ctfcSize	Ctfc2Bit	Ctfc2Bit	Ctfc2Bit	Ctfc4Bit
>>>>TFCS representation	Addition	Addition	Addition	Addition
>>>>>TFCS list				
>>>>>>TFCS 1	(TF0, TF0)	(TF0, TF0)	(TF0, TF0)	(TF0, TF0)
>>>>>>>ctfc	0	0	0	0
>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>TFCS 2	(TF1, TF0)	(TF1, TF0)	(TF1, TF0)	(TF1, TF0)
>>>>>>>>>ctfc	1	1	1	1
>>>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>>>βc (FDD only)	N/A	N/A	N/A	N/A
>>>>>>>>>>>βd	N/A	N/A	N/A	N/A
>>>>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>>>TFCS 3	(TF2, TF0)	(TF0, TF1)	(TF0, TF1)	(TF0, TF1)
>>>>>>>>>>>ctfc	2	2	2	2
>>>>>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>>>>TFCS 4	(TF0, TF1)	(TF1, TF1)	(TF1, TF1)	(TF1, TF1)
>>>>>>>>>>>>>ctfc	3	3	3	3
>>>>>>>>>>>>>>gainFactorInformation	Computed	Signalled	Signalled	Signalled
>>>>>>>>>>>>>>>βc (FDD only)	N/A	8	8	11
>>>>>>>>>>>>>>>βd	N/A	15	15	15
>>>>>>>>>>>>>>>>referenceTFCId	N/A	N/A	N/A	N/A
>>>>>>>>>>>>>>TFCS 5	(TF1, TF1)	N/A	N/A	
>>>>>>>>>>>>>>>>ctfc	4			
>>>>>>>>>>>>>>>>>gainFactorInformation	Computed			
>>>>>>>>>>>>>>>>>>referenceTFCId	8			
>>>>>>>>>>>>>>>>>TFCS 6	(TF2, TF1)	N/A	N/A	
>>>>>>>>>>>>>>>>>>>ctfc	5			
>>>>>>>>>>>>>>>>>>>>gainFactorInformation	Signalled			
>>>>>>>>>>>>>>>>>>>>>βc (FDD only)	8			
>>>>>>>>>>>>>>>>>>>>>βd	15			
>>>>>>>>>>>>>>>>>>>>>>referenceTFCId	N/A			
>>>>>>>>>>>>>>>>>>>>>>>TFCS 7				
>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				
>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFCId				
>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 8				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFCId				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 9				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				



>>>>>>referenceTFCId				
>>>>>TFCS 10				
>>>>>>ctfc				
>>>>>>gainFactorInformation				
>>>>>> $\beta$ c (FDD only)				
>>>>>> $\beta$ d				
>>>>>>referenceTFCId				
dl-CommonTransChInfo				
>tfcs-SignallingMode	Same as UL	Same as UL	Same as UL	Same as UL
PhyCH INFORMATION FDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControlInfo				
>>powerControlAlgorithm	Algorithm 1	Algorithm 1	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1	1	1
>tfci-Existence	TRUE	TRUE	TRUE	TRUE
>puncturingLimit	0.92	0.8	0.92	1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>spreadingFactor	64	64	32	128
>>pilotBits	8	8	8	8
>>positionFixed	Flexible	Flexible	Flexible	Flexible
PhyCH INFORMATION TDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControlInfo				
>>dpch-ConstantValue	-20	-20	-20	-20
>commonTimeslotInfo				
>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>tfci-Coding	168	8	8	846
>>>puncturingLimit	0.4456	0.8	0.56	0.81
>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>commonTimeslotInfo				
>>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>>tfci-Coding	168	8	8	846
>>>>puncturingLimit	0.4452	0.640.52	0.526	0.80.46
>>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1

<b>Configuration</b>	<b>28.8 kbps streaming CS- data + 3.4 kbps signalling</b>	<b>57.6 kbps streaming CS- data + 3.4 kbps signalling</b>
Ref 34.108	16	17
Default configuration identity	8	9
<b>RB INFORMATION</b>		
rb-Identity	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5
rlc-InfoChoice	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>timerRST	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A
>>max-RST	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
rb-MappingInfo		
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1

>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
>>rlc-SizeList	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A
>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5
>DL-logicalChannelMappingList		
>>Mapping option 1	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
TrCH INFORMATION PER TrCH		
UL-AddReconfTransChInfoList		
> <a href="#">Uplink transport channel type</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>transportFormatSet	DedicatedTransChTFS	DedicatedTransChTFS
>>dynamicTF-information		
>>>tf0/ tf0,1	TrCH1: (0x576, 1x576, 2x576) TrCH2: (0x144, 1x144)	TrCH1: (0x576, 1x576, 2x576, 3x576, 4x576) TrCH2: (0x144, 1x144)
>>>>rlcSize	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode
>>>>>sizeType	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)
>>>>numberOfTbSizeList	TrCH1: Zero, one, 2 TrCH2: Zero, one	TrCH1: Zero, one, 2, 3, 4 TrCH2: Zero, one
>>>>logicalChannelList	All	All
>>semiStaticTF-Information		
>>>tti	TrCH1: 40 TrCH2: 40	TrCH1: 40 TrCH2: 40
>>>channelCodingType	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional
>>>>codingRate	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third
>>>rateMatchingAttribute	TrCH1: 155 TrCH2: 160	TrCH1: 145 TrCH2: 160
>>>crc-Size	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16
DL-AddReconfTransChInfoList		
> <a href="#">Downlink transport channel type</a>	<a href="#">dch</a>	<a href="#">dch</a>

>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>tfs-SignallingMode	SameAsUL	SameAsUL
>>transportFormatSet		
>>>dynamicTF-information		
>>>>tf0/ tf0,1		
>>>>rlcSize		
>>>>>sizeType		
>>>>>numberOfTbSizeList		
>>>>>logicalChannelList		
>>ULTrCH-Id	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>dch-QualityTarget		
>>bler-QualityValue	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent
TrCH INFORMATION, COMMON		
ul-CommonTransChInfo		
>tfc-ID (TDD only)	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE
>tfc-Subset	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCl signalling	Normal TFCl signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete
>>>ctfcSize	Ctfc4Bit	Ctfc4Bit
>>>>TFCS representation	Addition	Addition
>>>>>TFCS list		
>>>>>>TFCS 1	(TF0, TF0)	(TF0, TF0)
>>>>>>>ctfc	0	0
>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>referenceTFClId	0	0
>>>>>>>>>TFCS 2	(TF1, TF0)	(TF1, TF0)
>>>>>>>>>>ctfc	1	1
>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>> $\beta_c$ (FDD only)	N/A	N/A
>>>>>>>>>>>> $\beta_d$	N/A	N/A
>>>>>>>>>>>>>referenceTFClId	0	0
>>>>>>>>>>>>>TFCS 3	(TF2, TF0)	(TF2, TF0)
>>>>>>>>>>>>>>ctfc	2	2
>>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>>referenceTFClId	0	0
>>>>>>>>>>>>>>>>>TFCS 4	(TF0, TF1)	(TF3, TF0)
>>>>>>>>>>>>>>>>>>ctfc	3	3
>>>>>>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>>>>>> $\beta_c$ (FDD only)	N/A	N/A
>>>>>>>>>>>>>>>>>>>> $\beta_d$	N/A	N/A
>>>>>>>>>>>>>>>>>>>>>>referenceTFClId	0	0
>>>>>>>>>>>>>>>>>>>>>>>TFCS 5	(TF1, TF1)	(TF4, TF0)
>>>>>>>>>>>>>>>>>>>>>>>>ctfc	4	4
>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFClId	0	0
>>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 6	(TF2, TF1)	(TF0, TF1)
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc	5	5
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation	Signalled	Computed
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> $\beta_c$ (FDD only)	8	N/A

>>>>>>> $\beta$ d	15	N/A
>>>>>>>referenceTFClId	N/A	0
>>>>>>>TFCS 7		(TF1, TF1)
>>>>>>>ctfc		6
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 8		(TF2, TF1)
>>>>>>>ctfc		7
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 9		(TF3, TF1)
>>>>>>>ctfc		8
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 10		(TF4, TF1)
>>>>>>>ctfc		9
>>>>>>>gainFactorInformation		Signalled
>>>>>>> $\beta$ c (FDD only)		8
>>>>>>> $\beta$ d		15
>>>>>>>referenceTFClId		0
dl-CommonTransChInfo		
>tfcs-SignallingMode	Same as UL	Same as UL
PhyCH INFORMATION FDD		
UL-DPCH-InfoPredef		
>ul-DPCH-PowerControlInfo		
>>powerControlAlgorithm	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1
>tfci-Existence	TRUE	TRUE
>puncturingLimit	1	1
DL-CommonInformationPredef		
>dl-DPCH-InfoCommon		
>>spreadingFactor	64	32
>>pilotBits	8	8
>>positionFixed	Flexible	Flexible
PhyCH INFORMATION TDD		
UL-DPCH-InfoPredef		
>ul-DPCH-PowerControlInfo		
>>dpch-ConstantValue	-20	-20
>commonTimeslotInfo		
>>secondInterleavingMode	frameRelated	frameRelated
>>>tfci-Coding	16	16
>>puncturingLimit	0.4450	0.480-50
>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef		
>dl-DPCH-InfoCommon		
>>commonTimeslotInfo		
>>>secondInterleavingMode	frameRelated	frameRelated
>>>tfci-Coding	16	16
>>puncturingLimit	0.446	0.480-46

>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1
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## CHANGE REQUEST

⌘ **25.331 CR 961** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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 of Parameter Values for Default Radio Configurations		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 30.08.2001
<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 <a href="#">TR 21.900</a> .		REL-4 (Release 4)
			REL-5 (Release 5)

**Reason for change:** ⌘

- A few inconsistencies between PhyCH INFORMATION TDD in 25.331 and Reference Radio Bearer configurations have been identified.
- Some inconsistencies between clause 13.7 and 10.2.48.8.19 (SIB16) have been identified

**Summary of change:** ⌘

- 1) Predefined configuration, PhCH Information for TDD:**  
The value of the IE puncturingLimit in some configurations has been corrected according to the Reference Radio Bearer configurations
- 2) The name of following IEs has been changed according to the ASN1 and SIB16 table in 25.331:**  
lastTransmissionPU-Poll changed to lastTransmissionPDU-Poll  
lastRetransmissionPU-Poll changed to lastRetransmissionPDU-Poll  
missingPU-Indicator changed to missingPDU-Indicator
- 3) semistatic TF-Information IE has been inserted according to ASN1 and SIB16 table in 25.331 to transportFormatSet IE**
- 4) Uplink transport channel type IE has been inserted according to ASN1 and SIB16 table in 25.331 in UL-AddReconfTransChInfoList IE**
- 5) Downlink transport channel type IE has been inserted according to ASN1 and SIB16 table in 25.331 in DL-AddReconfTransChInfoList IE**

**Isolated Impact Analysis:**

- Correction to a function where the specification was:
  - ambiguous or not sufficiently explicit.
  - containing some contradictions
  - Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Affected function:

Parameter values for default radio configurations: values of puncturingLimit, names of IE lastTransmissionPU-Poll, lastRetransmissionPU-Poll, missingPU-Indicator, added IEs semistatic TF-Information, Uplink transport channel type and Downlink transport channel type

It is proposed to align the values of puncturingLimit IE to those from Reference Radio Bearer configurations to avoid the contradiction

It is further proposed to change the names of IE lastTransmissionPU-Poll, lastRetransmissionPU-Poll, missingPU-Indicator to IE lastTransmissionPDU-Poll, lastRetransmissionPDU-Poll, missingPDU-Indicator

It is further proposed to add the IEs semistatic TF-Information, Uplink transport channel type and Downlink transport channel type according to ASN1 and SIB16 table in 25.331

The CR intends to remove inconsistencies between Information Elements Reference Radio Bearer configurations and 25.331 and between clause 13.7 and SIB16 within 25.331

**Consequences if not approved:** ⌘ Inconsistency between PhyCH INFORMATION TDD in 25.331 and Reference Radio Bearer configurations, and between clause 13.7 and ASN1 and SIB16

**Clauses affected:** ⌘ 13.7

<b>Other specs affected:</b>	⌘ <input type="checkbox"/>	Other core specifications	⌘ 25.331 v3.7.0, CR 960
	<input type="checkbox"/>	Test specifications	
	<input type="checkbox"/>	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.



## 13.7 Parameter values for default radio configurations

The UE shall support the use of the default radio configurations that are specified in the following.

NOTE 1: These configurations are based on [41] and cover a number of RAB and signalling connection configurations.

In the table that is used to specify the parameter values for these default configurations, the following principles are used:

- Optional IEs that are not used are omitted;
- In case no parameter value is specified in a column, this means the value given the previous (left side) column applies.

NOTE 2: If needed, signalling radio bearer RB4 is established after the completion of handover.

NOTE 3: For each default configuration, the value of both FDD and TDD parameters are specified. All parameters apply to both FDD and TDD modes, unless explicitly stated otherwise. It should be noted that in this respect default configurations differ from pre-defined configurations, which only include parameter values for one mode.

NOTE 4: The transport format sizes, indicated in the following table, concern the RLC PDU size, since all configurations concern dedicated channels. The transport block sizes indicated in TS 34.108 are different since these include the size of the MAC header.

Configuration	3.4 kbps signalling	13.6 kbps signalling	7.95 kbps speech + 3.4 kbps signalling	12.2 kbps speech + 3.4 kbps signalling
Ref 34.108	2	3	6	4
Default configuration identity	0	1	2	3
RB INFORMATION				
rb-Identity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3, RB5: 5, RB6: 6	RB1: 1, RB2: 2, RB3: 3, RB5: 5, RB6: 6, RB7: 7
rlc-InfoChoice	Rlc-info	Rlc-info	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM RB5-RB6: TM	RB1: UM RB2- RB3: AM RB5-RB7: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard	RB1: N/A RB2- RB3: NoDiscard	RB1: N/A RB2- RB3: NoDiscard RB5- RB6: N/A	RB1: N/A RB2- RB3: NoDiscard RB5- RB7: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15	RB1: N/A RB2- RB3: 15	RB1: N/A RB2- RB3: 15 RB5- RB6: N/A	RB1: N/A RB2- RB3: 15 RB5- RB7: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128 RB5- RB6: N/A	RB1: N/A RB2- RB3: 128 RB5- RB7: N/A
>>timerRST	RB1: N/A RB2- RB3: 300	RB1: N/A RB2- RB3: 300	RB1: N/A RB2- RB3: 300 RB5- RB6: N/A	RB1: N/A RB2- RB3: 300 RB5- RB7: N/A
>>max-RST	RB1: N/A RB2- RB3: 1	RB1: N/A RB2- RB3: 1	RB1: N/A RB2- RB3: 1 RB5- RB6: N/A	RB1: N/A RB2- RB3: 1 RB5- RB7: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below RB5- RB6: N/A	RB1: N/A RB2- RB3: as below RB5- RB7: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A	RB1- RB3: N/A	RB1- RB3: N/A RB5- RB6: FALSE	RB1- RB3: N/A RB5- RB7: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM	RB1: UM RB2- RB3: AM RB5- RB6: TM	RB1: UM RB2- RB3: AM RB5- RB7: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE	RB1: N/A RB2- RB3: TRUE	RB1: N/A RB2- RB3: TRUE RB5- RB6: N/A	RB1: N/A RB2- RB3: TRUE RB5- RB7: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128	RB1: N/A RB2- RB3: 128 RB5- RB6: N/A	RB1: N/A RB2- RB3: 128 RB5- RB7: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below	RB1: N/A RB2- RB3: as below RB5- RB6: N/A	RB1: N/A RB2- RB3: as below RB5- RB7: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A	RB1- RB3: N/A	RB1- RB3: N/A RB5- RB6: FALSE	RB1- RB3: N/A RB5- RB7: FALSE
rb-MappingInfo				
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 1	RB1- RB3: 1	RB1- RB3: 3 RB5: 1, RB6: 2	RB1- RB3: 4 RB5: 1, RB6: 2, RB7: 3
>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: N/A	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: N/A

>>rlc-SizeList	RB1- RB3: all	RB1- RB3: all	RB1- RB3: all RB5- RB6: N/A	RB1- RB3: all RB5- RB7: N/A
>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: 5	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: 5
>DL- logicalChannelMappingList				
>>Mapping option 1	One mapping option	One mapping option	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 1	RB1- RB3: 1	RB1- RB3: 3 RB5: 1, RB6: 2	RB1- RB3: 4 RB5: 1, RB6: 2, RB7: 3
>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3	RB1: 1, RB2: 2, RB3: 3 RB5- RB6: N/A	RB1: 1, RB2: 2, RB3: 3 RB5- RB7: N/A
TrCH INFORMATION PER TrCH				
UL-AddReconfTransChInfoList				
>Uplink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>transportFormatSet	DedicatedTransChT FS	DedicatedTransChT FS	DedicatedTransChT FS	DedicatedTransChT FS
>>>dynamicTF-information				
>>>>tf0/ tf0,1	TrCH1: (0x144, 1x144)	TrCH1: (0x144, 1x144)	TrCH1: (0x75) TrCH2: (0x 84 1x84) TrCH3: (0x144, 1x144)	TrCH1: (0x81) TrCH2: (0x 103, 1x103) TrCH3: (0x 60, 1x60) TrCH4: (0x144, 1x144)
>>>>>rlcSize	BitMode	BitMode	BitMode	BitMode
>>>>>>sizeType	TrCH1: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 2, part2= 0 (144)	TrCH1: type 1: 75 TrCH2: type 1: 84 TrCH3: 2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 1: 81 TrCH2: type 1: 103 TrCH3: type 1: 60 TrCH4: 2: type 2, part1= 2, part2= 0 (144)
>>>>>numberOfTbSizeList	TrCH1: Zero, one	TrCH1: Zero, one	TrCH1: Zero TrCH2-3: Zero, one	TrCH1: Zero TrCH2-4: Zero, one
>>>>>logicalChannelList	All	All	All	All
>>>>>tf 1	N/A	N/A	TrCH1: (1x39) TrCH2- TrCH4: N/A	TrCH1: (1x39) TrCH2- TrCH4: N/A
>>>>>>numberOfTransportBlocks			TrCH1: One	TrCH1: One
>>>>>>rlc-Size			TrCH1: BitMode	TrCH1: BitMode
>>>>>>>sizeType			TrCH1: 1: 39	TrCH1: 1: 39
>>>>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>>>>logicalChannelList			TrCH1: all	TrCH1: all
>>>>>>>>tf 2	N/A	N/A	TrCH1: (1x75) TrCH2- TrCH3: N/A	TrCH1: (1x81) TrCH2- TrCH4: N/A
>>>>>>>>numberOfTransportBlocks			TrCH1: Zero	TrCH1: Zero
>>>>>>>>rlc-Size			TrCH1: BitMode	TrCH1: BitMode
>>>>>>>>>sizeType			TrCH1: type 1: 75	TrCH1: type 1: 81
>>>>>>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>>>>>>logicalChannelList			TrCH1: all	TrCH1: all
>>>>>>>>>>semistaticTF-Information				
>>>>>>>>>>>tti	TrCH1: 40	TrCH1: 10	TrCH1- TrCH2: 20 TrCH3: 40	TrCH1- TrCH3: 20 TrCH4: 40
>>>>>>>>>>>>channelCodingType	Convolutional	Convolutional	Convolutional	Convolutional
>>>>>>>>>>>>>codingRate	TrCH1: Third	TrCH1: Third	TrCH1- TrCH2: Third TrCH3: Third	TrCH1- TrCH2: Third TrCH3: Half TrCH4: Third

>>>rateMatchingAttribute	TrCH1: 160	TrCH1: 160	TrCH1: 200 TrCH2: 190 TrCH3: 160	TrCH1: 200 TrCH2: 190 TrCH3: 235 TrCH4: 160
>>>crc-Size	TrCH1: 16	TrCH1: 16	TrCH1: 12 TrCH2: 0 TrCH3: 16	TrCH1: 12 TrCH2- TrCH3: 0 TrCH4: 16
DL-AddReconfTransChInfoList				
>Downlink transport channel type	dch	dch	dch	dch
>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>fs-SignallingMode	SameAsUL	SameAsUL	Independent <Only tf0 on TrCH1 is different and shown below>	Independent <Only tf0 on TrCH1 is different and shown below>
>>transportFormatSet			DedicatedTransChTFS	DedicatedTransChTFS
>>>dynamicTF-information				
>>>>tf0/ tf0,1			TrCH1: (1x0)	TrCH1: (1x0)
>>>>rlcSize			BitMode	bitMode
>>>>>sizeType			TrCH1: type 1: 0	TrCH1: type 1: 0
>>>>numberOfTbSizeList			TrCH1: One	TrCH1: One
>>>>logicalChannelList			All	All
>>ULTrCH-Id	TrCH1: 1	TrCH1: 1	TrCH1: 1, TrCH2: 2, TrCH3: 3	TrCH1: 1, TrCH2: 2, TrCH3: 3, TrCH4: 4
>dch-QualityTarget				
>>bler-QualityValue	TrCH1: $5 \times 10^{-2}$	TrCH1: $5 \times 10^{-2}$	TrCH1: $7 \times 10^{-3}$ TrCH2- TrCH3: Absent	TrCH1: $7 \times 10^{-3}$ TrCH2- TrCH4: Absent
TrCH INFORMATION, COMMON				
ul-CommonTransChInfo				
>tfcs-ID (TDD only)	1	1	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE	FALSE	FALSE
>tfcs-Subset	Absent, not required	Absent, not required	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCS signalling	Normal TFCS signalling	Normal TFCS signalling	Normal TFCS signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete	Complete	Complete
>>>ctfcSize	Ctfc2Bit	Ctfc2Bit	Ctfc4Bit	Ctfc6Bit
>>>>TFCS representation	Addition	Addition	Addition	Addition
>>>>>TFCS list				
>>>>>>TFCS 1	(TF0)	(TF0)	(TF0, TF0, TF0)	(TF0, TF0, TF0, TF0)
>>>>>>>ctfc	0	0	0	0
>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>referenceTFCSId	0	0	0	0
>>>>>>>TFCS 2	(TF1)	(TF1)	(TF1, TF0, TF0)	(TF1, TF0, TF0, TF0)
>>>>>>>ctfc	1	1	1	1
>>>>>>>gainFactorInformation	Signalled	Signalled	Computed	Computed
>>>>>>>> $\beta$ c (FDD only)	11	11	N/A	N/A
>>>>>>>> $\beta$ d	15	15	N/A	N/A
>>>>>>>>referenceTFCSId	N/A	N/A	0	0
>>>>>>>>TFCS 3			(TF2, TF1, TF0)	(TF2, TF1, TF1, TF0)
>>>>>>>>ctfc			5	11
>>>>>>>>gainFactorInformation			Computed	Computed
>>>>>>>>referenceTFCSId			0	0

>>>>>TFCS 4			(TF0, TF0, TF1)	(TF0, TF0, TF0, TF1)
>>>>>ctfc			6	12
>>>>>gainFactorInformation			Computed	Computed
>>>>>βc (FDD only)			N/A	N/A
>>>>>βd			N/A	N/A
>>>>>referenceTFCId			0	0
>>>>>TFCS 5			(TF1, TF0, TF1)	(TF1, TF0, TF0, TF1)
>>>>>ctfc			7	13
>>>>>gainFactorInformation			Computed	Computed
>>>>>referenceTFCId			0	0
>>>>>TFCS 6			(TF2, TF1, TF1)	(TF2, TF1, TF1, TF1)
>>>>>ctfc			11	23
>>>>>gainFactorInformation			Signalled	Signalled
>>>>>βc (FDD only)			11	11
>>>>>βd			15	15
>>>>>referenceTFCId			0	0
>CommonTransChInfo				
>tfcs-SignallingMode	Same as UL	Same as UL	Same as UL	Same as UL
PhyCH INFORMATION FDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControllInfo				
>>powerControlAlgorithm	Algorithm 1	Algorithm 1	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1	1	1
>tfci-Existence	TRUE	TRUE	TRUE	TRUE
>puncturingLimit	1	1	1	0.88
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>spreadingFactor	256	128	128	128
>>pilotBits	4	4	4	4
>>positionFixed	N/A	N/A	Fixed	Fixed
PhyCH INFORMATION TDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControllInfo				
>>dpch-ConstantValue	-20	-20	-20	-20
>commonTimeslotInfo				
>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>tfci-Coding	4	4	16	16
>>puncturingLimit	<u>10.80</u>	<u>0.800.92</u>	<u>0.5280</u>	<u>0.880.80</u>
>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>commonTimeslotInfo				
>>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>tfci-Coding	4	4	16	16
>>>puncturingLimit	<u>10.74</u>	<u>0.740.92</u>	<u>0.5280</u>	<u>0.920.80</u>
>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1

<b>Configuration</b>	<b>28.8 kbps conv. CS- data + 3.4 kbps signalling</b>	<b>32 kbps conv. CS- data + 3.4 kbps signalling</b>	<b>64kbps conv. CS- data + 3.4 kbps signalling</b>	<b>14.4 kbps streaming CS- data + 3.4 kbps signalling</b>
Ref 34.108	12	14	13	15
Default configuration identity	4	5	6	7
<b>RB INFORMATION</b>				
rb-Identity	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5
rlc-InfoChoice	Rlc-info	Rlc-info	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>timerRST	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A
>>max-RST	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
<b>rb-MappingInfo</b>				
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
>>rlc-SizeList	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A

>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5
>DL-logicalChannelMappingList				
>>Mapping option 1	One mapping option	One mapping option	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
TrCH INFORMATION PER TrCH				
UL-AddReconfTransChInfoList				
>Uplink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>transportFormatSet	DedicatedTransChTFS	DedicatedTransChTFS	DedicatedTransChTFS	DedicatedTransChTFS
>>dynamicTF-information				
>>>tf0/ tf0,1	TrCH1: (0x576, 1x576, 2x576) TrCH2: (0x144, 1x144)	TrCH1: (0x640, 1x640) TrCH2: (0x144, 1x144)	TrCH1: (0x640, 2x640) TrCH2: (0x144, 1x144)	TrCH1: (0x576, 1x576) TrCH2: (0x144, 1x144)
>>>>rlcSize	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode
>>>>>sizeType	TrCH1: type 2, part1= 11, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 11, part2= 2 (640) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 11, part2= 2 (640) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)
>>>>>numberOfTbSizeList	TrCH1: Zero,1, 2 (4) TrCH2: Zero, one	TrCH1: Zero, one TrCH2: Zero, one	TrCH1: Zero, 2 (4) TrCH2: Zero, one	TrCH1: Zero, one, TrCH2: Zero, one
>>>>>logicalChannelList	All	All	All	All
>>semiStaticTF-Information				
>>>tfti	TrCH1: 40 TrCH2: 40	TrCH1: 20 TrCH2: 40	TrCH1: 20 TrCH2: 40	TrCH1: 40 TrCH2: 40
>>>>channelCodingType	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional
>>>>>codingRate	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third
>>>>>rateMatchingAttribute	TrCH1: 180 TrCH2: 160	TrCH1: 185 TrCH2: 160	TrCH1: 170 TrCH2: 160	TrCH1: 165 TrCH2: 160
>>>>>crc-Size	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16
DL-AddReconfTransChInfoList				
>Downlink transport channel type	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>	<a href="#">dch</a>
>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>tfs-SignallingMode	SameAsUL	SameAsUL	SameAsUL	SameAsUL
>>transportFormatSet				
>>>dynamicTF-information				
>>>>tf0/ tf0,1				
>>>>>rlcSize				
>>>>>>sizeType				
>>>>>>>numberOfTbSizeList				
>>>>>>>logicalChannelList				
>>ULTrCH-Id	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>dch-QualityTarget				
>>bler-QualityValue	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $2 \times 10^{-3}$ TrCH2: Absent	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent

TrCH INFORMATION, COMMON				
ul-CommonTransChInfo				
>tfc-ID (TDD only)	1	1	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE	FALSE	FALSE
>tfc-Subset	Absent, not required	Absent, not required	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCI signalling	Normal TFCI signalling	Normal TFCI signalling	Normal TFCI signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete	Complete	Complete
>>>ctfcSize	Ctfc2Bit	Ctfc2Bit	Ctfc2Bit	Ctfc4Bit
>>>>TFCS representation	Addition	Addition	Addition	Addition
>>>>>TFCS list				
>>>>>>TFCS 1	(TF0, TF0)	(TF0, TF0)	(TF0, TF0)	(TF0, TF0)
>>>>>>>ctfc	0	0	0	0
>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>TFCS 2	(TF1, TF0)	(TF1, TF0)	(TF1, TF0)	(TF1, TF0)
>>>>>>>>>ctfc	1	1	1	1
>>>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>>>βc (FDD only)	N/A	N/A	N/A	N/A
>>>>>>>>>>>βd	N/A	N/A	N/A	N/A
>>>>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>>>TFCS 3	(TF2, TF0)	(TF0, TF1)	(TF0, TF1)	(TF0, TF1)
>>>>>>>>>>>ctfc	2	2	2	2
>>>>>>>>>>>>gainFactorInformation	Computed	Computed	Computed	Computed
>>>>>>>>>>>>>referenceTFCId	0	0	0	0
>>>>>>>>>>>>TFCS 4	(TF0, TF1)	(TF1, TF1)	(TF1, TF1)	(TF1, TF1)
>>>>>>>>>>>>>ctfc	3	3	3	3
>>>>>>>>>>>>>>gainFactorInformation	Computed	Signalled	Signalled	Signalled
>>>>>>>>>>>>>>>βc (FDD only)	N/A	8	8	11
>>>>>>>>>>>>>>>βd	N/A	15	15	15
>>>>>>>>>>>>>>>>referenceTFCId	N/A	N/A	N/A	N/A
>>>>>>>>>>>>>>TFCS 5	(TF1, TF1)	N/A	N/A	
>>>>>>>>>>>>>>>ctfc	4			
>>>>>>>>>>>>>>>>gainFactorInformation	Computed			
>>>>>>>>>>>>>>>>>referenceTFCId	8			
>>>>>>>>>>>>>>>>>TFCS 6	(TF2, TF1)	N/A	N/A	
>>>>>>>>>>>>>>>>>>ctfc	5			
>>>>>>>>>>>>>>>>>>>gainFactorInformation	Signalled			
>>>>>>>>>>>>>>>>>>>>βc (FDD only)	8			
>>>>>>>>>>>>>>>>>>>>>βd	15			
>>>>>>>>>>>>>>>>>>>>>>referenceTFCId	N/A			
>>>>>>>>>>>>>>>>>>>>>>>TFCS 7				
>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				
>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFCId				
>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 8				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFCId				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 9				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation				



>>>>>>referenceTFCId				
>>>>>TFCS 10				
>>>>>>ctfc				
>>>>>>gainFactorInformation				
>>>>>> $\beta$ c (FDD only)				
>>>>>> $\beta$ d				
>>>>>>referenceTFCId				
dl-CommonTransChInfo				
>tfcs-SignallingMode	Same as UL	Same as UL	Same as UL	Same as UL
PhyCH INFORMATION FDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControlInfo				
>>powerControlAlgorithm	Algorithm 1	Algorithm 1	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1	1	1
>tfci-Existence	TRUE	TRUE	TRUE	TRUE
>puncturingLimit	0.92	0.8	0.92	1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>spreadingFactor	64	64	32	128
>>pilotBits	8	8	8	8
>>positionFixed	Flexible	Flexible	Flexible	Flexible
PhyCH INFORMATION TDD				
UL-DPCH-InfoPredef				
>ul-DPCH-PowerControlInfo				
>>dpch-ConstantValue	-20	-20	-20	-20
>commonTimeslotInfo				
>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>tfci-Coding	168	8	8	846
>>>puncturingLimit	0.4456	0.8	0.56	0.81
>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef				
>dl-DPCH-InfoCommon				
>>commonTimeslotInfo				
>>>secondInterleavingMode	frameRelated	frameRelated	frameRelated	frameRelated
>>>>tfci-Coding	168	8	8	846
>>>>puncturingLimit	0.4452	0.64052	0.526	0.8046
>>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1	repetitionPeriod1

<b>Configuration</b>	<b>28.8 kbps streaming CS- data + 3.4 kbps signalling</b>	<b>57.6 kbps streaming CS- data + 3.4 kbps signalling</b>
Ref 34.108	16	17
Default configuration identity	8	9
<b>RB INFORMATION</b>		
rb-Identity	RB1: 1, RB2: 2, RB3: 3, RB5: 5	RB1: 1, RB2: 2, RB3: 3, RB5: 5
rlc-InfoChoice	Rlc-info	Rlc-info
>ul-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>transmissionRLC-DiscardMode	RB1: N/A RB2- RB3: NoDiscard RB5: N/A	RB1: N/A RB2- RB3: NoDiscard RB5: N/A
>>>maxDat	RB1: N/A RB2- RB3: 15 RB5: N/A	RB1: N/A RB2- RB3: 15 RB5: N/A
>>transmissionWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>timerRST	RB1: N/A RB2- RB3: 300 RB5: N/A	RB1: N/A RB2- RB3: 300 RB5: N/A
>>max-RST	RB1: N/A RB2- RB3: 1 RB5: N/A	RB1: N/A RB2- RB3: 1 RB5: N/A
>>pollingInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>lastTransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>lastRetransmissionPDU-Poll	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerPollPeriodic	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
>dl-RLC-Mode	RB1: UM RB2- RB3: AM RB5: TM	RB1: UM RB2- RB3: AM RB5: TM
>>inSequenceDelivery	RB1: N/A RB2- RB3: TRUE RB5: N/A	RB1: N/A RB2- RB3: TRUE RB5: N/A
>>receivingWindowSize	RB1: N/A RB2- RB3: 128 RB5: N/A	RB1: N/A RB2- RB3: 128 RB5: N/A
>>dl-RLC-StatusInfo	RB1: N/A RB2- RB3: as below RB5: N/A	RB1: N/A RB2- RB3: as below RB5: N/A
>>>timerStatusProhibit	RB2- RB3: 100	RB2- RB3: 100
>>>missingPDU-Indicator	RB2- RB3: FALSE	RB2- RB3: FALSE
>>>timerStatusPeriodic	RB2- RB3: 100	RB2- RB3: 100
>>segmentationIndication	RB1- RB3: N/A RB5: FALSE	RB1- RB3: N/A RB5: FALSE
rb-MappingInfo		
>UL-LogicalChannelMappings	OneLogicalChannel	OneLogicalChannel
>>ul-TransportChannelType	Dch	Dch
>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1

>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
>>rlc-SizeList	RB1- RB3: all RB5: N/A	RB1- RB3: all RB5: N/A
>>mac-LogicalChannelPriority	RB1: 1, RB2: 2, RB3: 3 RB5: 5	RB1: 1, RB2: 2, RB3: 3 RB5: 5
>DL-logicalChannelMappingList		
>>Mapping option 1	One mapping option	One mapping option
>>>dl-TransportChannelType	Dch	Dch
>>>>transportChannelIdentity	RB1- RB3: 2 RB5: 1	RB1- RB3: 2 RB5: 1
>>>>logicalChannelIdentity	RB1: 1, RB2: 2, RB3: 3 RB5: N/A	RB1: 1, RB2: 2, RB3: 3 RB5: N/A
TrCH INFORMATION PER TrCH		
UL-AddReconfTransChInfoList		
> <a href="#">Uplink transport channel type</a>	<a href="#">dch</a>	<a href="#">dch</a>
>transportChannelIdentity	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>transportFormatSet	DedicatedTransChTFS	DedicatedTransChTFS
>>dynamicTF-information		
>>>tf0/ tf0,1	TrCH1: (0x576, 1x576, 2x576) TrCH2: (0x144, 1x144)	TrCH1: (0x576, 1x576, 2x576, 3x576, 4x576) TrCH2: (0x144, 1x144)
>>>>rlcSize	TrCH1: OctetMode TrCH2:BitMode	TrCH1: OctetMode TrCH2:BitMode
>>>>>sizeType	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)	TrCH1: type 2, part1= 9, part2= 2 (576) TrCH2: type 2, part1= 2, part2= 0 (144)
>>>>numberOfTbSizeList	TrCH1: Zero, one, 2 TrCH2: Zero, one	TrCH1: Zero, one, 2, 3, 4 TrCH2: Zero, one
>>>>logicalChannelList	All	All
>>semiStaticTF-Information		
>>>tti	TrCH1: 40 TrCH2: 40	TrCH1: 40 TrCH2: 40
>>>channelCodingType	TrCH1: Turbo TrCH2: Convolutional	TrCH1: Turbo TrCH2: Convolutional
>>>>codingRate	TrCH1: N/A TrCH2: Third	TrCH1: N/A TrCH2: Third
>>>rateMatchingAttribute	TrCH1: 155 TrCH2: 160	TrCH1: 145 TrCH2: 160
>>>crc-Size	TrCH1: 16 TrCH2: 16	TrCH1: 16 TrCH2: 16
DL-AddReconfTransChInfoList		
> <a href="#">Downlink transport channel type</a>	<a href="#">dch</a>	<a href="#">dch</a>

>dl-TransportChannelIdentity (should be as for UL)	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>tfs-SignallingMode	SameAsUL	SameAsUL
>>transportFormatSet		
>>>dynamicTF-information		
>>>>tf0/ tf0,1		
>>>>rlcSize		
>>>>>sizeType		
>>>>>numberOfTbSizeList		
>>>>>logicalChannelList		
>>ULTrCH-Id	TrCH1: 1, TrCH2: 2	TrCH1: 1, TrCH2: 2
>dch-QualityTarget		
>>bler-QualityValue	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent	TrCH1: $1 \times 10^{-2}$ TrCH2: Absent
TrCH INFORMATION, COMMON		
ul-CommonTransChInfo		
>tfc-ID (TDD only)	1	1
>sharedChannelIndicator (TDD only)	FALSE	FALSE
>tfc-Subset	Absent, not required	Absent, not required
>ul-TFCS	Normal TFCI signalling	Normal TFCI signalling
>>explicitTFCS-ConfigurationMode	Complete	Complete
>>>ctfcSize	Ctfc4Bit	Ctfc4Bit
>>>>TFCS representation	Addition	Addition
>>>>>TFCS list		
>>>>>>TFCS 1	(TF0, TF0)	(TF0, TF0)
>>>>>>>ctfc	0	0
>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>referenceTFcId	0	0
>>>>>>>>>TFCS 2	(TF1, TF0)	(TF1, TF0)
>>>>>>>>>ctfc	1	1
>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>> $\beta_c$ (FDD only)	N/A	N/A
>>>>>>>>>>> $\beta_d$	N/A	N/A
>>>>>>>>>>>>referenceTFcId	0	0
>>>>>>>>>>>>TFCS 3	(TF2, TF0)	(TF2, TF0)
>>>>>>>>>>>>>ctfc	2	2
>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>referenceTFcId	0	0
>>>>>>>>>>>>>>>>TFCS 4	(TF0, TF1)	(TF3, TF0)
>>>>>>>>>>>>>>>>>ctfc	3	3
>>>>>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>>>>> $\beta_c$ (FDD only)	N/A	N/A
>>>>>>>>>>>>>>>>>>>> $\beta_d$	N/A	N/A
>>>>>>>>>>>>>>>>>>>>>>referenceTFcId	0	0
>>>>>>>>>>>>>>>>>>>>>>>TFCS 5	(TF1, TF1)	(TF4, TF0)
>>>>>>>>>>>>>>>>>>>>>>>>ctfc	4	4
>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation	Computed	Computed
>>>>>>>>>>>>>>>>>>>>>>>>>>>referenceTFcId	0	0
>>>>>>>>>>>>>>>>>>>>>>>>>>>>TFCS 6	(TF2, TF1)	(TF0, TF1)
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>ctfc	5	5
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>gainFactorInformation	Signalled	Computed
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> $\beta_c$ (FDD only)	8	N/A

>>>>>>> $\beta$ d	15	N/A
>>>>>>>referenceTFClId	N/A	0
>>>>>>>TFCS 7		(TF1, TF1)
>>>>>>>ctfc		6
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 8		(TF2, TF1)
>>>>>>>ctfc		7
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 9		(TF3, TF1)
>>>>>>>ctfc		8
>>>>>>>gainFactorInformation		Computed
>>>>>>>referenceTFClId		0
>>>>>>>TFCS 10		(TF4, TF1)
>>>>>>>ctfc		9
>>>>>>>gainFactorInformation		Signalled
>>>>>>> $\beta$ c (FDD only)		8
>>>>>>> $\beta$ d		15
>>>>>>>referenceTFClId		0
dl-CommonTransChInfo		
>tfcs-SignallingMode	Same as UL	Same as UL
PhyCH INFORMATION FDD		
UL-DPCH-InfoPredef		
>ul-DPCH-PowerControlInfo		
>>powerControlAlgorithm	Algorithm 1	Algorithm 1
>>>tpcStepSize	1	1
>tfci-Existence	TRUE	TRUE
>puncturingLimit	1	1
DL-CommonInformationPredef		
>dl-DPCH-InfoCommon		
>>spreadingFactor	64	32
>>pilotBits	8	8
>>positionFixed	Flexible	Flexible
PhyCH INFORMATION TDD		
UL-DPCH-InfoPredef		
>ul-DPCH-PowerControlInfo		
>>dpch-ConstantValue	-20	-20
>commonTimeslotInfo		
>>secondInterleavingMode	frameRelated	frameRelated
>>>tfci-Coding	16	16
>>puncturingLimit	0.4450	0.480-50
>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1
DL-CommonInformationPredef		
>dl-DPCH-InfoCommon		
>>commonTimeslotInfo		
>>>secondInterleavingMode	frameRelated	frameRelated
>>>tfci-Coding	16	16
>>puncturingLimit	0.446	0.480-46

>>>repetitionPeriodAndLength	repetitionPeriod1	repetitionPeriod1
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## CHANGE REQUEST

⌘ **25.331 CR 962** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification to usage of default values in "Cell Selection and Re-selection for SIB11/12Info"		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI <span style="float: right;"><b>Date:</b> ⌘ 27 August 2001</span>		
<b>Category:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                 ⌘ <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>.             </td> <td style="width: 50%; vertical-align: top;"> <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)             </td> </tr> </table>	⌘ <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>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)		

**Reason for change:** ⌘ The handling of the IE "Cell Selection and Re-selection for SIB11/12Info" within the IE "Cell Info" is currently described as follows:

*"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."*

For some parameters of "Cell Selection and Re-selection for SIB11/12Info", the default values are specified to be the serving cell's values.

In case of parameter Qqualmin, this description of the default value is misleading for the case that the serving cell is a TDD cell and the neighbouring cell is a FDD cell. Since Qqualmin is a FDD only parameter, there is no Qqualmin default value available in the TDD serving cell.

Therefore, this CR proposes to clarify that IE "Cell Selection and Re-selection for SIB11/12Info" has to be sent in case default values are not available for all parameters and therefore the IE "Qqualmin" is MP in this case.

**Summary of change:** ⌘ Usage of default values in IE "Cell Selection and Re-selection for SIB11/12Info" is clarified.

**Isolated Impact Analysis:**

Correction to a function where the specification was :

- Containing some contradictions.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Affected function: Measurements for cell reselection between TDD and FDD cells

The related change is necessary to clarify what happens when default values for parameter

Qqualmin are not available for the neighbouring cell in case there is no such parameter available in the serving cell. It is clarified that IE “Qqualmin” is MP in that case.

**Consequences if not approved:** ⌘ Ambiguous specification.

**Clauses affected:** ⌘ 10.3.2.4

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v4.1.0, CR 963  
 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.



## 10.3.2.4 Cell selection and re-selection info for SIB11/12

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Qoffset1 <sub>s,n</sub>	MD		Integer(-50..50)	Default value is 0. [dB]
Qoffset2 <sub>s,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	[dBm] UE_TXPWR_MAX_RACH in [4]. Default is the Maximum allowed UL TX power for the serving cell
HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
CHOICE mode	MP			
>FDD				
>>Qqualmin	CV-FDD-Serving-CellMD		Integer (-24..0)	Ec/NO, [dB] Default value is Qqualmin for the serving cell
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>TDD				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>GSM				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RXLEV, [dBm] Default value is Qrxlevmin for the serving cell

Condition	Explanation
FDD-Quality-Measure	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
FDD-Serving-Cell	<u>This IE is mandatory and has a default value if the serving cell is an FDD cell. Otherwise the IE is mandatory present.</u>

### 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.)
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>TX Diversity Indicator	MP		Boolean	
>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

## CHANGE REQUEST

⌘ **25.331 CR 963** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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 to usage of default values in "Cell Selection and Re-selection for SIB11/12Info"		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI <span style="float: right;"><b>Date:</b> ⌘ 27 August 2001</span>		
<b>Category:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                 ⌘ <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>.             </td> <td style="width: 50%; vertical-align: top;"> <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)             </td> </tr> </table>	⌘ <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>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)		

**Reason for change:** ⌘ The handling of the IE "Cell Selection and Re-selection for SIB11/12Info" within the IE "Cell Info" is currently described as follows:

*"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."*

For some parameters of "Cell Selection and Re-selection for SIB11/12Info", the default values are specified to be the serving cell's values.

In case of parameter Qqualmin, this description of the default value is misleading for the case that the serving cell is a TDD cell and the neighbouring cell is a FDD cell. Since Qqualmin is a FDD only parameter, there is no Qqualmin default value available in the TDD serving cell.

Therefore, this CR proposes to clarify that IE "Cell Selection and Re-selection for SIB11/12Info" has to be sent in case default values are not available for all parameters and therefore the IE "Qqualmin" is MP in this case.

**Summary of change:** ⌘ Usage of default values in IE "Cell Selection and Re-selection for SIB11/12Info" is clarified.

**Isolated Impact Analysis:**

Correction to a function where the specification was :

- Containing some contradictions.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Affected function: Measurements for cell reselection between TDD and FDD cells

The related change is necessary to clarify what happens when default values for parameter

Qqualmin are not available for the neighbouring cell in case there is no such parameter available in the serving cell. It is clarified that IE "Qqualmin" is MP in that case.

**Consequences if not approved:** ⌘ Ambiguous specification.

**Clauses affected:** ⌘ 10.3.2.4

**Other specs affected:** ⌘  Other core specifications ⌘ 25.331 v3.7.0, CR 962  
 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.

## 10.3.2.4 Cell selection and re-selection info for SIB11/12

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Qoffset1 <sub>s,n</sub>	MD		Integer(-50..50)	Default value is 0. [dB]
Qoffset2 <sub>s,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	[dBm] UE_TXPWR_MAX_RACH in [4]. Default is the Maximum allowed UL TX power for the serving cell
HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
CHOICE mode	MP			
>FDD				
>>Qqualmin	CV-FDD-Serving-CellMD		Integer (-24..0)	Ec/NO, [dB] Default value is Qqualmin for the serving cell
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>TDD				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>GSM				
>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RXLEV, [dBm] Default value is Qrxlevmin for the serving cell

Condition	Explanation
FDD-Quality-Measure	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
FDD-Serving-Cell	<u>This IE is mandatory and has a default value if the serving cell is an FDD cell. Otherwise the IE is mandatory present.</u>

### 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.)
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>TX Diversity Indicator	MP		Boolean	
>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

## CHANGE REQUEST

⌘ **25.331 CR 964** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification of handling of System information block 14		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27 August 2001
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	<p>Use <u>one</u> of the following categories:</p> <p><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)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  REL-4 (Release 4)  REL-5 (Release 5)</p>

<b>Reason for change:</b>	⌘ It is proposed to clarify that in case system information block 14 is not scheduled on the BCH of a 3.84 Mcps TDD cell, UE shall consider this cell to be barred.
	Note that for 1.28 Mcps TDD, this change is not required due to the different RACH concept.
	Furthermore it is clarified that IE "AICH info" is only valid for FDD.
<b>Summary of change:</b>	⌘ - Description of actions when SIB14 is not scheduled on BCH of a TDD cell - Clarification that IE "AICH info" is only valid for FDD - Editorial corrections.
	<b>Isolated Impact Analysis:</b>
	Correction to a function where the specification was :
	○ Procedural text or rules were missing.
	Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
	Affected function: System information block handling for TDD.
<b>Consequences if not approved:</b>	⌘ Ambiguous specification.

<b>Clauses affected:</b>	⌘ 8.1.1.5, 8.5.3, 8.5.7		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications	⌘ 25.331 v4.1.0, CR 965	
	<input type="checkbox"/> Test specifications		

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.



### 8.1.1.5 Actions upon reception of the Master Information Block and Scheduling Block(s)

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

Upon reception of the master information block, the UE shall:

- if the "PLMN type" in the variable SELECTED\_PLMN has the value "GSM-MAP" and the IE "PLMN Type" has the value "GSM-MAP" or "GSM-MAP and ANSI-41":
  - check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN, stored as "PLMN identity" in the variable SELECTED\_PLMN;
- if the "PLMN type" in the variable SELECTED\_PLMN has the value "ANSI-41" and the IE "PLMN Type" has the value "ANSI-41" or "GSM-MAP and ANSI-41":
  - store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41;
- compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE\_TAG;
- if the value tags differ, or if no IEs for the master information block are stored:
  - store the value tag into the variable VALUE\_TAG for the master information block;
  - read and store scheduling information included in the master information block;
- if the value tags are the same the UE may use stored system information blocks and scheduling blocks using value tag that were stored for this cell and this PLMN as valid system information.

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

- for all system information blocks with area scope "PLMN" that use value tags:
  - compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE\_TAG for that system information block;
  - if the value tags differ, or if no IEs for the corresponding system information block are stored:
    - store the value tag read in scheduling information for that system information block into the variable VALUE\_TAG;
    - read and store the IEs of that system information block;
  - if the value tags are the same the UE may use stored system information blocks using value tag that were stored in this PLMN as valid system information;
- for all system information blocks or scheduling blocks with area scope cell that use value tags:
  - compare the value tag read in scheduling information for that system information block or scheduling block with the value stored within the variable VALUE\_TAG for that system information block or scheduling block;
  - if the value tags differ, or if no IEs for the corresponding system information block or scheduling block are stored:
    - store the value tag read in scheduling information for that system information block or scheduling block into the variable VALUE\_TAG;
    - read and store the IEs of that system information block or scheduling block;
  - if the value tags are the same the UE may use stored system information blocks using value tags that were stored for this cell and this PLMN as valid system information;

- for system information blocks which may have multiple occurrences:
  - compare the value tag and the configuration or multiple occurrence identity for the occurrence of the system information blocks read in scheduling information with the value tag and configuration or multiple occurrence identity stored within the variable VALUE\_TAG;
    - if the value tags differ, or if no IEs from the occurrence with that configuration or multiple occurrence identity of the system information block are stored:
      - store the value tag read in scheduling information for that system information block and the occurrence with that configuration or multiple occurrence identity into the variable VALUE\_TAG;
      - read and store the IEs of that system information block;
    - if the value tags and the configuration or multiple occurrence identity are identical to those stored, the UE may use stored occurrences of system information blocks that were stored for this cell and this PLMN as valid system information.

For system information blocks, not supported by the UE, but referenced either in the master information block or in the scheduling blocks, the UE may:

- skip reading this system information block;
- skip monitoring changes to this system information block.

If the UE:

- receives a scheduling block at a position different from its position according to the scheduling information for the scheduling block; or
- receives a scheduling block for which scheduling information has not been received:

the UE may:

- store the content of the scheduling block with a value tag set to the value NULL; and
- consider the content of the scheduling block as valid until it receives the same type of scheduling block in a position according to its scheduling information or at most for 6 hours after reception.

If the UE does not find a scheduling block in a position where it should be according to its scheduling information, but a transport block with correct CRC was found at that position, the UE shall:

- read the scheduling information for this scheduling block.

If the UE does not find the master information block in a position fulfilling

$$\text{SFN mod } 32 = 0$$

but a transport block with correct CRC was found at that position), the UE shall:

- consider the master information block as not found; and
- consider the cell 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>"; and
- not initiate emergency calls in the cell.

NOTE: This permits a different repetition for the MIB in later versions for FDD. In TDD it allows for a variable SIB\_REP in this and future releases.

If in idle mode and system information block type 1 is not scheduled on BCH, and system information block type 13 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If the UE only supports GSM-MAP but finds a cell that broadcasts System Information Block type 13 but not System Information Block type 1, the UE shall:

- consider the cell barred.

If in idle mode and if

- system information block type 1 is not scheduled on BCH; and
- the "PLMN Type" in the variable SELECTED\_PLMN has the value "GSM-MAP"; and
- the IE "PLMN type" in the Master Information Block has the value "GSM-MAP" or "GSM-MAP and ANSI-41":

the UE shall:

- indicate to upper layers that no CN system information is available.

If in idle mode and System Information Block type 3 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in connected mode and System Information Block type 3 is not scheduled on BCH, and System Information Block type 4 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in idle mode and System Information Block type 5 is not scheduled on BCH or System Information Block type 5 is scheduled but IE "AICH info" (FDD) or IE "PICH info" is not present, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in connected mode and System Information Block type 5 is not scheduled on BCH, and System Information Block type 6 is not scheduled on BCH, or any of System Information Block type 5 or type 6 is scheduled but IE "AICH info" (FDD) or IE "PICH info" is not present, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If System Information Block type 7 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and

- not initiate emergency calls in the cell.

In TDD, if System Information Block type 14 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

### 8.5.3 Open loop power control upon establishment of DPCCH

This procedure is used in FDD mode only.

When establishing the first DPCCH the UE shall start the UL inner loop power control at a power level according to:

$$- \text{DPCCH\_Initial\_power} = \text{DPCCH\_Power\_offset} - \text{CPICH\_RSCP}$$

Where

DPCCH\_Power\_offset shall have the value of IE "DPCCH Power offset" in IE "Uplink DPCH power control info\_

The value for the CPICH\_RSCP shall be measured by the UE.

## 8.5.7 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall:

- read the IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" in System Information Block type 6 (or System Information Block type 5, if system information block type 6 is not being broadcast) and System Information Block type 7;
- measure the value for the CPICH\_RSCP;
- calculate the power for the first preamble as:

$$\text{Preamble\_Initial\_Power} = \text{Primary CPICH DL TX power} - \text{CPICH\_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where,

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant Value".

- as long as the physical layer is configured for PRACH or PCPCH transmission:
  - continuously recalculate the Preamble\_Initial\_Power when any of the broadcast parameters used in the above formula changes; and
  - resubmit to the physical layer the new calculated Preamble\_Initial\_Power.

For TDD the UE shall:

- if in the IE "Uplink DPCH Power Control [info](#)" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":
  - acquire Reference Power, Constant Values from System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5), and  $I_{\text{BTS}}$  for all active UL timeslots from System Information Block type 14 on the BCH;
- otherwise:
  - acquire Reference Power, Constant Values and  $I_{\text{BTS}}$  for all active UL timeslots from the IE "Uplink DPCH Power Control [info](#)".
- for PUSCH and PRACH power control:
  - acquire Reference Power, Constant Values and  $I_{\text{BTS}}$  for all active UL timeslots from System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5) and System Information Block type 14 on the BCH,

calculate the UL transmit power according to the following formula for the PRACH continuously while the physical channel is active:

$$P_{\text{PRACH}} = L_{\text{PCCPCH}} + I_{\text{BTS}} + \text{RACH Constant value},$$

- 3dB shall be added to RACH Constant Value in the above equation for the case where RACH Spreading Factor = 8
- calculate the UL transmit power according to the following formula for the DPCH continuously while the physical channel is active:

$$P_{\text{DPCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{DPCH Constant value}$$

- calculate the UL transmit power according to the following formula for the PUSCH continuously while the physical channel is active:

$$P_{\text{USCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{USCH Constant value}$$

Where, for all the above equations for TDD the following apply:

- $P_{\text{PRACH}}, P_{\text{DPCH}}, \& P_{\text{USCH}}$ : Transmitter power level in dBm;
- Pathloss values:
  - $L_{\text{PCCPCH}}$ : Measurement representing path loss in dB based on beacon channels (the reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" on BCH in System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5), or individually signalled in the IE "Uplink DPCH Power Control [info](#)").
  - $L_0$ : Long term average of path loss in dB;
  - If the midamble is used in the evaluation of  $L_{\text{PCCPCH}}$  and  $L_0$ , and the Tx diversity scheme used for the P-CCPCH involves the transmission of different midambles from the diversity antennas, the received power of the different midambles from the different antennas shall be combined prior to evaluation of the variables.
- $I_{\text{BTS}}$ : Interference signal power level at cell's receiver in dBm.  $I_{\text{BTS}}$  shall have the value of the IE "UL Timeslot Interference" (IE "UL Timeslot Interference" is broadcast on BCH in System Information Block type 14 or individually signalled to each UE in the IE "Uplink DPCH Power Control [info](#)" for each active uplink timeslot).
- $\alpha$ :  $\alpha$  is a weighting parameter, which represents the quality of path loss measurements.  $\alpha$  may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot.  $\alpha$  is calculated at the UE.  $\alpha$  shall be smaller or equal to the value of the IE "Alpha". If the IE "Alpha" is not explicitly signalled to the UE  $\alpha$  shall be set to 1.
- $\text{SIR}_{\text{TARGET}}$ : Target SNR in dB. This value is individually signalled to UEs in IE "UL target SIR" in IE "UL DPCH Power Control Info" or in IE "PUSCH Power Control Info" respectively.
- RACH Constant value: RACH Constant value shall have the value of the IE "RACH Constant value".
- DPCH Constant value: DPCH Constant value shall have the value of the IE "DPCH Constant value".
- USCH Constant Value: USCH Constant value shall have the value of the IE "USCH Constant value".
- Values received by dedicated signalling shall take precedence over broadcast values.

## CHANGE REQUEST

⌘ **25.331 CR 965** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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 of handling of System information block 14		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27 August 2001
<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 <a href="#">TR 21.900</a> .	<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)	

<b>Reason for change:</b>	⌘ It is proposed to clarify that in case system information block 14 is not scheduled on the BCH of a 3.84 Mcps TDD cell, UE shall consider this cell to be barred.  Note that for 1.28 Mcps TDD, this change is not required due to the different RACH concept.  Furthermore it is clarified that IE "AICH info" is only valid for FDD.		
<b>Summary of change:</b>	⌘ - Description of actions when SIB14 is not scheduled on BCH of a TDD cell - Clarification that IE "AICH info" is only valid for FDD - Editorial corrections.		
<b>Consequences if not approved:</b>	⌘ Ambiguous specification.		

<b>Clauses affected:</b>	⌘ 8.1.1.5, 8.5.3, 8.5.7		
<b>Other specs affected:</b>	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications	⌘ 25.331 v3.7.0, CR 964	
<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.

### 8.1.1.5 Actions upon reception of the Master Information Block and Scheduling Block(s)

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

Upon reception of the master information block, the UE shall:

- if the "PLMN type" in the variable SELECTED\_PLMN has the value "GSM-MAP" and the IE "PLMN Type" has the value "GSM-MAP" or "GSM-MAP and ANSI-41":
  - check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN, stored as "PLMN identity" in the variable SELECTED\_PLMN;
- if the "PLMN type" in the variable SELECTED\_PLMN has the value "ANSI-41" and the IE "PLMN Type" has the value "ANSI-41" or "GSM-MAP and ANSI-41":
  - store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41;
- compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE\_TAG;
- if the value tags differ, or if no IEs for the master information block are stored:
  - store the value tag into the variable VALUE\_TAG for the master information block;
  - read and store scheduling information included in the master information block;
- if the value tags are the same the UE may use stored system information blocks and scheduling blocks using value tag that were stored for this cell and this PLMN as valid system information.

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

- for all system information blocks with area scope "PLMN" that use value tags:
  - compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE\_TAG for that system information block;
  - if the value tags differ, or if no IEs for the corresponding system information block are stored:
    - store the value tag read in scheduling information for that system information block into the variable VALUE\_TAG;
    - read and store the IEs of that system information block;
  - if the value tags are the same the UE may use stored system information blocks using value tag that were stored in this PLMN as valid system information;
- for all system information blocks or scheduling blocks with area scope cell that use value tags:
  - compare the value tag read in scheduling information for that system information block or scheduling block with the value stored within the variable VALUE\_TAG for that system information block or scheduling block;
  - if the value tags differ, or if no IEs for the corresponding system information block or scheduling block are stored:
    - store the value tag read in scheduling information for that system information block or scheduling block into the variable VALUE\_TAG;
    - read and store the IEs of that system information block or scheduling block;
  - if the value tags are the same the UE may use stored system information blocks using value tags that were stored for this cell and this PLMN as valid system information;

- for system information blocks which may have multiple occurrences:
  - compare the value tag and the configuration or multiple occurrence identity for the occurrence of the system information blocks read in scheduling information with the value tag and configuration or multiple occurrence identity stored within the variable VALUE\_TAG;
    - if the value tags differ, or if no IEs from the occurrence with that configuration or multiple occurrence identity of the system information block are stored:
      - store the value tag read in scheduling information for that system information block and the occurrence with that configuration or multiple occurrence identity into the variable VALUE\_TAG;
      - read and store the IEs of that system information block;
    - if the value tags and the configuration or multiple occurrence identity are identical to those stored, the UE may use stored occurrences of system information blocks that were stored for this cell and this PLMN as valid system information.

For system information blocks, not supported by the UE, but referenced either in the master information block or in the scheduling blocks, the UE may:

- skip reading this system information block;
- skip monitoring changes to this system information block.

If the UE:

- receives a scheduling block at a position different from its position according to the scheduling information for the scheduling block; or
- receives a scheduling block for which scheduling information has not been received:

the UE may:

- store the content of the scheduling block with a value tag set to the value NULL; and
- consider the content of the scheduling block as valid until it receives the same type of scheduling block in a position according to its scheduling information or at most for 6 hours after reception.

If the UE does not find a scheduling block in a position where it should be according to its scheduling information, but a transport block with correct CRC was found at that position, the UE shall:

- read the scheduling information for this scheduling block.

If the UE does not find the master information block in a position fulfilling

$$\text{SFN mod } 32 = 0$$

but a transport block with correct CRC was found at that position), the UE shall:

- consider the master information block as not found; and
- consider the cell 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>"; and
- not initiate emergency calls in the cell.

NOTE: This permits a different repetition for the MIB in later versions for FDD. In TDD it allows for a variable SIB\_REP in this and future releases.

If in idle mode and system information block type 1 is not scheduled on BCH, and system information block type 13 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If the UE only supports GSM-MAP but finds a cell that broadcasts System Information Block type 13 but not System Information Block type 1, the UE shall:

- consider the cell barred.

If in idle mode and if

- system information block type 1 is not scheduled on BCH; and
- the "PLMN Type" in the variable SELECTED\_PLMN has the value "GSM-MAP"; and
- the IE "PLMN type" in the Master Information Block has the value "GSM-MAP" or "GSM-MAP and ANSI-41":

the UE shall:

- indicate to upper layers that no CN system information is available.

If in idle mode and System Information Block type 3 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in connected mode and System Information Block type 3 is not scheduled on BCH, and System Information Block type 4 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in idle mode and System Information Block type 5 is not scheduled on BCH or System Information Block type 5 is scheduled but IE "AICH info" (FDD) or IE "PICH info" is not present, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If in connected mode and System Information Block type 5 is not scheduled on BCH, and System Information Block type 6 is not scheduled on BCH, or any of System Information Block type 5 or type 6 is scheduled but IE "AICH info" (FDD) or IE "PICH info" is not present, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

If System Information Block type 7 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and

- not initiate emergency calls in the cell.

In 3.84 Mcps TDD, if System Information Block type 14 is not scheduled on BCH, the UE shall:

- consider the cell 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>"; and
- not initiate emergency calls in the cell.

### 8.5.3 Open loop power control upon establishment of DPCCH

This procedure is used in FDD mode only.

When establishing the first DPCCH the UE shall start the UL inner loop power control at a power level according to:

$$- \text{DPCCH\_Initial\_power} = \text{DPCCH\_Power\_offset} - \text{CPICH\_RSCP}$$

Where

DPCCH\_Power\_offset shall have the value of IE "DPCCH Power offset" in IE "Uplink DPCH power control info\_

The value for the CPICH\_RSCP shall be measured by the UE.

## 8.5.7 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall:

- read the IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" in System Information Block type 6 (or System Information Block type 5, if system information block type 6 is not being broadcast) and System Information Block type 7;
- measure the value for the CPICH\_RSCP;
- calculate the power for the first preamble as:

$$\text{Preamble\_Initial\_Power} = \text{Primary CPICH DL TX power} - \text{CPICH\_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where,

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant Value".

- as long as the physical layer is configured for PRACH or PCPCH transmission:
  - continuously recalculate the Preamble\_Initial\_Power when any of the broadcast parameters used in the above formula changes; and
  - resubmit to the physical layer the new calculated Preamble\_Initial\_Power.

For 3.84 Mcps TDD the UE shall:

- if in the IE "Uplink DPCH Power Control [info](#)" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":
  - acquire Reference Power, Constant Values from System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5), and  $I_{\text{BTS}}$  for all active UL timeslots from System Information Block type 14 on the BCH;
- otherwise:
  - acquire Reference Power, Constant Values and  $I_{\text{BTS}}$  for all active UL timeslots from the IE "Uplink DPCH Power Control [info](#)".
- for PUSCH and PRACH power control:
  - acquire Reference Power, Constant Values and  $I_{\text{BTS}}$  for all active UL timeslots from System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5) and System Information Block type 14 on the BCH,

calculate the UL transmit power according to the following formula for the PRACH continuously while the physical channel is active:

$$P_{\text{PRACH}} = L_{\text{PCCPCH}} + I_{\text{BTS}} + \text{RACH Constant value},$$

- 3dB shall be added to RACH Constant Value in the above equation for the case where RACH Spreading Factor = 8
- calculate the UL transmit power according to the following formula for the DPCH continuously while the physical channel is active:

$$P_{\text{DPCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{DPCH Constant value}$$

- calculate the UL transmit power according to the following formula for the PUSCH continuously while the physical channel is active:

$$P_{\text{USCH}} = \alpha L_{\text{PCCPCH}} + (1-\alpha)L_0 + I_{\text{BTS}} + \text{SIR}_{\text{TARGET}} + \text{USCH Constant value}$$

Where, for all the above equations for TDD the following apply:

- $P_{PRACH}$ ,  $P_{DPCH}$ , &  $P_{USCH}$ : Transmitter power level in dBm;
- Pathloss values:
  - $L_{PCCPCH}$ : Measurement representing path loss in dB based on beacon channels (the reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" on BCH in System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5), or individually signalled in the IE "Uplink DPCH Power Control [info](#)").
  - $L_0$ : Long term average of path loss in dB;
  - If the midamble is used in the evaluation of  $L_{PCCPCH}$  and  $L_0$ , and the Tx diversity scheme used for the P-CCPCH involves the transmission of different midambles from the diversity antennas, the received power of the different midambles from the different antennas shall be combined prior to evaluation of the variables.
- $I_{BTS}$ : Interference signal power level at cell's receiver in dBm.  $I_{BTS}$  shall have the value of the IE "UL Timeslot Interference" (IE "UL Timeslot Interference" is broadcast on BCH in System Information Block type 14 or individually signalled to each UE in the IE "Uplink DPCH Power Control [info](#)" for each active uplink timeslot).
- $\alpha$ :  $\alpha$  is a weighting parameter, which represents the quality of path loss measurements.  $\alpha$  may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot.  $\alpha$  is calculated at the UE.  $\alpha$  shall be smaller or equal to the value of the IE "Alpha". If the IE "Alpha" is not explicitly signalled to the UE  $\alpha$  shall be set to 1. If UE is capable of estimating its position by using the OTDOA IPDL method, the UE shall use the IPDL- $\alpha$  parameter.
- $SIR_{TARGET}$ : Target SNR in dB. This value is individually signalled to UEs in IE "UL target SIR" in IE "UL DPCH Power Control Info" or in IE "PUSCH Power Control Info" respectively.
- RACH Constant value: RACH Constant value shall have the value of the IE "RACH Constant value".
- DPCH Constant value: DPCH Constant value shall have the value of the IE "DPCH Constant value".
- USCH Constant Value: USCH Constant value shall have the value of the IE "USCH Constant value".
- Values received by dedicated signalling shall take precedence over broadcast values.
- If IPDLs are applied, the UE may increase UL Tx power by the value given in the IE "Max power increase". This power increase is only allowed in the slots between an idle slot and the next beacon slot.

For 1.28 Mcps TDD the UE shall:

- calculate the UL transmit power according to the following formula for each UpPCH code transmission:

$$P_{UpPCH} = L_{PCCPCH} + PRX_{UpPCHdes} + i * P_{wr_{ramp}}$$

- calculate the UL transmit power according to the following formula for each PRACH transmission:

$$P_{PRACH} = L_{PCCPCH} + PRX_{PRACHdes} + i * P_{wr_{ramp}}$$

- calculate the initial UL transmit power according to the following formula for the PUSCH. Once the UE receives TPC bits relating to the PUSCH then it transitions to closed loop power control. If successive PUSCH resource allocations are contiguous then no return is made to open loop power control at the beginning of the succeeding resource allocation.

$$P_{USCH} = SIR_{TARGET} + L_{PCCPCH}$$

- calculate the initial UL transmit power according to the following formula for the DPCH. Once the UE receives TPC bits relating to the uplink DPCH then it transitions to closed loop power control.

$$P_{DPCH} = SIR_{TARGET} + L_{PCCPCH}$$

Where:



- $P_{UpPCH}$ ,  $P_{PRACH}$ ,  $P_{DPCH}$ , &  $P_{USCH}$ : Transmitter power level in dBm,
- $L_{PCCPCH}$ : Measurement representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in System Information Block type 5 and System Information Block type 6, or individually signalled to each UE in the IE "Uplink DPCH Power Control [info](#)").
- $SIR_{TARGET}$ : Target SIR in dB. This value is individually signalled to UEs in IEs "UL DPCH Power Control Info" and "PUSCH Power Control Info".
- $i$  is the number of transmission attempts on UpPCH
- $PRX_{PRACHdes}$ : Desired PRACH RX power at the cell's receiver in dBm signalled to the UE by the network in the FPACH response to the UE's successful SYNC\_UL transmission.
- $PRX_{UpPCHdes}$ : Desired UpPCH RX power at the cell's receiver in dBm. The value is broadcast on BCH and shall be read on System Information Block type 5 and System Information Block type 6. It can also be signalled directly to the UE in a protocol message triggering a hard handover.
- $Pwr_{ramp}$ : The UE shall increase its transmission power by the value of the IE "Power Ramp step" by every UpPCH transmission.

## CHANGE REQUEST

⌘ **25.331 CR 966** ⌘ ev **r3** ⌘ Current version: **3.7.0** ⌘

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

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

**Title:** ⌘ Description of UE behaviour when receiving UE positioning related information

**Source:** ⌘ TSG-RAN WG2

**Work item code:** ⌘ TEI

**Date:** ⌘ 27.08.01

**Category:** ⌘ **F**

Use one of the following categories:

**F** (correction)

**A** (corresponds to a correction in an earlier release)

**B** (addition of feature),

**C** (functional modification of feature)

**D** (editorial modification)

Detailed explanations of the above categories can be found in 3GPP [TR 21.900](#).

**Release:** ⌘ **R99**

Use one of the following releases:

**2** (GSM Phase 2)

**R96** (Release 1996)

**R97** (Release 1997)

**R98** (Release 1998)

**R99** (Release 1999)

**REL-4** (Release 4)

**REL-5** (Release 5)

**Reason for change:** ⌘ UE behaviour when receiving UE positioning related information was not entirely specified yet. The proposed changes only impact UE positioning functionality.

The following changes are proposed:

1. UE behaviour when receiving OTDOA and GPS assistance data is described in more detail. Variables are added which shall be used to store UE positioning related information.
2. Variable CELL\_POSITION is removed since this is part of the new proposed variables
3. UE behaviour when receiving a request for an unsupported measurement is specified.
4. It is clarified, that UE shall send a MEASUREMENT REPORT message to UTRAN when insufficient GPS assistance data is provided indicating necessary additional data in IE "UE positioning error"
5. In section 6.6.4.1.3 in TS 25.305, it is stated that "In the UE-based OTDOA or Network-assisted GPS methods, where the measurements and/or position calculation is done in the UE, UTRAN may broadcast assistance data to the UE." Therefore it is clarified that SIB 15.4 is only read by UEs supporting UE based OTDOA
6. Description of UE behaviour when receiving cell position information is removed, since this is included in the new description of UE behaviour when receiving OTDOA assistance data

Isolated impact consideration:

The CR has an isolated impact.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

<b>Summary of change:</b>	⌘	Description of UE behaviour when receiving UE positioning related data is added.	
<b>Consequences if not approved:</b>	⌘	UE positioning feature may be implemented in different ways, resulting in unpredictable UE behaviour	
<b>Clauses affected:</b>	⌘	8.1.1.6.15, 8.1.1.6.15.1, 8.1.1.6.15.2, 8.1.1.6.15.3, 8.1.1.6.15.4, 8.4.1.3, 8.6.7.19.3, 8.6.7.19.3.1 (new), 8.6.7.19.3.2 (new), 8.6.7.19.3.3 (new), 8.6.7.19.3.4 (new), 8.6.7.19.3.5 (new), 8.6.7.19.3.6 (new), 8.6.7.19.3.7 (new), 8.6.7.19.3.8 (new), 8.6.7.19.3.9 (new), 8.6.7.20, <u>10.2.48.8.18</u> , <u>10.3.7.97</u> , 13.4.00, 13.4.28a (new), 13.4.28b (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 v4.1.0, CR 967
<b>Other comments:</b>	⌘		

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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.

#### 8.1.1.6.15 System Information Block type 15

If the UE is in idle or connected mode, and supports GPS location services and/or OTDOA location services it should store all relevant IEs included in this system information block. The UE shall:

- if the IE "~~GPS Data ciphering info~~ ~~Cipher GPS Data Indicator~~" is included, and the UE has a full or reduced complexity GPS receiver functionality (the UE will know that the broadcast GPS data is ciphered in accordance with the Data Assistance Ciphering Algorithm detailed in [18]):
  - store the parameters contained within this IE (see 10.3.7.86 for details) in the IE "GPS Data ciphering info" in variable UE\_POSITIONING\_GPS\_DATA; and
  - use them to decipher the broadcast UE positioning GPS information contained within the System Information Block types 15.1, 15.2 and 15.3;
- store the use-IE "Reference position Reference Location" in the IE "UE positioning GPS reference UE position" in variable UE\_POSITIONING\_GPS\_DATA and use it as a priori knowledge of the approximate location of the UE;
- store the IE "GPS reference time" in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and use it as a reference GPS time.
  - use "GPS TOW msec" as GPS Time of Week in milliseconds;
  - if the IE "GPS TOW rem usec" is included in the IE "GPS reference time":
    - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as GPS Time of Week in microseconds;
  - if the IE "NODE B Clock Drift" is included in the IE "GPS reference time":
    - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as an estimate of the drift rate of the NODE B clock relative to GPS time;
- if the IE "NODE B Clock Drift" is not included in the IE "GPS reference time":
  - assume the value 0;
- if SFN is included in the IE "GPS reference time" and IE "Primary CPICH Info" for FDD or IE "cell parameters id" for TDD is not included:
  - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the serving cell;
- if SFN is included in IE "GPS reference time" and IE "Primary CPICH Info" for FDD or IE "cell parameters id" for TDD is also included:
  - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the cell indicated by "Primary CPICH info" or "cell parameters id";
- store "Reference GPS TOW" in UE positioning GPS reference time in variable UE\_POSITIONING\_GPS\_DATA and use it "Reference GPS TOW" as GPS Time of Week which is the start of the frame with SFN=0;
- if IE "Satellite information" is included:
  - act as specified in section 8.6.7.19.3.3.6;

NOTE: For efficiency purposes, the UTRAN should broadcast SIB 15 if it is broadcasting SIB 15.2.

#### 8.1.1.6.15.1 System Information Block type 15.1

The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall:

- use "Status/Health" [in the IE "DGPS Corrections"](#) to determine the status of the differential corrections;
- act on ~~IE-group~~ "DGPS information" [in IE "DGPS Corrections"](#) in a similar manner as specified in [13] except that the scale factors for PRC and RRC are different. In addition, the IE group DGPS information also includes Delta PRC2 and Delta RRC2. Delta PRC2 is the difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE-2. Delta RRC2 is the difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2. These two additional IEs can extend the life of the raw ephemeris data up to 6 hours. [If the IEs Delta PRC3 and Delta RRC3 are included, UE may use them as appropriate e.g. to extend the life of the raw ephemeris data up to 8 hours.](#)
- [act upon the received IE "DGPS corrections" as specified in section 8.6.7.19.3.3.3.](#)

#### 8.1.1.6.15.2 System Information Block type 15.2

For System Information Block type 15.2 multiple occurrences may be used; one occurrence for one satellite. To identify the different occurrences, the scheduling information for System Information Block type 15.2 includes IE "SIB occurrence identity and value tag". The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
  - store the occurrence information together with its identity and value tag for later use;
- in case an occurrence with the same identity but different value tag was stored:
  - overwrite this one with the new occurrence read via system information for later use;
- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatID" as the satellite ID of the data from which this message was obtained;
- act on the rest of the IEs in a manner similar to that specified in [12]. In addition, the UE can utilise these IEs for GPS time dissemination and sensitivity improvement.
- [act upon the received IEs "Sat ID" and "GPS Ephemeris and Clock Corrections Parameter" as specified in section 8.6.7.19.3.3.4.](#)

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed.

The UE may not need to receive all occurrences before it can use the information from any one occurrence.

#### 8.1.1.6.15.3 System Information Block type 15.3

For System Information Block type 15.3 multiple occurrences may be used; one occurrence for each set of satellite data. To identify the different occurrences, the scheduling information for System Information Block type 15.3 includes IE "SIB occurrence identity and value tag". The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall:

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
  - store the occurrence information together with its identity and value tag for later use;
- in case an occurrence with the same identity but different value tag was stored:
  - overwrite this one with the new occurrence read via system information for later use;
- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatMask" as the satellites that contain the pages being broadcast in this message;
- interpret IE "LSB TOW" as the least significant 8 bits of the TOW ([12]);
- interpret IE "Data ID" in the IE "UE positioning GPS almanac" as the Data ID field contained in the indicated subframe, word 3, most significant 2 bits, as defined by [12];
- act on the rest of the IEs in a similar manner as specified in [12]. In addition, the UE can utilise these IEs including non-information bits for GPS time dissemination and sensitivity improvement.
- if the IE "GPS Almanac and Satellite Health" is included
  - act as specified in section 8.6.7.19.3.3.2.

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed. One SIB occurrence value tag is assigned to the table of Subclause 10.2.48.8.18.3.

The UE may not need to receive all occurrences before it can use the information for any one occurrence.

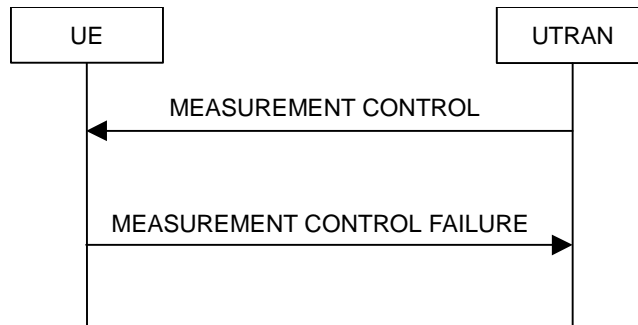
#### 8.1.1.6.15.4 System Information Block type 15.4

If the UE is in idle or connected mode, and supports the UE based OTDOA UE positioning method the UE shall ~~store~~ act as specified in section 8.6.7.19.3.2. Additionally, the UE shall store IE "OTDOA ciphering info" in OTDOA Data ciphering info in variable UE\_POSITIONING\_OTDOA\_DATA if it is included. ~~all relevant IEs included in this system information block.~~

### 8.4.1 Measurement control



Figure 56: Measurement Control, normal case



**Figure 57: Measurement Control, failure case**

#### 8.4.1.1 General

The purpose of the measurement control procedure is to setup, modify or release a measurement in the UE.

#### 8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is assigned to the UE.

When a new measurement is initiated, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", "Measurement object" can be set differently for each measurement with different "Measurement identity".

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to the value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than modifying IEs, and the UE continues to use the current values of the IEs that are not modified.

#### 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", possibly overwriting the measurement previously stored with that identity;
  - 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:
      - begin measurements according to the stored control information for this measurement identity;
  - for measurement type "UE positioning measurement":
    - if the IE "Positioning method" is set to "GPS" and UE has neither received nor stored sufficient assistance data in variable UE\_POSITIONING\_GPS\_DATA to perform the requested

measurements, it shall send a MEASUREMENT REPORT message to UTRAN, indicating the kind of assistance data which is necessary to fulfil the measurement request in the IE "UE positioning error".

- for any other measurement type:
  - begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
  - for all measurement control 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";
      - 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 not identified in IE "TGPSI"
  - clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - and the procedure ends.

#### 8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:



- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the cause value in IE "failure cause" to "unsupported measurement";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.4a Configuration Incomplete

If the variable CONFIGURATION\_INCOMPLETE is set to TRUE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;
- clear the variable CONFIGURATION\_INCOMPLETE;
- set the cause value in IE "failure cause" to "Configuration incomplete";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.5 Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

- and the procedure ends.

### 8.6.7.19.3 UE positioning

#### 8.6.7.19.3.1 UE positioning reporting quantity

The UE shall perform the following consistency check:

— ignore IE “Multiple Sets”;

— ignore IE “Response Time”;

— if IE “Accuracy” is included, the UE should try to achieve the requested positioning accuracy with 67% confidence

— if UE, according to its capabilities, does not support UE based OTDOA and if IE “Positioning Methods” is set to “OTDOA” and if IE “Method Type” is set to “UE based”;

—

— if UE, according to its capabilities, does not support UE based GPS and if IE “Positioning Methods” is set to “GPS” and if IE “Method Type” is set to “UE based”;

—

— if UE, according to its capabilities, does not support UE assisted GPS and if IE “Positioning Methods” is set to “GPS” and if IE “Method Type” is set to “UE assisted”;

—

— if UE, according to its capabilities, does not support UE based positioning and if IE “Positioning Methods” is set to “OTDOAorGPS” and if IE “Method Type” is set to “UE based”;

—

#### 8.6.7.19.3.2 UE positioning OTDOA assistance data

If IE “UE positioning OTDOA reference cell info” is received in System Information Block 15.4 or in the MEASUREMENT CONTROL message, the UE shall update the variable UE\_POSITIONING\_OTDOA\_DATA accordingly. The UE shall:

— store received cell information in the UE positioning reference cell info in the variable UE\_POSITIONING\_OTDOA\_DATA, overwriting any existing information

If IE “UE positioning OTDOA neighbour cell list” is received in System Information Block 15.4 or in the MEASUREMENT CONTROL message, the UE shall update the variable UE\_POSITIONING\_OTDOA\_DATA accordingly. The UE shall:

— store received cell information in the neighbour cell info list in the variable CELL\_INFO\_LIST, overwriting any existing information

If, according to its capabilities, UE does not support IPDLs and if IE “IPDL parameters” is received for the reference or any of the neighbour cells, the UE shall

— ignore this IE;

If IE “UE positioning measurement” is received in the MEASUREMENT CONTROL message, the UE shall also perform the following consistency checks:

— if IE “Positioning Methods” is set to “OTDOA” and

— if IE “UE positioning OTDOA reference cell info” is not included and if UE positioning OTDOA reference cell info in variable UE\_POSITIONING\_OTDOA\_DATA is empty

— set the variable CONFIGURATION\_INCOMPLETE to TRUE;

~~— if IE “UE positioning OTDOA neighbour cell list” is not included and if less than two neighbour cells are stored in UE positioning OTDOA neighbour cell info list in variable UE\_POSITIONING\_OTDOA\_DATA~~

~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~

~~— if IE “Method Type” is set to “UE-based” and~~

~~— if IE “UE positioning OTDOA reference cell info” is included and if IE “Cell Position” for the reference cell is not included, the UE shall,~~

~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~

~~— if the IE “UE positioning OTDOA neighbour cell list” is included and if cell position of less than two neighbour cells of the cells included in this IE and stored in variable UE\_POSITIONING\_OTDOA\_DATA are different and if those cell positions are not different to the one of the reference cell stored in variable UE\_POSITIONING\_OTDOA\_DATA, the UE shall,~~

~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~

~~— if the IE “UE positioning OTDOA neighbouring cell list” is included and only two neighbour cells are included or stored in variable UE\_POSITIONING\_OTDOA\_DATA and if the IE “Round Trip Time” is neither included for the neighbour cells nor for the reference cell info, the UE shall,~~

~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~

### 8.6.7.19.3 UE positioning GPS assistance data

#### 8.6.7.19.3.1 UE positioning GPS acquisition assistance

If the IE “UE positioning GPS acquisition assistance” is included the UE shall

- store IE “UTRAN-GPS reference time” in the IE “UE positioning reference time” in UE\_POSITIONING\_GPS\_DATA
- for each satellite
  - update the variable UE\_POSITIONING\_GPS\_DATA as follows:
    - store received GPS acquisition assistance at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS acquisition assistance” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.2 UE positioning GPS Almanac

If the IE “UE positioning GPS Almanac” is included, for each satellite, the UE shall

- update the variable UE\_POSITIONING\_GPS\_DATA as follows:
  - store received GPS almanac information at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS Almanac” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.3 UE positioning D-GPS Corrections

If the IE “UE positioning GPS DGPS corrections” is included, the UE shall

- delete all information currently stored in the IE “UE positioning GPS DGPS corrections” in the variable UE\_POSITIONING\_GPS\_DATA
- store the received DGPS corrections in the IE “UE positioning GPS DGPS corrections” in the variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.4 UE positioning GPS Ephemeris and Clock Correction Parameters

If the IE “UE positioning GPS Ephemeris and Clock Correction parameters” is included, for each satellite, the UE shall

- update the variable UE\_POSITIONING\_GPS\_DATA as follows:
  - store received GPS ephemeris information at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS Navigation Model” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.5 UE positioning GPS ionospheric model

If IE “UE positioning GPS ionospheric model” is included, the UE shall

- store this IE in the IE “UE positioning GPS ionospheric model” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.6 UE positioning GPS real-time integrity

The GPS real-time integrity information element specified in 10.3.7.95 is primarily intended for non-differential applications. The real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the UE can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile via a list of bad satellites. The UE shall consider the data associated with the satellites identified in this IE as invalid.

If this is included, for each satellite, the UE shall

- add the Sat IDs that are not yet included in the list of satellites in the IE “UE positioning GPS real time integrity” in the variable UE\_POSITIONING\_GPS\_DATA
- remove all Sat IDs in the list of satellites in the IE “UE positioning GPS real time integrity” in the variable UE\_POSITIONING\_GPS\_DATA that are not included in IE UE positioning GPS real time integrity.

#### 8.6.7.19.3.7 UE positioning GPS reference time

If the IE “UE positioning GPS reference time” is included, the UE shall

- store this IE in “UE positioning GPS reference time” in variable UE\_POSITIONING\_GPS\_DATA
- for each satellite
  - store received GPS TOW assist at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS reference time” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.8 UE positioning GPS reference UE position

If the IE “UE positioning GPS reference UE position” is included, the UE shall

- store this IE in the IE “UE positioning GPS reference UE position” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.9 UE positioning UTC model

If the IE “UE positioning GPS UTC model” is included, the UE shall

- store this IE in the IE “UE positioning GPS UTC model” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.20 UE positioning OTDOA neighbour cell info

If IE “UE positioning OTDOA neighbour cell info” is received with UE based Positioning Mode selected, the UE shall:

- if "Relative North", "Relative East", or "Relative Altitude" IEs are transmitted:
- store the corresponding values into UE variable "CELL\_POSITION" defined in 13.4.00;
- use the values stored in CELL\_POSITION (either from the current or previously processed IEs) as "Relative North", "Relative East" and "Relative Altitude".

### 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)	

### 10.3.7.97 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]
<del>Δt<sub>LS</sub></del>	<del>MP</del>		<del>Bit string(8)</del>	<del>seconds [12]</del>
WN <sub>t</sub>	MP		Bit string(8)	weeks [12]
<del>Δt<sub>LS</sub></del>	<del>MP</del>		<del>Bit string(8)</del>	<del>seconds [12]</del>
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]

## 13.4.00 CELL\_POSITION

This variable stores the CELL\_POSITION for UE-based OTDOA (10.3.7.106).

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
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.

### 13.4.28b UE POSITIONING OTDOA DATA

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
---------------------------------------	-------------	--------------	---------------------------	------------------------------

<a href="#">OTDOA Data ciphering info</a>	<a href="#">OP</a>		<a href="#">UE positioning Ciphering info 10.3.7.86</a>	
<a href="#">UE positioning OTDOA reference cell info</a>	<a href="#">OP</a>		<a href="#">UE positioning OTDOA reference cell info 10.3.7.108</a>	
<a href="#">UE positioning OTDOA neighbour cell list</a>	<a href="#">OP</a>	1 to <maxCell Meas>		
<a href="#">&gt;UE positioning OTDOA neighbour cell info</a>	<a href="#">MP</a>		<a href="#">UE positioning OTDOA neighbour cell info 10.3.7.106</a>	

## 13.4.28a UE POSITIONING GPS DATA

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
---------------------------------------	-------------	--------------	---------------------------	------------------------------

<a href="#">GPS Data ciphering info</a>	<a href="#">OP</a>		<a href="#">UE positioning Cipher info 10.3.7.86</a>	
<a href="#">UE positioning GPS reference time</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS reference time 10.3.7.96</a>	
<a href="#">UE positioning GPS reference UE position</a>	<a href="#">OP</a>		<a href="#">Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c</a>	<a href="#">A priori knowledge of UE 3-D position.</a>
<a href="#">UE positioning GPS DGPS corrections</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS DGPS corrections 10.3.7.91</a>	
<a href="#">UE positioning GPS navigation model</a>	<a href="#">OP</a>			
<a href="#">&gt;SatID</a>	<a href="#">MP</a>		<a href="#">Enumerated(0..63)</a>	<a href="#">Satellite ID</a>
<a href="#">&gt;GPS Ephemeris and Clock Correction parameters</a>	<a href="#">CV-Satellite status</a> <a href="#">OP</a> <a href="#">MP</a>		<a href="#">UE positioning GPS Ephemeris and Clock Correction parameters 10.3.7.90a</a>	
<a href="#">UE positioning GPS ionospheric model</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS ionospheric model 10.3.7.92</a>	
<a href="#">UE positioning GPS UTC model</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS UTC model 10.3.7.97</a>	
<a href="#">UE positioning GPS almanac</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS almanac 10.3.7.89</a>	
<a href="#">UE positioning GPS acquisition assistance</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS acquisition assistance 10.3.7.88</a>	
<a href="#">UE positioning GPS real-time integrity</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS real-time integrity 10.3.7.95</a>	

## CHANGE REQUEST

⌘ **25.331 CR 967** ⌘ ev - ⌘ Current version: **4.1.0** ⌘

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

**Title:** ⌘ Description of UE behaviour when receiving UE positioning related information

**Source:** ⌘ TSG-RAN WG2

**Work item code:** ⌘ TEI

**Date:** ⌘ 27.08.01

**Category:** ⌘ **A**

**Release:** ⌘ REL-4

Use one of the following categories:

Use one of the following releases:

**F** (correction)

2 (GSM Phase 2)

**A** (corresponds to a correction in an earlier release)

R96 (Release 1996)

**B** (addition of feature),

R97 (Release 1997)

**C** (functional modification of feature)

R98 (Release 1998)

**D** (editorial modification)

R99 (Release 1999)

Detailed explanations of the above categories can be found in 3GPP [TR 21.900](#).

REL-4 (Release 4)

REL-5 (Release 5)

**Reason for change:** ⌘ UE behaviour when receiving UE positioning related information was not entirely specified yet. The proposed changes only impact UE positioning functionality.

The following changes are proposed:

1. UE behaviour when receiving OTDOA and GPS assistance data is described in more detail. Variables are added which shall be used to store UE positioning related information.
2. Variable CELL\_POSITION is removed since this is part of the new proposed variables
3. UE behaviour when receiving a request for an unsupported measurement is specified.
4. It is clarified, that UE shall send a MEASUREMENT REPORT message to UTRAN when insufficient GPS assistance data is provided indicating necessary additional data in IE "UE positioning error"
5. In section 6.6.4.1.3 in TS 25.305, it is stated that "In the UE-based OTDOA or Network-assisted GPS methods, where the measurements and/or position calculation is done in the UE, UTRAN may broadcast assistance data to the UE." Therefore it is clarified that SIB 15.4 is only read by UEs supporting UE based OTDOA
6. Description of UE behaviour when receiving cell position information is removed, since this is included in the new description of UE behaviour when receiving OTDOA assistance data

Isolated impact consideration:

The CR has an isolated impact.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.



<b>Summary of change:</b>	⌘	Description of UE behaviour when receiving UE positioning related data is added.
<b>Consequences if not approved:</b>	⌘	UE positioning feature may be implemented in different ways, resulting in unpredictable UE behaviour
<b>Clauses affected:</b>	⌘	8.1.1.6.15, 8.1.1.6.15.1, 8.1.1.6.15.2, 8.1.1.6.15.3, 8.1.16.15.4, 8.4.1.3, 8.6.7.19.3 (new), 8.6.7.19.3.1 (new), 8.6.7.19.3.2 (new), 8.6.7.19.3.3 (new), 8.6.7.19.3.4 (new), 8.6.7.19.3.5 (new), 8.6.7.19.3.6 (new), 8.6.7.19.3.7 (new), 8.6.7.19.3.8 (new), 8.6.7.19.3.9 (new), 8.6.7.20, <u>10.2.48.8.18</u> , <u>10.3.7.97</u> , 13.4.00, 13.4.28a (new), 13.4.28b (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 v3.7.0, CR 966r3
<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.

#### 8.1.1.6.15 System Information Block type 15

If the UE is in idle or connected mode, and supports GPS location services and/or OTDOA location services it should store all relevant IEs included in this system information block. The UE shall:

- if the IE "~~GPS Data ciphering info~~ ~~Cipher GPS Data Indicator~~" is included, and the UE has a full or reduced complexity GPS receiver functionality (the UE will know that the broadcast GPS data is ciphered in accordance with the Data Assistance Ciphering Algorithm detailed in [18]):
  - store the parameters contained within this IE (see 10.3.7.86 for details) in the IE "GPS Data ciphering info" in variable UE\_POSITIONING\_GPS\_DATA; and
  - use them to decipher the broadcast UE positioning GPS information contained within the System Information Block types 15.1, 15.2 and 15.3;
- store the use-IE "Reference position Reference Location" in the IE "UE positioning GPS reference UE position" in variable UE\_POSITIONING\_GPS\_DATA and use it as a priori knowledge of the approximate location of the UE;
- store the IE "GPS reference time" in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and use it as a reference GPS time.
  - use "GPS TOW msec" as GPS Time of Week in milliseconds;
  - if the IE "GPS TOW rem usec" is included in the IE "GPS reference time":
    - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as GPS Time of Week in microseconds;
  - if the IE "NODE B Clock Drift" is included in the IE "GPS reference time":
    - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as an estimate of the drift rate of the NODE B clock relative to GPS time;
- if the IE "NODE B Clock Drift" is not included in the IE "GPS reference time":
  - assume the value 0;
- if SFN is included in the IE "GPS reference time" and IE "Primary CPICH Info" for FDD or IE "cell parameters id" for TDD is not included:
  - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the serving cell;
- if SFN is included in IE "GPS reference time" and IE "Primary CPICH Info" for FDD or IE "cell parameters id" for TDD is also included:
  - store it in the IE "UE positioning GPS reference time" in variable UE\_POSITIONING\_GPS\_DATA and may use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the cell indicated by "Primary CPICH info" or "cell parameters id";
- store "Reference GPS TOW" in UE positioning GPS reference time in variable UE\_POSITIONING\_GPS\_DATA and use it "Reference GPS TOW" as GPS Time of Week which is the start of the frame with SFN=0;
- if IE "Satellite information" is included:
  - act as specified in section 8.6.7.19.3.3.6;

NOTE: For efficiency purposes, the UTRAN should broadcast SIB 15 if it is broadcasting SIB 15.2.

#### 8.1.1.6.15.1 System Information Block type 15.1

The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall:

- use "Status/Health" [in the IE "DGPS Corrections"](#) to determine the status of the differential corrections;
- act on ~~IE-group~~ "DGPS information" [in IE "DGPS Corrections"](#) in a similar manner as specified in [13] except that the scale factors for PRC and RRC are different. In addition, the IE group DGPS information also includes Delta PRC2 and Delta RRC2. Delta PRC2 is the difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE-2. Delta RRC2 is the difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2. These two additional IEs can extend the life of the raw ephemeris data up to 6 hours. [If the IEs Delta PRC3 and Delta RRC3 are included, UE may use them as appropriate e.g. to extend the life of the raw ephemeris data up to 8 hours.](#)
- [act upon the received IE "DGPS corrections" as specified in section 8.6.7.19.3.3.3.](#)

#### 8.1.1.6.15.2 System Information Block type 15.2

For System Information Block type 15.2 multiple occurrences may be used; one occurrence for one satellite. To identify the different occurrences, the scheduling information for System Information Block type 15.2 includes IE "SIB occurrence identity and value tag". The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
  - store the occurrence information together with its identity and value tag for later use;
- in case an occurrence with the same identity but different value tag was stored:
  - overwrite this one with the new occurrence read via system information for later use;
- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatID" as the satellite ID of the data from which this message was obtained;
- act on the rest of the IEs in a manner similar to that specified in [12]. In addition, the UE can utilise these IEs for GPS time dissemination and sensitivity improvement.
- [act upon the received IEs "Sat ID" and "GPS Ephemeris and Clock Corrections Parameter" as specified in section 8.6.7.19.3.3.4.](#)

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed.

The UE may not need to receive all occurrences before it can use the information from any one occurrence.

#### 8.1.1.6.15.3 System Information Block type 15.3

For System Information Block type 15.3 multiple occurrences may be used; one occurrence for each set of satellite data. To identify the different occurrences, the scheduling information for System Information Block type 15.3 includes IE "SIB occurrence identity and value tag". The UE should store all the relevant IEs included in this system information block [in variable UE\\_POSITIONING\\_GPS\\_DATA](#). The UE shall:

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
  - store the occurrence information together with its identity and value tag for later use;
- in case an occurrence with the same identity but different value tag was stored:
  - overwrite this one with the new occurrence read via system information for later use;
- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatMask" as the satellites that contain the pages being broadcast in this message;
- interpret IE "LSB TOW" as the least significant 8 bits of the TOW ([12]);
- interpret IE "Data ID" in the IE "UE positioning GPS almanac" as the Data ID field contained in the indicated subframe, word 3, most significant 2 bits, as defined by [12];
- act on the rest of the IEs in a similar manner as specified in [12]. In addition, the UE can utilise these IEs including non-information bits for GPS time dissemination and sensitivity improvement.
- if the IE "GPS Almanac and Satellite Health" is included
  - act as specified in section 8.6.7.19.3.3.2.

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed. One SIB occurrence value tag is assigned to the table of Subclause 10.2.48.8.18.3.

The UE may not need to receive all occurrences before it can use the information for any one occurrence.

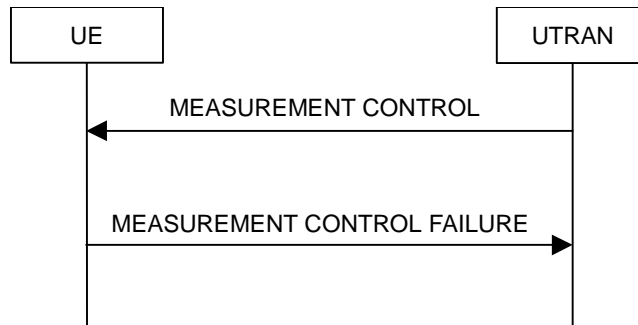
#### 8.1.1.6.15.4 System Information Block type 15.4

If the UE is in idle or connected mode, and supports the UE based OTDOA UE positioning method the UE shall ~~store~~ act as specified in section 8.6.7.19.3.2. Additionally, the UE shall store IE "OTDOA ciphering info" in OTDOA Data ciphering info in variable UE\_POSITIONING\_OTDOA\_DATA if it is included. ~~all relevant IEs included in this system information block.~~

### 8.4.1 Measurement control



Figure 56: Measurement Control, normal case



**Figure 57: Measurement Control, failure case**

#### 8.4.1.1 General

The purpose of the measurement control procedure is to setup, modify or release a measurement in the UE.

#### 8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is assigned to the UE.

When a new measurement is initiated, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", "Measurement object" can be set differently for each measurement with different "Measurement identity".

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to the value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than modifying IEs, and the UE continues to use the current values of the IEs that are not modified.

#### 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", possibly overwriting the measurement previously stored with that identity;
  - 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:
      - begin measurements according to the stored control information for this measurement identity;
  - for measurement type "UE positioning measurement":
    - if the IE "Positioning method" is set to "GPS" and UE has neither received nor stored sufficient assistance data in variable UE\_POSITIONING\_GPS\_DATA to perform the requested

measurements, it shall send a MEASUREMENT REPORT message to UTRAN, indicating the kind of assistance data which is necessary to fulfil the measurement request in the IE "UE positioning error".

- for any other measurement type:
  - begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
  - for all measurement control 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";
      - 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 not identified in IE "TGPSI"
  - clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;
  - and the procedure ends.

#### 8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the cause value in IE "failure cause" to "unsupported measurement";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.4a Configuration Incomplete

If the variable CONFIGURATION\_INCOMPLETE is set to TRUE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;
- clear the variable CONFIGURATION\_INCOMPLETE;
- set the cause value in IE "failure cause" to "Configuration incomplete";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.5 Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

- and the procedure ends.

### 8.6.7.19.3 UE positioning

#### 8.6.7.19.3.1 UE positioning reporting quantity

The UE shall perform the following consistency check:

— ignore IE “Multiple Sets”;

— ignore IE “Response Time”;

— if IE “Accuracy” is included, the UE should try to achieve the requested positioning accuracy with 67% confidence

— if UE, according to its capabilities, does not support UE based OTDOA and if IE “Positioning Methods” is set to “OTDOA” and if IE “Method Type” is set to “UE based”;

—

— if UE, according to its capabilities, does not support UE based GPS and if IE “Positioning Methods” is set to “GPS” and if IE “Method Type” is set to “UE based”;

—

— if UE, according to its capabilities, does not support UE assisted GPS and if IE “Positioning Methods” is set to “GPS” and if IE “Method Type” is set to “UE assisted”;

—

— if UE, according to its capabilities, does not support UE based positioning and if IE “Positioning Methods” is set to “OTDOAorGPS” and if IE “Method Type” is set to “UE based”;

—

#### 8.6.7.19.3.2 UE positioning OTDOA assistance data

If IE “UE positioning OTDOA reference cell info” is received in System Information Block 15.4 or in the MEASUREMENT CONTROL message, the UE shall update the variable UE\_POSITIONING\_OTDOA\_DATA accordingly. The UE shall:

— store received cell information in the UE positioning reference cell info in the variable UE\_POSITIONING\_OTDOA\_DATA, overwriting any existing information

If IE “UE positioning OTDOA neighbour cell list” is received in System Information Block 15.4 or in the MEASUREMENT CONTROL message, the UE shall update the variable UE\_POSITIONING\_OTDOA\_DATA accordingly. The UE shall:

— store received cell information in the neighbour cell info list in the variable CELL\_INFO\_LIST, overwriting any existing information

If, according to its capabilities, UE does not support IPDLs and if IE “IPDL parameters” is received for the reference or any of the neighbour cells, the UE shall

— ignore this IE;

If IE “UE positioning measurement” is received in the MEASUREMENT CONTROL message, the UE shall also perform the following consistency checks:

— if IE “Positioning Methods” is set to “OTDOA” and

— if IE “UE positioning OTDOA reference cell info” is not included and if UE positioning OTDOA reference cell info in variable UE\_POSITIONING\_OTDOA\_DATA is empty

— set the variable CONFIGURATION\_INCOMPLETE to TRUE;



- ~~— if IE “UE positioning OTDOA neighbour cell list” is not included and if less than two neighbour cells are stored in UE positioning OTDOA neighbour cell info list in variable UE\_POSITIONING\_OTDOA\_DATA~~
- ~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~
- ~~— if IE “Method Type” is set to “UE-based” and~~
  - ~~— if IE “UE positioning OTDOA reference cell info” is included and if IE “Cell Position” for the reference cell is not included, the UE shall,~~
    - ~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~
  - ~~— if the IE “UE positioning OTDOA neighbour cell list” is included and if cell position of less than two neighbour cells of the cells included in this IE and stored in variable UE\_POSITIONING\_OTDOA\_DATA are different and if those cell positions are not different to the one of the reference cell stored in variable UE\_POSITIONING\_OTDOA\_DATA, the UE shall,~~
    - ~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~
  - ~~— if the IE “UE positioning OTDOA neighbouring cell list” is included and only two neighbour cells are included or stored in variable UE\_POSITIONING\_OTDOA\_DATA and if the IE “Round Trip Time” is neither included for the neighbour cells nor for the reference cell info, the UE shall,~~
    - ~~— set the variable CONFIGURATION\_INCOMPLETE to TRUE;~~

### 8.6.7.19.3 UE positioning GPS assistance data

#### 8.6.7.19.3.1 UE positioning GPS acquisition assistance

If the IE “UE positioning GPS acquisition assistance” is included the UE shall

- store IE “UTRAN-GPS reference time” in the IE “UE positioning reference time” in UE\_POSITIONING\_GPS\_DATA
- for each satellite
  - update the variable UE\_POSITIONING\_GPS\_DATA as follows:
    - store received GPS acquisition assistance at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS acquisition assistance” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.2 UE positioning GPS Almanac

If the IE “UE positioning GPS Almanac” is included, for each satellite, the UE shall

- update the variable UE\_POSITIONING\_GPS\_DATA as follows:
  - store received GPS almanac information at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS Almanac” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.3 UE positioning D-GPS Corrections

If the IE “UE positioning GPS DGPS corrections” is included, the UE shall

- delete all information currently stored in the IE “UE positioning GPS DGPS corrections” in the variable UE\_POSITIONING\_GPS\_DATA
- store the received DGPS corrections in the IE “UE positioning GPS DGPS corrections” in the variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.4 UE positioning GPS Ephemeris and Clock Correction Parameters

If the IE “UE positioning GPS Ephemeris and Clock Correction parameters” is included, for each satellite, the UE shall

- update the variable UE\_POSITIONING\_GPS\_DATA as follows:
  - store received GPS ephemeris information at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS Navigation Model” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.5 UE positioning GPS ionospheric model

If IE “UE positioning GPS ionospheric model” is included, the UE shall

- store this IE in the IE “UE positioning GPS ionospheric model” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.6 UE positioning GPS real-time integrity

The GPS real-time integrity information element specified in 10.3.7.95 is primarily intended for non-differential applications. The real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the UE can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile via a list of bad satellites. The UE shall consider the data associated with the satellites identified in this IE as invalid.

If this is included, for each satellite, the UE shall

- add the Sat IDs that are not yet included in the list of satellites in the IE “UE positioning GPS real time integrity” in the variable UE\_POSITIONING\_GPS\_DATA
- remove all Sat IDs in the list of satellites in the IE “UE positioning GPS real time integrity” in the variable UE\_POSITIONING\_GPS\_DATA that are not included in IE UE positioning GPS real time integrity.

#### 8.6.7.19.3.7 UE positioning GPS reference time

If the IE “UE positioning GPS reference time” is included, the UE shall

- store this IE in “UE positioning GPS reference time” in variable UE\_POSITIONING\_GPS\_DATA
- for each satellite
  - store received GPS TOW assist at the position indicated by the IE “Sat ID” in the IE “UE positioning GPS reference time” in the variable UE\_POSITIONING\_GPS\_DATA, possibly overwriting any existing information in this position

#### 8.6.7.19.3.8 UE positioning GPS reference UE position

If the IE “UE positioning GPS reference UE position” is included, the UE shall

- store this IE in the IE “UE positioning GPS reference UE position” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.19.3.9 UE positioning UTC model

If the IE “UE positioning GPS UTC model” is included, the UE shall

- store this IE in the IE “UE positioning GPS UTC model” in variable UE\_POSITIONING\_GPS\_DATA

#### 8.6.7.20 UE positioning OTDOA neighbour cell info

If IE “UE positioning OTDOA neighbour cell info” is received with UE based Positioning Mode selected, the UE shall:

- if "Relative North", "Relative East", or "Relative Altitude" IEs are transmitted:
- store the corresponding values into UE variable "CELL\_POSITION" defined in 13.4.00;
- use the values stored in CELL\_POSITION (either from the current or previously processed IEs) as "Relative North", "Relative East" and "Relative Altitude".

### 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)	

### 10.3.7.97 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]
<del>Δt<sub>LS</sub></del>	<del>MP</del>		<del>Bit string(8)</del>	<del>seconds [12]</del>
WN <sub>t</sub>	MP		Bit string(8)	weeks [12]
<del>Δt<sub>LS</sub></del>	<del>MP</del>		<del>Bit string(8)</del>	<del>seconds [12]</del>
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]

## 13.4.00 CELL\_POSITION

This variable stores the CELL\_POSITION for UE-based OTDOA (10.3.7.106).

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
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.

### 13.4.28b UE POSITIONING OTDOA DATA

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
---------------------------------------	-------------	--------------	---------------------------	------------------------------

<a href="#">OTDOA Data ciphering info</a>	<a href="#">OP</a>		<a href="#">UE positioning Ciphering info 10.3.7.86</a>	
<a href="#">UE positioning OTDOA reference cell info</a>	<a href="#">OP</a>		<a href="#">UE positioning OTDOA reference cell info 10.3.7.108</a>	
<a href="#">UE positioning OTDOA neighbour cell list</a>	<a href="#">OP</a>	1 to <maxCell Meas>		
<a href="#">&gt;UE positioning OTDOA neighbour cell info</a>	<a href="#">MP</a>		<a href="#">UE positioning OTDOA neighbour cell info 10.3.7.106</a>	

## 13.4.28a UE POSITIONING GPS DATA

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
---------------------------------------	-------------	--------------	---------------------------	------------------------------

<a href="#">GPS Data ciphering info</a>	<a href="#">OP</a>		<a href="#">UE positioning Cipher info 10.3.7.86</a>	
<a href="#">UE positioning GPS reference time</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS reference time 10.3.7.96</a>	
<a href="#">UE positioning GPS reference UE position</a>	<a href="#">OP</a>		<a href="#">Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c</a>	<a href="#">A priori knowledge of UE 3-D position.</a>
<a href="#">UE positioning GPS DGPS corrections</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS DGPS corrections 10.3.7.91</a>	
<a href="#">UE positioning GPS navigation model</a>	<a href="#">OP</a>			
<a href="#">&gt;SatID</a>	<a href="#">MP</a>		<a href="#">Enumerated(0..63)</a>	<a href="#">Satellite ID</a>
<a href="#">&gt;GPS Ephemeris and Clock Correction parameters</a>	<a href="#">CV-Satellite status</a> <a href="#">OP</a> <a href="#">MP</a>		<a href="#">UE positioning GPS Ephemeris and Clock Correction parameters 10.3.7.90a</a>	
<a href="#">UE positioning GPS ionospheric model</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS ionospheric model 10.3.7.92</a>	
<a href="#">UE positioning GPS UTC model</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS UTC model 10.3.7.97</a>	
<a href="#">UE positioning GPS almanac</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS almanac 10.3.7.89</a>	
<a href="#">UE positioning GPS acquisition assistance</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS acquisition assistance 10.3.7.88</a>	
<a href="#">UE positioning GPS real-time integrity</a>	<a href="#">OP</a>		<a href="#">UE positioning GPS real-time integrity 10.3.7.95</a>	

## CHANGE REQUEST

⌘ **25.331 CR 981** ⌘ rev **r1** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Clarification on periodic measurement reporting		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27-08-01
<b>Category:</b>	⌘ F	<b>Release:</b>	⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p><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)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p><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)</p>	

<b>Reason for change:</b>	⌘ The description of the periodical reporting is ambiguous.
<b>Summary of change:</b>	<p>⌘ It is clarified that parts of the configured measurements should refer to a measurement object, e.g. a cell.</p> <p>Isolated impact analysis:  The functionality is periodical measurement reporting.</p> <ul style="list-style-type: none"> <li>• Correction to a function where the specification was : <ul style="list-style-type: none"> <li>○ ambiguous or not sufficiently explicit.</li> </ul> </li> </ul> <p>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 periodical reporting is ambiguous in case of partial measurement results availability.

<b>Clauses affected:</b>	⌘ 8.6.7.8		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v4.1.0, CR 982
<b>Other comments:</b>	⌘		

### 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

- store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

~~The UE shall:~~

- ~~— send the first MEASUREMENT REPORT message, omitting parts of the configured measurements that are not available according to the variable MEASUREMENT\_IDENTITY, as soon as the first measurement has been completed according to the requirements and the measurement capabilities set in [19] and [20]; and then~~
- ~~— send the next MEASUREMENT REPORT messages with intervals specified by the IE "Reporting interval", omitting parts of the configured measurements that are not available according to the variable MEASUREMENT\_IDENTITY, and omitting measurement results that were reported in a previous MEASUREMENT REPORT and were not subsequently updated. For the first MEASUREMENT REPORT message, the UE shall:~~
  - send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.

Following the first MEASUREMENT REPORT message, the UE shall:

- send subsequent MEASUREMENT REPORT message with intervals specified by the IE "Reporting interval",
- form the MEASUREMENT REPORT from the measurement objects stored in the variable MEASUREMENT\_IDENTITY for which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20], and
- omit measurement results that were reported in a previous MEASUREMENT REPORT and for which new measurement results are not available in the present reporting interval.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- terminate measurement reporting; and
- delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

## CHANGE REQUEST

⌘ **25.331 CR 982** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

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 periodic measurement reporting		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27-08-01
<b>Category:</b>	⌘ A	<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)		<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)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

<b>Reason for change:</b>	⌘ The description of the periodical reporting is ambiguous.
<b>Summary of change:</b>	⌘ It is clarified that parts of the configured measurements should refer to a measurement object, e.g. a cell.  Isolated impact analysis: The functionality is periodical measurement reporting. <ul style="list-style-type: none"> <li>• Correction to a function where the specification was :             <ul style="list-style-type: none"> <li>○ ambiguous or not sufficiently explicit.</li> </ul> </li> </ul> 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 periodical reporting is ambiguous in case of partial measurement results availability.

<b>Clauses affected:</b>	⌘ 8.6.7.8		
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331 v3.7.0, CR 981r1
<b>Other comments:</b>	⌘		



### 8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall:

- store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT\_IDENTITY.

~~The UE shall:~~

- ~~— send the first MEASUREMENT REPORT message, omitting parts of the configured measurements that are not available according to the variable MEASUREMENT\_IDENTITY, as soon as the first measurement has been completed according to the requirements and the measurement capabilities set in [19] and [20]; and then~~
- ~~— send the next MEASUREMENT REPORT messages with intervals specified by the IE "Reporting interval", omitting parts of the configured measurements that are not available according to the variable MEASUREMENT\_IDENTITY, and omitting measurement results that were reported in a previous MEASUREMENT REPORT and were not subsequently updated. For the first MEASUREMENT REPORT message, the UE shall:~~
  - ~~- send the MEASUREMENT REPORT at the end of the first reporting interval in which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20] for at least one measurement object stored in the variable MEASUREMENT\_IDENTITY.~~

Following the first MEASUREMENT REPORT message, the UE shall:

- send subsequent MEASUREMENT REPORT message with intervals specified by the IE "Reporting interval",
- form the MEASUREMENT REPORT from the measurement objects stored in the variable MEASUREMENT\_IDENTITY for which all requested reporting quantities are available according to the requirements and the measurement capabilities set in [19] and [20], and
- omit measurement results that were reported in a previous MEASUREMENT REPORT and for which new measurement results are not available in the present reporting interval.

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall:

- terminate measurement reporting; and
- delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT\_IDENTITY.

## CHANGE REQUEST

⌘ **25.331 CR 983** ⌘ rev **r2** ⌘ Current version: **3.7.0** ⌘

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

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

<b>Title:</b>	⌘ Corrections and clarifications on Measurement procedures description		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27-08-01
<b>Category:</b>	⌘ F	<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 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:** ⌘ In section 8.4.1.3 it is not clear that the configured measurement are valid to the current UE RRC state

In section 8.4.1.6 the UE behavior is not specified at combined state transition and cell change

In section 8.4.1.6 the UE behavior at cell reselection is not specified

The measurement object is not clearly defined

**Summary of change:** ⌘ Section 8.4.1.3: clarification that the UE shall start the measurement according the control information if the measurement is valid in the current RRC state of the UE

Section 8.4.1.6.1, 8.4.1.6.2, 8.4.1.6.3 specifies that the UE shall delete the measurement configuration for intra/inter/inter-RAT on state transition from CELL\_DCH to CELL\_FACH/CELL\_PCH, URA\_PCH in case that the reconfiguration message does not indicate the target cell or the target cell is indicated but the UE selects another cell

Section 8.4.1.6a specifies the UE behavior in case of cell reselection, i.e. delete the radio link measurements within the MEASUREMENT\_IDENTITY variable

Section 8.4.2.2 specifies that periodical reporting timer is started since the last measurement report was "submitted to lower layers" instead of "transmitted "

It is clarified the measurement object definition:

- for intra-frequency/inter-frequency/inter-RAT measurements the measurement object is a cell.
- for the traffic volume measurement the measurement object corresponds to one transport channel
- for quality measurements a measurement object corresponds to one transport channel in case of BLER and measurement object corresponds to one timeslot in case of SIR (TDD only).

In the beginning of section 8.4 text is reorganised in order to introduce first the definition of parameters used in the measurement procedures and after that the definition of measurement types. The text related to the UE action in RRC states is removed since not exhaustive and already covered in other sections. The text related to the measurement results sent on RACH is also removed since already covered in the description of each concerned message.

The CR includes some minor editorial in addition to the above mentioned corrections.

Isolated impact analysis

- Correction to the measurement procedures where:
  - procedural text or rules were missing.
  - the specification was ambiguous or not sufficiently explicit.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise

**Consequences if not approved:** ⌘

**Clauses affected:** ⌘ 8.4, 8.4.0 (new), 8.4.1.2, 8.4.1.3, 8.4.1.6, 8.4.1.6.1, 8.4.1.6.2, 8.4.1.6.3, 8.4.1.6.6, 8.4.1.6.7 (new), 8.4.1.6a (new), 8.4.1.7.1, 8.4.1.7.2, 8.4.1.7.3, 8.4.1.7.4, 8.4.1.9.2, 8.4.1.9.3, 8.4.1.10.1, 8.4.2.2, 8.4.3.2, 8.6.7.11, 10.3.7.13, 10.3.7.16, 10.3.7.23, 10.3.7.27, 10.3.7.33, 10.3.7.36

**Other specs affected:** ⌘

<input type="checkbox"/>	Other core specifications	⌘ 25.331 v4.1.0, CR 984
<input type="checkbox"/>	Test specifications	
<input type="checkbox"/>	O&M Specifications	

**Other comments:** ⌘

## 8.4 Measurement procedures

### 8.4.0 Measurement related definitions

UTRAN may control a measurement in the UE either by broadcast of SYSTEM INFORMATION and/or by transmitting a MEASUREMENT CONTROL message.

The following information is used to control the UE measurements and the measurement results reporting:

1. **Measurement identity:** A reference number that should be used by the UTRAN when setting up, modifying or releasing the measurement and by the UE in the measurement report.
2. **Measurement command:** One out of three different measurement commands.
  - Setup: Setup a new measurement.
  - Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.
  - Release: Stop a measurement and clear all information in the UE that are related to that measurement.
3. **Measurement type:** One of the types listed below describing what the UE shall measure.  
Presence or absence of the following control information depends on the measurement type
4. **Measurement objects:** The objects on which the UE shall measure measurement quantities, and corresponding object information.
5. **Measurement quantity:** The quantity the UE shall measure on the measurement object. This also includes the filtering of the measurements.
6. **Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.
7. **Measurement reporting criteria:** The triggering of the measurement report, e.g. periodical or event-triggered reporting.
8. **Measurement Validity:** Defines in which UE states the measurement is valid.
9. **Measurement reporting mode:** This specifies whether the UE shall transmit the measurement report using AM or UM RLC.
10. **Additional measurement identities:** A list of references to other measurements. When this measurement triggers a measurement report, the UE shall also include the reporting quantities for the measurements referenced by the additional measurement identities.

All these measurement parameters depend on the measurement type and are described in more detail in clause 14.

The UE measurements are grouped into 7 different categories, according to what the UE should measure.

The different types of measurements are:

- **Intra-frequency measurements:** measurements on downlink physical channels at the same frequency as the active set. A measurement object corresponds to one cell. Detailed description is found in subclause 14.1.
- **Inter-frequency measurements:** measurements on downlink physical channels at frequencies that differ from the frequency of the active set. A measurement object corresponds to one cell. Detailed description is found in subclause 14.2.
- **Inter-RAT measurements:** measurements on downlink physical channels belonging to another radio access technology than UTRAN, e.g. PDC or GSM. A measurement object corresponds to one cell. Detailed description is found in subclause 14.3.
- **Traffic volume measurements:** measurements on uplink traffic volume. A measurement object corresponds to one transport channel. Detailed description is found in subclause 14.4.

- **Quality measurements:** Measurements of downlink quality parameters, e.g. downlink transport block error rate. A measurement object corresponds to one transport channel in case of BLER. A measurement object corresponds to one timeslot in case of SIR (TDD only). Detailed description is found in subclause 14.5.
- **UE-internal measurements:** Measurements of UE transmission power and UE received signal level. Detailed description is found in subclause 14.6.
- **UE positioning measurements:** Measurements of UE position. Detailed description is found in subclause 14.7.

The UE shall support a number of measurements running in parallel ~~as (the number of parallel measurements to be supported is specified in [19] and [20]).~~ The UE shall also support that each measurement is controlled and reported independently of every other measurement.

Cells that the UE is monitoring (~~e.g. for handover measurements~~) are grouped in the UE into three different categories:

1. Cells, which belong to the **active set**. User information is sent from all these cells. In FDD, the cells in the active set are involved in soft handover. In TDD the active set always comprises ~~of~~ one cell only.
2. Cells, which are not included in the active set, but are monitored according to a neighbour list assigned by the UTRAN belong to the **monitored set**.
3. Cells detected by the UE, which are neither included in the active set nor in the monitored set belong to the **detected set**. Reporting of measurements of the detected set is only ~~required for~~ applicable to intra-frequency measurements made by UEs in CELL\_DCH state.

~~UTRAN may control a measurement in the UE either by broadcast system information and/or by transmitting a MEASUREMENT CONTROL message. The latter message includes the following measurement control information:~~

1. ~~**Measurement identity:** A reference number that should be used by the UTRAN when setting up, modifying or releasing the measurement and by the UE in the measurement report.~~
2. ~~**Measurement command:** One out of three different measurement commands.
 
  - Setup: Setup a new measurement.
  - Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.
  - Release: Stop a measurement and clear all information in the UE that are related to that measurement.~~
3. ~~**Measurement type:** One of the types listed above describing what the UE shall measure.
 
  - Presence or absence of the following control information depends on the measurement type~~
4. ~~**Measurement objects:** The objects the UE shall measure, and corresponding object information.~~
5. ~~**Measurement quantity:** The quantity the UE shall measure. This also includes the filtering of the measurements.~~
6. ~~**Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.~~
7. ~~**Measurement reporting criteria:** The triggering of the measurement report, e.g. periodical or event-triggered reporting.~~
8. ~~**Measurement Validity:** Defines in which UE states the measurement is valid.~~
9. ~~**Measurement reporting mode:** This specifies whether the UE shall transmit the measurement report using AM or UM RLC.~~
10. ~~**Additional measurement identities:** A list of references to other measurements. When this measurement triggers a measurement report, the UE shall also include the reporting quantities for the measurements referenced by the additional measurement identities.~~

~~All these measurement parameters depend on the measurement type and are described in more detail in clause 14.~~

~~When the reporting criteria are fulfilled, i.e. a specified event occurred or the time since last report indicated for periodical reporting has elapsed, the UE shall send a MEASUREMENT REPORT message to UTRAN.~~

In CELL\_FACH, CELL\_PCH or URA\_PCH state, the UE shall perform measurements according to the measurement control information included in System Information Block Type 12 or System Information Block Type 11, according to subclause 8.1.1.6.11. The UE may also be requested to perform traffic volume measurements according to the measurement control information in a MEASUREMENT CONTROL message.

In CELL\_DCH state, the UE may be requested to report measurements from any of the measurement types. The UE may also be requested to report cells from the detected set. The triggering event for the UE to send a MEASUREMENT REPORT message for detected set cells is defined in measurement events 1A and 1E for FDD cells and in measurement event 1G for TDD cells in clause 14.

In order to receive information for the immediate establishment of macrodiversity (FDD) or to support the DCA algorithm (TDD), the UTRAN may also indicate to the UE in System Information Block Type 11 or System Information Block Type 12, to append radio link related measurement reports to the following messages when they are sent on common transport channels (i.e., RACH, CPCH, USCH):

- RRC CONNECTION REQUEST message sent to establish an RRC connection;
- INITIAL DIRECT TRANSFER message sent uplink to establish a signalling connection;
- UPLINK DIRECT TRANSFER message to transfer NAS messages for an existing signalling connection;
- CELL UPDATE message sent to respond to a UTRAN originated page;
- MEASUREMENT REPORT message sent to report uplink traffic volume;
- PUSCH CAPACITY REQUEST message sent to request PUSCH capacity (TDD only).

### 8.4.1 Measurement control



Figure 56: Measurement Control, normal case

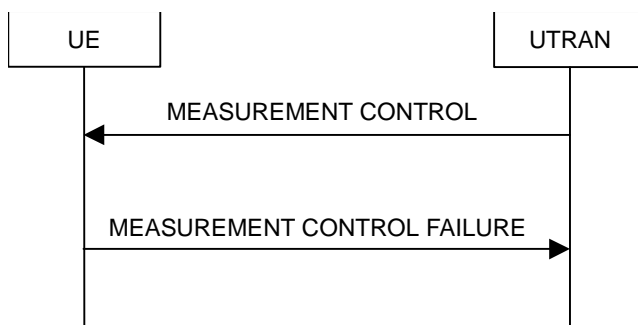


Figure 57: Measurement Control, failure case

#### 8.4.1.1 General

The purpose of the measurement control procedure is to setup, modify or release a measurement in the UE.

#### 8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is requested assigned to the UE.

When a new measurement is ~~created~~initiated, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", the measurement object or the list of measurement objects "Measurement object" can be set differently for each measurement with different "Measurement identity".

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to the value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than ~~modifying~~modified IEs, and the UE continues to use the current values of the IEs that are not modified.

### 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", possibly overwriting the measurement previously stored with that identity;
  - 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, and:
      - if the measurement is valid in the current RRC state of the UE: INDENT
        - begin measurements according to the stored control information for this measurement identity;
  - 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. [HANS, Identation changed]
- if the IE "Measurement command" has the value "modify": (NEED TO SHIFT THE BULLET AND THOSE UNDER IT LEFTWISE ONE LEVEL)
  - for all measurement control 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";
      - 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 not identified in IE "TGPSI" **(HANS, NEED TO SHIFT ON THE RIGHT ONE LEVEL (B2))**
- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and

measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:

  - refrain from updating the traffic volume measurement control information associated with this measurement identity received in System Information Block type 12 (or System Information Block type 11, according to 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;
- and the procedure ends.

#### 8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the cause value in IE "failure cause" to "unsupported measurement";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;



- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.4a Configuration Incomplete

If the variable CONFIGURATION\_INCOMPLETE is set to TRUE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;
- clear the variable CONFIGURATION\_INCOMPLETE;
- set the cause value in IE "failure cause" to "Configuration incomplete";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.5 Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.6 Measurements after transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state

The UE shall ~~obey~~ apply the following rules for different measurement types after transitioning from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state:

##### 8.4.1.6.1 Intra-frequency measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop intra-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;

- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type intra-frequency associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the UE receives the IE "Intra-frequency reporting quantity for RACH Reporting" and the IE "Maximum number of Reported cells on RACH" IEs from System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - use this information for reporting measured results in RACH messages.

#### 8.4.1.6.2 Inter-frequency measurement

Upon transition from CELL\_DCH to CELL\_FACH/ CELL\_PCH/URA\_PCH state, the UE shall:

- stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;
- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type inter-frequency associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- in CELL\_FACH state:
  - perform measurements on other frequencies according to the IE "FACH measurement occasion info".

#### 8.4.1.6.3 Inter-RAT measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop the inter-RAT type measurement reporting assigned in a MEASUREMENT CONTROL message;
- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type inter-RAT associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "inter-RAT" cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- in CELL\_FACH state:
  - perform measurements on other systems according to the IE "FACH measurement occasion info".

#### 8.4.1.6.4 Quality measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop quality type measurement reporting;
- delete all measurement control information of measurement type "quality" stored in the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.6.5 UE internal measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop UE internal measurement type measurement reporting;
- delete all measurement control information of measurement type "UE internal" stored in the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.6.6 Traffic volume measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall ~~take the following actions. The UE shall:~~

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT\_IDENTITY; and
- if the optional IE "measurement validity" for this measurement has not been included:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL\_DCH":
  - stop measurement reporting;
  - ~~save~~store the measurement associated with the variable MEASUREMENT\_IDENTITY to be used after the next transition to CELL\_DCH state;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
  - continue measurement reporting;
- if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL\_DCH":
  - resume this measurement and associated reporting;
- if no traffic volume type measurements ~~applicable to valid in~~ applicable to valid in CELL\_FACH/CELL\_PCH/URA\_PCH states are stored in the variable MEASUREMENT\_IDENTITY:
  - store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT\_IDENTITY;
  - begin traffic volume measurement reporting according to the assigned information;
- ~~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 received in System Information Block type 12 (or System Information Block type 11, according to~~

8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.

#### 8.4.1.6.7 UE positioning measurement

TBD

#### 8.4.1.6a Actions in CELL\_FACH/CELL\_PCH/URA/PCH state upon cell re-selection

Upon cell reselection whilst in CELL\_FACH/CELL\_PCH/URA/PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

- delete the all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.7 Measurements after transition from CELL\_FACH to CELL\_DCH state

The UE shall obey the following rules for different measurement types after transiting from CELL\_FACH to CELL\_DCH state:

##### 8.4.1.7.1 Intra-frequency measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH;
- if the UE has not performed a cell reselection whilst out of CELL\_DCH state:
  - resume the measurement reporting. [HANS, Identation changed]
- if the UE has performed a cell reselection whilst out of CELL\_DCH state and the cell reselection has occurred after the measurement control information was stored:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY.
- if no intra-frequency measurements applicable to CELL\_DCH state are stored in the variable MEASUREMENT\_IDENTITY:
  - continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
  - if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
    - send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for CELL\_DCH" are fulfilled;

##### 8.4.1.7.2 Inter-frequency measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- retrieve each set of measurement control information of measurement type "inter-frequency" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH":

- ~~— if the UE has not performed a cell reselection whilst out of CELL\_DCH state:~~
- resume the measurement reporting; **[HANS, Identation changed]**
- ~~— if the UE has performed a cell reselection whilst out of CELL\_DCH state and the cell reselection has occurred after the measurement control information was stored:~~
- ~~— delete the measurement associated with the variable MEASUREMENT\_IDENTITY.~~

#### 8.4.1.7.3 Inter-RAT measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency system info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11)
- retrieve each set of measurement control information of measurement type "inter-RAT" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH":
  - resume the measurement reporting.

#### 8.4.1.7.4 Traffic volume measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT\_IDENTITY;
- if the optional IE "measurement validity" for this measurement has not been included:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL\_DCH":
  - stop measurement reporting; and
  - save the measurement associated with the variable MEASUREMENT\_IDENTITY to be used after the next transition to CELL\_FACH/CELL\_PCH/URA\_PCH state;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
  - continue measurement reporting;
- if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL\_DCH":
  - resume this measurement and associated reporting;
- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL\_DCH state:
  - continue an ongoing traffic volume type measurement, assigned in System Information Block type 11 ( or System Information Block type 12, according to subclause 8.1.1.6.11);
- if the UE in CELL\_DCH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in variable MEASUREMENT\_IDENTITY:
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY.

### 8.4.1.8 Measurements after transition from idle mode to CELL\_DCH state

The UE shall obey the following rules for different measurement types after transiting from idle mode to CELL\_DCH state:

#### 8.4.1.8.1 Intra-frequency measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- begin or continue monitoring the list of cells assigned in the IE "intra-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the "intra-frequency measurement reporting criteria" IE was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - begin measurement reporting according to the IE.

#### 8.4.1.8.2 Inter-frequency measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11).

#### 8.4.1.8.3 Inter-RAT measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency system info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11).

#### 8.4.1.8.4 Traffic volume measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- begin a traffic volume type measurement, assigned in System Information Block type 11 (or System Information Block type 12, according to subclause 8.1.1.6.11).

### 8.4.1.9 Measurements after transition from idle mode to CELL\_FACH state

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL\_FACH state:

#### 8.4.1.9.1 Intra-frequency measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the UE receives the IE "Intra-frequency reporting quantity for RACH Reporting" and IE "Maximum number of Reported cells on RACH" from System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - use this information for reporting measured results in RACH messages.

#### 8.4.1.9.2 Inter-frequency measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);

- perform measurements on other frequencies according to the IE "FACH measurement occasion info".

#### 8.4.1.9.3 Inter-RAT measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "inter-RAT" cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- perform measurements on other systems according to the IE "FACH measurement occasion info".

#### 8.4.1.9.4 Traffic volume measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- store the measurement control information from the IE "Traffic volume measurements system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT\_IDENTITY;
- begin traffic volume measurement reporting according to the assigned information.

#### 8.4.1.9a Measurements after transition from connected mode to idle mode

Upon transition from connected mode to idle mode the UE shall:

- stop measurement reporting for all measurements stored in the variable MEASUREMENT\_IDENTITY;
- clear the variable MEASUREMENT\_IDENTITY;
- obey the follow rules for different measurement types.

##### 8.4.1.9a.1 Intra-frequency measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 11.

##### 8.4.1.9a.2 Inter-frequency measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 11.

##### 8.4.1.9a.3 Inter-RAT measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 11.

### 8.4.1.10 Measurements when measurement object is no longer valid

#### 8.4.1.10.1 Traffic volume measurement

If UE is no longer using the transport channel that is specified in the IE "Traffic volume measurement object", UE shall ignore any measurements that are assigned to that transport channel. If none of the transport channels that are specified in "traffic volume measurement object" is being used, UE shall ~~release~~ ~~delete~~ that particular measurement and its measurement ID identity from the variable MEASUREMENT\_IDENTITY.

## 8.4.2 Measurement report



Figure 58: Measurement report, normal case

### 8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

### 8.4.2.2 Initiation

In CELL\_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are met for any ongoing measurements that are being performed in the UE.

In CELL\_FACH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are met for any ongoing traffic volume measurement that is being performed in the UE.

In TDD, if the Radio Bearer associated with the MEASUREMENT\_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL\_PCH or URA\_PCH state, the UE shall first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL\_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are fulfilled for any ongoing traffic volume measurement which is being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or
- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was submitted to lower layers ~~transmitted~~ for a given measurement; or
- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT\_IDENTITY;



- set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT\_IDENTITY; and
- if all the reporting quantities are set to "false":
  - not set the IE "measured results";
- set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT\_IDENTITY of the measurement that triggered the measurement report; and
- if more than one additional measured results are to be included:
  - sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message;
- if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):
  - set the IE "Event results" according to the event that triggered the report.

The UE shall:

- transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

- the procedure ends.

### 8.4.3 Assistance Data Delivery



Figure 59 Assistance Data Delivery

#### 8.4.3.1 General

The purpose of the assistance data delivery procedure is to transfer UE positioning related assistance data from the UTRAN to the UE.

#### 8.4.3.2 Initiation

The UTRAN may deliver UE positioning related assistance data with a ASSISTANCE DATA DELIVERY message, which is transmitted on the downlink DCCH using AM RLC ~~if RNC is requested to do so by the CN.~~

#### 8.4.3.3 Reception of ASSISTANCE DATA DELIVERY message by the UE

Upon reception of a ASSISTANCE DATA DELIVERY message the UE shall:

- if IE "UE positioning OTDOA assistance data" is included:
  - store the OTDOA assistance data;

- if IE "UE positioning GPS assistance data" is included:
  - store the GPS assistance data.

#### 8.4.3.4 Invalid ASSISTANCE DATA DELIVERY message

If the UE receives a ASSISTANCE DATA DELIVERY message, which contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- transmit an RRC STATUS message on the uplink DCCH using AM RLC;
- include the IE "Identification of received message"; and
- set the IE "Received message type" to ASSISTANCE DATA DELIVERY; and
- set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the ASSISTANCE DATA DELIVERY message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry;
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION.
- when the RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid ASSISTANCE DATA DELIVERY message has not been received.

### 8.6.7.11 Traffic Volume Measurement Reporting Criteria

If the IE "Traffic Volume Measurement Reporting Criteria" is received by the UE, the UE shall:

- store the content of the IE "Traffic Volume Measurement Reporting Criteria" to the variable MEASUREMENT\_IDENTITY.

If the IE "UL transport channel id" is not included, the UE shall:

- apply the measurement reporting criteria to all uplink transport channels indicated in the IE "Traffic volume measurement oObject";
- if the UTRAN has not specified a traffic volume measurement object for a given measurement identity:
  - apply the measurement reporting criteria to all uplink transport channels that are configured for the current UE state.

If the IE "Tx interruption after trigger" is included, the UE shall:

- block DTCH transmissions on the RACH during the time specified in the IE after a measurement report is transmitted.

### 10.3.7.13 Inter-frequency cell info list

Contains the information for the list of measurement objects information 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- <i>BCHopt</i>	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

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency <u>measurement objects</u> cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	CV- <i>reporting</i>		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	
<b>CHOICE <i>report criteria</i></b>	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

## 10.3.7.23 Inter-RAT cell info list

Contains the information for the list of measurement objects information 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	OP	1 to <maxCellMeas>		
>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			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>
Cell for measurement	OP	1 to <maxCellMeas>		
>Inter-RAT cell id	MP		Integer(0 .. <maxCellMeas> -1)	

10.3.7.27 Inter-RAT measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT <u>measurement object</u> cell info list	OP		Inter-RAT cell info list 10.3.7.23	Measurement object
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	
CHOICE <i>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

### 10.3.7.33 Intra-frequency cell info list

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Intra-frequency cell removal</i>	OP			
>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 cell	OP	1 to <maxCellMeas>		This information element must be present when "Intra-frequency cell info list" is included in the system information
>Intra-frequency cell id	MD		Integer(0 .. <maxCellMeas> - 1)	
>Cell info	MP		Cell info 10.3.7.2	
Cell 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



10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency <u>measurement object</u> cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object
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- <i>reporting</i>		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
CHOICE <i>report criteria</i>	OP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting 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

## CHANGE REQUEST

⌘ **25.331 CR 984** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

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 on Measurement procedures description		
<b>Source:</b>	⌘ TSG-RAN WG2		
<b>Work item code:</b>	⌘ TEI	<b>Date:</b>	⌘ 27-08-01
<b>Category:</b>	⌘ A	<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:** ⌘ In section 8.4.1.3 it is not clear that the configured measurement are valid to the current UE RRC state

In section 8.4.1.6 the UE behavior is not specified at combined state transition and cell change

In section 8.4.1.6 the UE behavior at cell reselection is not specified

The measurement object is not clearly defined

**Summary of change:** ⌘ Section 8.4.1.3: clarification that the UE shall start the measurement according the control information if the measurement is valid in the current RRC state of the UE

Section 8.4.1.6.1, 8.4.1.6.2, 8.4.1.6.3 specifies that the UE shall delete the measurement configuration for intra/inter/inter-RAT on state transition from CELL\_DCH to CELL\_FACH/CELL\_PCH, URA\_PCH in case that the reconfiguration message does not indicate the target cell or the target cell is indicated but the UE selects another cell

Section 8.4.1.6a specifies the UE behavior in case of cell reselection, i.e. delete the radio link measurements within the MEASUREMENT\_IDENTITY variable

Section 8.4.2.2 specifies that periodical reporting timer is started since the last measurement report was "submitted to lower layers" instead of "transmitted "

It is clarified the measurement object definition:

- for intra-frequency/inter-frequency/inter-RAT measurements the measurement object is a cell.
- for the traffic volume measurement the measurement object corresponds to one transport channel
- for quality measurements a measurement object corresponds to one transport channel in case of BLER and measurement object corresponds to one timeslot in case of SIR (TDD only).

In the beginning of section 8.4 text is reorganised in order to introduce first the definition of parameters used in the measurement procedures and after that the definition of measurement types. The text related to the UE action in RRC states is removed since not exhaustive and already covered in other sections. The text related to the measurement results sent on RACH is also removed since already covered in the description of each concerned message.

The CR includes some minor editorial in addition to the above mentioned corrections.

Isolated impact analysis

- Correction to the measurement procedures where:
  - procedural text or rules were missing.
  - the specification was ambiguous or not sufficiently explicit.

Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise

**Consequences if not approved:** ⌘

**Clauses affected:** ⌘ 8.4, 8.4.0 (new), 8.4.1.2, 8.4.1.3, 8.4.1.6, 8.4.1.6.1, 8.4.1.6.2, 8.4.1.6.3, 8.4.1.6.6, 8.4.1.6.7 (new), 8.4.1.6a (new), 8.4.1.7.1, 8.4.1.7.2, 8.4.1.7.3, 8.4.1.7.4, 8.4.1.9.2, 8.4.1.9.3, 8.4.1.10.1, 8.4.2.2, 8.4.3.2, 8.6.7.11, 10.3.7.13, 10.3.7.16, 10.3.7.23, 10.3.7.27, 10.3.7.33, 10.3.7.36

**Other specs affected:** ⌘

- Other core specifications
- Test specifications
- O&M Specifications

⌘ 25.331 v3.7.0, CR 983r2

**Other comments:** ⌘

## 8.4 Measurement procedures

### 8.4.0 Measurement related definitions

UTRAN may control a measurement in the UE either by broadcast of SYSTEM INFORMATION and/or by transmitting a MEASUREMENT CONTROL message.

The following information is used to control the UE measurements and the measurement results reporting:

1. **Measurement identity:** A reference number that should be used by the UTRAN when setting up, modifying or releasing the measurement and by the UE in the measurement report.
2. **Measurement command:** One out of three different measurement commands.
  - Setup: Setup a new measurement.
  - Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.
  - Release: Stop a measurement and clear all information in the UE that are related to that measurement.
3. **Measurement type:** One of the types listed below describing what the UE shall measure.  
Presence or absence of the following control information depends on the measurement type
4. **Measurement objects:** The objects on which the UE shall measure measurement quantities, and corresponding object information.
5. **Measurement quantity:** The quantity the UE shall measure on the measurement object. This also includes the filtering of the measurements.
6. **Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.
7. **Measurement reporting criteria:** The triggering of the measurement report, e.g. periodical or event-triggered reporting.
8. **Measurement Validity:** Defines in which UE states the measurement is valid.
9. **Measurement reporting mode:** This specifies whether the UE shall transmit the measurement report using AM or UM RLC.
10. **Additional measurement identities:** A list of references to other measurements. When this measurement triggers a measurement report, the UE shall also include the reporting quantities for the measurements referenced by the additional measurement identities.

All these measurement parameters depend on the measurement type and are described in more detail in clause 14.

The UE measurements are grouped into 7 different categories, according to what the UE should measure.

The different types of measurements are:

- **Intra-frequency measurements:** measurements on downlink physical channels at the same frequency as the active set. A measurement object corresponds to one cell. Detailed description is found in subclause 14.1.
- **Inter-frequency measurements:** measurements on downlink physical channels at frequencies that differ from the frequency of the active set. A measurement object corresponds to one cell. Detailed description is found in subclause 14.2.
- **Inter-RAT measurements:** measurements on downlink physical channels belonging to another radio access technology than UTRAN, e.g. PDC or GSM. A measurement object corresponds to one cell. Detailed description is found in subclause 14.3.
- **Traffic volume measurements:** measurements on uplink traffic volume. A measurement object corresponds to one transport channel. Detailed description is found in subclause 14.4.

- **Quality measurements:** Measurements of downlink quality parameters, e.g. downlink transport block error rate. A measurement object corresponds to one transport channel in case of BLER. A measurement object corresponds to one timeslot in case of SIR (TDD only). Detailed description is found in subclause 14.5.
- **UE-internal measurements:** Measurements of UE transmission power and UE received signal level. Detailed description is found in subclause 14.6.
- **UE positioning measurements:** Measurements of UE position. Detailed description is found in subclause 14.7.

The UE shall support a number of measurements running in parallel ~~as (the number of parallel measurements to be supported is specified in [19] and [20]).~~ The UE shall also support that each measurement is controlled and reported independently of every other measurement.

Cells that the UE is monitoring (~~e.g. for handover measurements~~) are grouped in the UE into three different categories:

1. Cells, which belong to the **active set**. User information is sent from all these cells. In FDD, the cells in the active set are involved in soft handover. In TDD the active set always comprises ~~of~~ one cell only.
2. Cells, which are not included in the active set, but are monitored according to a neighbour list assigned by the UTRAN belong to the **monitored set**.
3. Cells detected by the UE, which are neither included in the active set nor in the monitored set belong to the **detected set**. Reporting of measurements of the detected set is only ~~required for~~ applicable to intra-frequency measurements made by UEs in CELL\_DCH state.

~~UTRAN may control a measurement in the UE either by broadcast system information and/or by transmitting a MEASUREMENT CONTROL message. The latter message includes the following measurement control information:~~

1. ~~**Measurement identity:** A reference number that should be used by the UTRAN when setting up, modifying or releasing the measurement and by the UE in the measurement report.~~
2. ~~**Measurement command:** One out of three different measurement commands.
 
  - Setup: Setup a new measurement.
  - Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.
  - Release: Stop a measurement and clear all information in the UE that are related to that measurement.~~
3. ~~**Measurement type:** One of the types listed above describing what the UE shall measure.
 
  - Presence or absence of the following control information depends on the measurement type~~
4. ~~**Measurement objects:** The objects the UE shall measure, and corresponding object information.~~
5. ~~**Measurement quantity:** The quantity the UE shall measure. This also includes the filtering of the measurements.~~
6. ~~**Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.~~
7. ~~**Measurement reporting criteria:** The triggering of the measurement report, e.g. periodical or event-triggered reporting.~~
8. ~~**Measurement Validity:** Defines in which UE states the measurement is valid.~~
9. ~~**Measurement reporting mode:** This specifies whether the UE shall transmit the measurement report using AM or UM RLC.~~
10. ~~**Additional measurement identities:** A list of references to other measurements. When this measurement triggers a measurement report, the UE shall also include the reporting quantities for the measurements referenced by the additional measurement identities.~~

~~All these measurement parameters depend on the measurement type and are described in more detail in clause 14.~~

~~When the reporting criteria are fulfilled, i.e. a specified event occurred or the time since last report indicated for periodical reporting has elapsed, the UE shall send a MEASUREMENT REPORT message to UTRAN.~~

In CELL\_FACH, CELL\_PCH or URA\_PCH state, the UE shall perform measurements according to the measurement control information included in System Information Block Type 12 or System Information Block Type 11, according to subclause 8.1.1.6.11. The UE may also be requested to perform traffic volume measurements according to the measurement control information in a MEASUREMENT CONTROL message.

In CELL\_DCH state, the UE may be requested to report measurements from any of the measurement types. The UE may also be requested to report cells from the detected set. The triggering event for the UE to send a MEASUREMENT REPORT message for detected set cells is defined in measurement events 1A and 1E for FDD cells and in measurement event 1G for TDD cells in clause 14.

In order to receive information for the immediate establishment of macrodiversity (FDD) or to support the DCA algorithm (TDD), the UTRAN may also indicate to the UE in System Information Block Type 11 or System Information Block Type 12, to append radio link related measurement reports to the following messages when they are sent on common transport channels (i.e., RACH, CPCH, USCH):

- RRC CONNECTION REQUEST message sent to establish an RRC connection;
- INITIAL DIRECT TRANSFER message sent uplink to establish a signalling connection;
- UPLINK DIRECT TRANSFER message to transfer NAS messages for an existing signalling connection;
- CELL UPDATE message sent to respond to a UTRAN originated page;
- MEASUREMENT REPORT message sent to report uplink traffic volume;
- PUSCH CAPACITY REQUEST message sent to request PUSCH capacity (TDD only).

### 8.4.1 Measurement control



Figure 56: Measurement Control, normal case

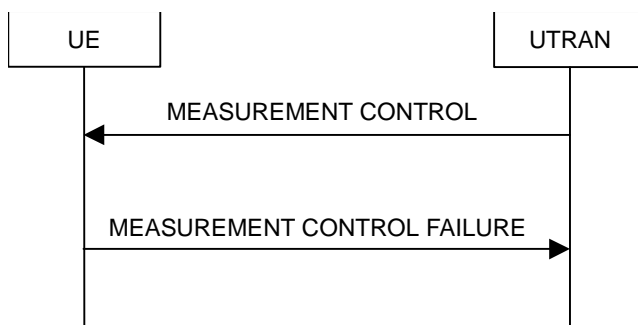


Figure 57: Measurement Control, failure case

#### 8.4.1.1 General

The purpose of the measurement control procedure is to setup, modify or release a measurement in the UE.

#### 8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is requested assigned to the UE.

When a new measurement is ~~created~~<sup>initiated</sup>, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", the measurement object or the list of measurement objects "Measurement object" can be set differently for each measurement with different "Measurement identity".

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to the value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than ~~modifying~~<sup>modified</sup> IEs, and the UE continues to use the current values of the IEs that are not modified.

### 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", possibly overwriting the measurement previously stored with that identity;
  - 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, and:
      - if the measurement is valid in the current RRC state of the UE: INDENT
        - begin measurements according to the stored control information for this measurement identity;
  - 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.  
[HANS, Identation changed]
- if the IE "Measurement command" has the value "modify": (NEED TO SHIFT THE BULLET AND THOSE UNDER IT LEFTWISE ONE LEVEL)
  - for all measurement control 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";
      - 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 not identified in IE "TGPSI" **(HANS, NEED TO SHIFT ON THE RIGHT ONE LEVEL (B2))**
- if the UE in CELL\_FACH state receives a MEASUREMENT CONTROL message, which indicates the same
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY; and

measurement identity as that stored in the variable MEASUREMENT\_IDENTITY:

  - refrain from updating the traffic volume measurement control information associated with this measurement identity received in System Information Block type 12 (or System Information Block type 11, according to 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.
- clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;
- and the procedure ends.

#### 8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the cause value in IE "failure cause" to "unsupported measurement";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;



- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.4a Configuration Incomplete

If the variable CONFIGURATION\_INCOMPLETE is set to TRUE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;
- clear the variable CONFIGURATION\_INCOMPLETE;
- set the cause value in IE "failure cause" to "Configuration incomplete";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.5 Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION;
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

#### 8.4.1.6 Measurements after transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state

The UE shall ~~obey~~ apply the following rules for different measurement types after transitioning from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state:

##### 8.4.1.6.1 Intra-frequency measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop intra-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;

- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type intra-frequency associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the UE receives the IE "Intra-frequency reporting quantity for RACH Reporting" and the IE "Maximum number of Reported cells on RACH" IEs from System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - use this information for reporting measured results in RACH messages.

#### 8.4.1.6.2 Inter-frequency measurement

Upon transition from CELL\_DCH to CELL\_FACH/ CELL\_PCH/URA\_PCH state, the UE shall:

- stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;
- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type inter-frequency associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- in CELL\_FACH state:
  - perform measurements on other frequencies according to the IE "FACH measurement occasion info".

#### 8.4.1.6.3 Inter-RAT measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop the inter-RAT type measurement reporting assigned in a MEASUREMENT CONTROL message;
- if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE; or
- if the transition is due to a reconfiguration message which does not included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), or
- if the transition is not due to a reconfiguration message:
  - delete the measurements of type inter-RAT associated with the variable MEASUREMENT\_IDENTITY.
- begin monitoring cells listed in the IE "inter-RAT" cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- in CELL\_FACH state:
  - perform measurements on other systems according to the IE "FACH measurement occasion info".

#### 8.4.1.6.4 Quality measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop quality type measurement reporting;
- delete all measurement control information of measurement type "quality" stored in the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.6.5 UE internal measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall:

- stop UE internal measurement type measurement reporting;
- delete all measurement control information of measurement type "UE internal" stored in the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.6.6 Traffic volume measurement

Upon transition from CELL\_DCH to CELL\_FACH/CELL\_PCH/URA\_PCH state, the UE shall ~~take the following actions. The UE shall:~~

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT\_IDENTITY; and
- if the optional IE "measurement validity" for this measurement has not been included:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL\_DCH":
  - stop measurement reporting;
  - ~~save~~store the measurement associated with the variable MEASUREMENT\_IDENTITY to be used after the next transition to CELL\_DCH state;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
  - continue measurement reporting;
- if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL\_DCH":
  - resume this measurement and associated reporting;
- if no traffic volume type measurements ~~applicable to valid in~~ applicable to valid in CELL\_FACH/CELL\_PCH/URA\_PCH states are stored in the variable MEASUREMENT\_IDENTITY:
  - store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT\_IDENTITY;
  - begin traffic volume measurement reporting according to the assigned information;
- ~~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 received in System Information Block type 12 (or System Information Block type 11, according to~~

8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.

#### 8.4.1.6.7 UE positioning measurement

TBD

#### 8.4.1.6a Actions in CELL\_FACH/CELL\_PCH/URA/PCH state upon cell re-selection

Upon cell reselection whilst in CELL\_FACH/CELL\_PCH/URA/PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

- delete the all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT\_IDENTITY.

#### 8.4.1.7 Measurements after transition from CELL\_FACH to CELL\_DCH state

The UE shall obey the following rules for different measurement types after transiting from CELL\_FACH to CELL\_DCH state:

##### 8.4.1.7.1 Intra-frequency measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH;
- if the UE has not performed a cell reselection whilst out of CELL\_DCH state:
  - resume the measurement reporting. [HANS, Identation changed]
- if the UE has performed a cell reselection whilst out of CELL\_DCH state and the cell reselection has occurred after the measurement control information was stored:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY.
- if no intra-frequency measurements applicable to CELL\_DCH state are stored in the variable MEASUREMENT\_IDENTITY:
  - continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
  - if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
    - send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for CELL\_DCH" are fulfilled;

##### 8.4.1.7.2 Inter-frequency measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- retrieve each set of measurement control information of measurement type "inter-frequency" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH":

- ~~— if the UE has not performed a cell reselection whilst out of CELL\_DCH state:~~
- resume the measurement reporting; **[HANS, Identation changed]**
- ~~— if the UE has performed a cell reselection whilst out of CELL\_DCH state and the cell reselection has occurred after the measurement control information was stored:~~
- ~~— delete the measurement associated with the variable MEASUREMENT\_IDENTITY.~~

#### 8.4.1.7.3 Inter-RAT measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency system info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11)
- retrieve each set of measurement control information of measurement type "inter-RAT" stored in the variable MEASUREMENT\_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL\_DCH":
  - resume the measurement reporting.

#### 8.4.1.7.4 Traffic volume measurement

Upon transition from CELL\_FACH to CELL\_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT\_IDENTITY;
- if the optional IE "measurement validity" for this measurement has not been included:
  - delete the measurement associated with the variable MEASUREMENT\_IDENTITY;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL\_DCH":
  - stop measurement reporting; and
  - save the measurement associated with the variable MEASUREMENT\_IDENTITY to be used after the next transition to CELL\_FACH/CELL\_PCH/URA\_PCH state;
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
  - continue measurement reporting;
- if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL\_DCH":
  - resume this measurement and associated reporting;
- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL\_DCH state:
  - continue an ongoing traffic volume type measurement, assigned in System Information Block type 11 ( or System Information Block type 12, according to subclause 8.1.1.6.11);
- if the UE in CELL\_DCH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in variable MEASUREMENT\_IDENTITY:
  - update the stored information with the traffic volume measurement control information in variable MEASUREMENT\_IDENTITY.

### 8.4.1.8 Measurements after transition from idle mode to CELL\_DCH state

The UE shall obey the following rules for different measurement types after transiting from idle mode to CELL\_DCH state:

#### 8.4.1.8.1 Intra-frequency measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- begin or continue monitoring the list of cells assigned in the IE "intra-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the "intra-frequency measurement reporting criteria" IE was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - begin measurement reporting according to the IE.

#### 8.4.1.8.2 Inter-frequency measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11).

#### 8.4.1.8.3 Inter-RAT measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- stop monitoring the list of cells assigned in the IE "inter-frequency system info" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11).

#### 8.4.1.8.4 Traffic volume measurement

Upon transition from idle mode to CELL\_DCH state, the UE shall:

- begin a traffic volume type measurement, assigned in System Information Block type 11 (or System Information Block type 12, according to subclause 8.1.1.6.11).

### 8.4.1.9 Measurements after transition from idle mode to CELL\_FACH state

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL\_FACH state:

#### 8.4.1.9.1 Intra-frequency measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- if the UE receives the IE "Intra-frequency reporting quantity for RACH Reporting" and IE "Maximum number of Reported cells on RACH" from System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):
  - use this information for reporting measured results in RACH messages.

#### 8.4.1.9.2 Inter-frequency measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);

- perform measurements on other frequencies according to the IE "FACH measurement occasion info".

#### 8.4.1.9.3 Inter-RAT measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- begin or continue monitoring cells listed in the IE "inter-RAT" cell info" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11);
- perform measurements on other systems according to the IE "FACH measurement occasion info".

#### 8.4.1.9.4 Traffic volume measurement

Upon transition from idle mode to CELL\_FACH state, the UE shall:

- store the measurement control information from the IE "Traffic volume measurements system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT\_IDENTITY;
- begin traffic volume measurement reporting according to the assigned information.

#### 8.4.1.9a Measurements after transition from connected mode to idle mode

Upon transition from connected mode to idle mode the UE shall:

- stop measurement reporting for all measurements stored in the variable MEASUREMENT\_IDENTITY;
- clear the variable MEASUREMENT\_IDENTITY;
- obey the follow rules for different measurement types.

##### 8.4.1.9a.1 Intra-frequency measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 11.

##### 8.4.1.9a.2 Inter-frequency measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 11.

##### 8.4.1.9a.3 Inter-RAT measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11);
- begin monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 11.

## 8.4.1.10 Measurements when measurement object is no longer valid

### 8.4.1.10.1 Traffic volume measurement

If UE is no longer using the transport channel that is specified in the IE "Traffic volume measurement object", UE shall ignore any measurements that are assigned to that transport channel. If none of the transport channels that are specified in "traffic volume measurement object" is being used, UE shall ~~release~~ ~~delete~~ that particular measurement and its measurement ID identity from the variable MEASUREMENT\_IDENTITY.

## 8.4.2 Measurement report



Figure 58: Measurement report, normal case

### 8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

### 8.4.2.2 Initiation

In CELL\_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are met for any ongoing measurements that are being performed in the UE.

In CELL\_FACH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are met for any ongoing traffic volume measurement that is being performed in the UE.

In TDD, if the Radio Bearer associated with the MEASUREMENT\_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL\_PCH or URA\_PCH state, the UE shall first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL\_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT\_IDENTITY are fulfilled for any ongoing traffic volume measurement which is being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or
- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was submitted to lower layers ~~transmitted~~ for a given measurement; or
- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT\_IDENTITY;



- set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT\_IDENTITY; and
- if all the reporting quantities are set to "false":
  - not set the IE "measured results";
- set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT\_IDENTITY of the measurement that triggered the measurement report; and
- if more than one additional measured results are to be included:
  - sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message;
- if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):
  - set the IE "Event results" according to the event that triggered the report.

The UE shall:

- transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

- the procedure ends.

### 8.4.3 Assistance Data Delivery



Figure 59 Assistance Data Delivery

#### 8.4.3.1 General

The purpose of the assistance data delivery procedure is to transfer UE positioning related assistance data from the UTRAN to the UE.

#### 8.4.3.2 Initiation

The UTRAN may deliver UE positioning related assistance data with a ASSISTANCE DATA DELIVERY message, which is transmitted on the downlink DCCH using AM RLC ~~if RNC is requested to do so by the CN.~~

#### 8.4.3.3 Reception of ASSISTANCE DATA DELIVERY message by the UE

Upon reception of a ASSISTANCE DATA DELIVERY message the UE shall:

- if IE "UE positioning OTDOA assistance data" is included:
  - store the OTDOA assistance data;

- if IE "UE positioning GPS assistance data" is included:
  - store the GPS assistance data.

#### 8.4.3.4 Invalid ASSISTANCE DATA DELIVERY message

If the UE receives a ASSISTANCE DATA DELIVERY message, which contains a protocol error causing the variable PROTOCOL\_ERROR\_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

- transmit an RRC STATUS message on the uplink DCCH using AM RLC;
- include the IE "Identification of received message"; and
- set the IE "Received message type" to ASSISTANCE DATA DELIVERY; and
- set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the ASSISTANCE DATA DELIVERY message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry;
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL\_ERROR\_INFORMATION.
- when the RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid ASSISTANCE DATA DELIVERY message has not been received.

### 8.6.7.11 Traffic Volume Measurement Reporting Criteria

If the IE "Traffic Volume Measurement Reporting Criteria" is received by the UE, the UE shall:

- store the content of the IE "Traffic Volume Measurement Reporting Criteria" to the variable MEASUREMENT\_IDENTITY.

If the IE "UL transport channel id" is not included, the UE shall:

- apply the measurement reporting criteria to all uplink transport channels indicated in the IE "Traffic volume measurement oObject";
- if the UTRAN has not specified a traffic volume measurement object for a given measurement identity:
  - apply the measurement reporting criteria to all uplink transport channels that are configured for the current UE state.

If the IE "Tx interruption after trigger" is included, the UE shall:

- block DTCH transmissions on the RACH during the time specified in the IE after a measurement report is transmitted.

### 10.3.7.13 Inter-frequency cell info list

Contains the information for the list of measurement objects information 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- <i>BCHopt</i>	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

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency <u>measurement objects</u> cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	CV- <i>reporting</i>		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	
<b>CHOICE <i>report criteria</i></b>	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

## 10.3.7.23 Inter-RAT cell info list

Contains the information for the list of measurement objects information 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	OP	1 to <maxCellMeas>		
>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			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>
Cell for measurement	OP	1 to <maxCellMeas>		
>Inter-RAT cell id	MP		Integer(0 .. <maxCellMeas> -1)	

10.3.7.27 Inter-RAT measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT <u>measurement object</u> cell info list	OP		Inter-RAT cell info list 10.3.7.23	Measurement object
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	
CHOICE <i>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

### 10.3.7.33 Intra-frequency cell info list

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Intra-frequency cell removal</i>	OP			
>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 cell	OP	1 to <maxCellMeas>		This information element must be present when "Intra-frequency cell info list" is included in the system information
>Intra-frequency cell id	MD		Integer(0 .. <maxCellMeas> - 1)	
>Cell info	MP		Cell info 10.3.7.2	
Cell 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



10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency <u>measurement object</u> cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object
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- <i>reporting</i>		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
CHOICE <i>report criteria</i>	OP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting 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