

**TSG-RAN Meeting #8  
Düsseldorf, Germany, 21 – 23 June 2000**

**RP-000222**

**Title:** Agreed CRs to TS 25.331 (1)

**Source:** TSG-RAN WG2

**Agenda item:** 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-001216	agreed	25.331	228	5	Downlink power control in compressed mode	C	3.2.0	3.3.0
R2-000823	agreed	25.331	260	1	Clarification on physical channel allocations in TDD	D	3.2.0	3.3.0
R2-000903	agreed	25.331	261	4	TDD Measurements and Reporting	C	3.2.0	3.3.0
R2-000996	agreed	25.331	262	4	Signalling of IEs related to System Information on FACH	F	3.2.0	3.3.0
R2-001113	agreed	25.331	265	3	Transport Format Combination Control	F	3.2.0	3.3.0
R2-001093	agreed	25.331	269	1	Signalling of partial failure in radio bearer related procedures	C	3.2.0	3.3.0
R2-000722	agreed	25.331	275		Clarification on PDCP info	C	3.2.0	3.3.0
R2-000731	agreed	25.331	279		Editorial modification on Transport Ch capability	D	3.2.0	3.3.0
R2-000732	agreed	25.331	280		Editorial modification on CN IE	D	3.2.0	3.3.0
R2-001227	agreed	25.331	281	3	Editorial modification on Physical CH IE	F	3.2.0	3.3.0
R2-001043	agreed	25.331	282	1	Editorial modification on ASN.1 description	F	3.2.0	3.3.0
R2-000974	agreed	25.331	283	1	IEs on SIB5/6	F	3.2.0	3.3.0
R2-001044	agreed	25.331	285	2	Re-establishment timer	C	3.2.0	3.3.0
R2-000918	agreed	25.331	286	1	CN DRX cycle coefficient	F	3.2.0	3.3.0
R2-000919	agreed	25.331	287	1	Cell Access Restriction	C	3.2.0	3.3.0
R2-000921	agreed	25.331	288	1	Cell selection and re-selection parameters	F	3.2.0	3.3.0
R2-001046	agreed	25.331	289	2	Modification on Measurement IE	C	3.2.0	3.3.0
R2-000975	agreed	25.331	291	1	RACH Transmission parameters	F	3.2.0	3.3.0
R2-000976	agreed	25.331	292	1	SCCPCH System Info	F	3.2.0	3.3.0
R2-000977	agreed	25.331	293	1	Addition of HFN for RRC CONNECTION RE-ESTABLISHMENT COMPLETE	F	3.2.0	3.3.0

# CHANGE REQUEST

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

**25.331 CR 228r5**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8**

List expected approval meeting # here ↑

for approval   
for information

strategic   
non-strategic  (for SMG use only)

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-05-24

**Subject:** Downlink power control in compressed mode

**Work item:**

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

**Reason for change:** The signalling of DeltaSIR and DeltaSIRafter for power control in compressed mode is already specified but it is not yet indicated how to use them in the specifications. Moreover, different values DeltaSIR and DeltaSIRafter are needed for each transmission gap of the transmission gap pattern when they have different lengths, which was not possible before.

**Clauses affected:** 10.3.6.22, 11.3.6,14.7

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

**Other comments:**

### **10.3.6.22 DPCH compressed mode info**

NOTE: Only for FDD

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGL	MP		Integer(1..15)	Transmission Gap length expressed in number of slots
CFN	MP		Integer(0..255)	Connection Frame Number when the first compressed frame starts
SN	MP		Integer(0..14)	Slot number when the transmission gap starts (within the CFN)
TGP1	MP		Integer(1..256)	The period of repetition of a set of consecutive frames containing up to 2 transmission gaps, for even gaps.
TGP2	MD		Integer(1..256)	For odd gaps. Default value is the value of TGP1
TGD	MP		Integer(0..35)	Transmission gap distance indicates the number of frames between two consecutive transmission gaps within a transmission gap period. If there is only one transmission gap in the transmission gap period, this parameter shall be set to zero.
PD	MP		Enumerated(1..35, Infinity)	The pattern duration is the total time of the compressed mode pattern (all consecutive TGPs) expressed in number of frames.
PCM	MP		Enumerated (mode 0, mode 1).	Power control mode during the frame after the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied
PRM	MP		Enumerated (mode 0, mode 1).	Power resume mode is the uplink power control algorithm to be used to compute the initial transmit power after the compressed mode gap.
UL/DL mode	MP		Enumerated (DL only, UL/DL)	Defines whether only DL or combined UL/DL compressed mode is used.
Compressed mode method	MP		Enumerated (puncturing, SF/2, upper layer scheduling, none)	Method for generating compressed mode gap None means that compressed mode pattern is stopped
Scrambling code change	CV SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
Downlink frame type	MP		Enumerated (A, B)	
DeltaSIR <sub>1</sub>	MP		Real(0..37.5 by step of 0.15)	Delta in DL SIR target value to be set in the UE during the compressed frames <a href="#">corresponding to the first</a>

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				<u>transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)</u>
<u>DeltaSIRafter1</u>	MP		Real(0.. <del>37.5</del> by step of 0. <del>15</del> )	Delta in DL SIR target value to be set in the UE one frame after the compressed frames <u>corresponding to the first transmission gap in the transmission gap pattern.</u>
<u>DeltaSIR2</u>	<u>OP</u>		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the <u>compressed frames corresponding to the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)</u> When omitted, <u>DeltaSIR2 = DeltaSIR1.</u>
<u>DeltaSIRafter2</u>	<u>OP</u>		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the compressed frames <u>corresponding to the second transmission gap in the transmission gap pattern.</u> When omitted, <u>DeltaSIRafter2 = DeltaSIRafter1.</u>

Condition	Explanation
<i>SF/2</i>	The information element is mandatory if the value of the "Compressed mode method" IE is "SF/2", otherwise the IE is not needed.

## 14.7 Downlink ~~outer loop~~ power control

### 14.7.1 Generalities

This function is implemented in the UE in order to set the SIR target value on each CCTrCH used for the downlink ~~inner loop~~ power control. This SIR value shall be adjusted according to an autonomous function in the UE in order to achieve the same measured quality as the quality target set by UTRAN. The quality target is set as the transport channel BLER value for each transport channel as signalled by UTRAN.

When transport channel BLER is used the UE shall run a quality target control loop such that the quality requirement is met for each transport channel, which has been assigned a BLER target.

The UE shall set the SIR target within the range allocated by the RNC when the physical channel has been set up or reconfigured. It shall not increase the SIR target value before the ~~inner loop~~ power control has converged on the current value. The UE may estimate whether the ~~inner loop~~ power control has converged on the current value, by comparing the averaged measured SIR to the SIR target value. If the UE has received a DL outer loop control message from UTRAN indicating that the SIR target value shall not be increased above the current value, it shall record the current value as the maximum allowed value for the ~~outer loop~~ power control function, until it receives a new DL outer loop control message from UTRAN indicating that the restriction is removed.

### 14.7.2 Downlink power control in compressed mode

In compressed mode, the target SIR needs to be changed during compressed frames and one frame after compressed frames (recovery frame), compared to normal mode. For this purpose, four values DeltaSIR1, DeltaSIRafter1, DeltaSIR2 and DeltaSIRafter2 are signalled by the UTRAN to the UE (see section 10.2.6.12).

For each frame, the target SIR offset during compressed mode, compared to normal mode is:

$$\Delta\text{SIR} = \max(\Delta\text{SIR1}_{\text{compression}}, \dots, \Delta\text{SIRn}_{\text{compression}}) + \Delta\text{SIR}_{\text{coding}}$$

where n is the number of TTI lengths for all TrChs of the CCTrCh,  $F_i$  is the length in number of frames of the i-th TTI and where  $\Delta\text{SIR}_{\text{coding}}$  fulfills:

- $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIR1}$  for compressed frames corresponding to the first transmission gap in the transmission gap pattern.
- $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIRafter1}$  for recovery frames corresponding to the first transmission gap in the transmission gap pattern.
- $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIR2}$  for compressed frames corresponding to the second transmission gap in the transmission gap pattern.
- $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIRafter2}$  for recovery frames corresponding to the second transmission gap in the transmission gap pattern.
- $\Delta\text{SIR}_{\text{coding}} = 0$  otherwise.

and  $\Delta\text{SIRi}_{\text{compression}}$  is defined by :

- If the frames are compressed by reducing the spreading factor by 2 (“Compressed mode method” IE is equal to “SF/2”):
  - $\Delta\text{SIRi}_{\text{compression}} = 3$  dB for each compressed frame, where TGL is the gap length in number of slots (either from one gap or a sum of gaps) in the frame.
  - $\Delta\text{SIRi}_{\text{compression}} = 0$  otherwise.
- If the frames are compressed by puncturing (“Compressed mode method” IE is equal to “puncturing”):

-  $\Delta\text{SIR}_i \text{ compression} = 10 \log (15 * F_i / (15 * F_i - \text{TGL}_i))$  if there is a transmission gap within the current TTI of length  $F_i$  frames, where  $\text{TGL}_i$  is the gap length in number of slots (either from one gap or a sum of gaps) in the current TTI of length  $F_i$  frames.

-  $\Delta\text{SIR}_i \text{ compression} = 0$  otherwise.

- If the frames are compressed by upper layer scheduling (“Compressed mode method” IE is equal to “upper layer scheduling”):

-  $\Delta\text{SIR}_i \text{ compression} = 0$  for all frames.

In the particular case where a transmission gap overlaps two frames (double-frame method), the second compressed frame (with the second part of the transmission gap) must be considered as the recovery frame ( $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIRafter1}$  or  $\Delta\text{SIR}_{\text{coding}} = \text{DeltaSIRafter2}$ ). Thus, in this case, the first frame following the two consecutive compressed frames is not considered as a recovery frame ( $\Delta\text{SIR}_{\text{coding}} = 0$ ).

Several compressed mode patterns applying to the same frames should be avoided as much as possible. In particular; several simultaneous patterns by puncturing applying to the same frames shall be considered as a protocol error by the UE. The handling of this error is described in the procedure descriptions in clause 8

In case a frame or TTI is simultaneously compressed by puncturing and by reduction of the spreading factor, or in case a frame is simultaneously a compressed frame in one pattern and a recovery frame in another pattern, all offsets must be added and the total target SIR offset is applied to the frame.

### 11.3.6 Physical channel information elements

```
DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl          TGL,
    cfn          CFN,
    sn           Timeslot,
    tgp1         TGP,
    tgp2         TGP,
    tgd          TGD,
    pd           PD,
    pcm          PCM,
    prm          PRM,
    ul-DL-Mode   UL-DL-Mode,
    compressedModeMethod CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType DL-FrameType,
    deltaSIR1    DeltaSIR,
    deltaSIRafter1 DeltaSIR,
    deltaSIR2    DeltaSIR,
    deltaSIRafter2 DeltaSIR,
    OPTIONAL,
}
```

Seoul, 10th April - 13th April

### 3G CHANGE REQUEST

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

**25.331 CR 260r1**

Current Version: **3.2.0**

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to **TSG-RAN#8** for approval  (only one box should be marked with an X)  
list TSG meeting no. here ↑ for information

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

**Proposed change affects:** USIM  ME  UTRAN  Core Network   
(at least one should be marked with an X)

**Source:** TSG-RAN WG2 **Date:** 03/04/2000

**Subject:** Clarification on physical channel allocations in TDD

**3G Work item:**

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

**Reason for change:** The way "Repetition period", "Repetition length" and "Offset" have to be interpreted for frame allocations in TDD was not clearly described

**Clauses affected:** 8.5.7.x new

<b>Other specs affected:</b>	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other 2G core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

**Other comments:**



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



8.5.7.6.x Repetition period, Repetition length, Offset

The following description applies to TDD only.

The frame allocation can be derived by following rules:

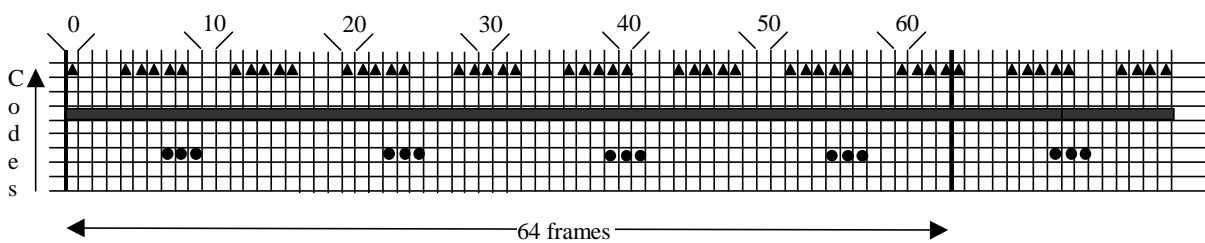
If no IE "Offset" is explicitly given the parameter "Offset" to be used is calculated by the following equation:

Activation time mod Repetition period = Offset.

Frames from CFN  $CFN_{off}$  to  $CFN_{off} + \text{Repetition length}$  belong to the allocation with  $CFN_{off}$  fulfilling the following equation:

$CFN_{off} \text{ mod Repetition period} = \text{Offset}.$

Example of usage:



- ▲ physic. channel (Code 7; Repetition period=8; Repetition length=5; Activation time = 4 => Offset = 4 =>  $CFN_{off} = 4, 12, 20, 28, 36, 44, 52, 60$ )
- physic. channel (Code 5; Repetition Period=1 => Repetition length=0; Offset = 0 =>  $CFN_{off} = 0, 1, 2, 3, 4, \dots$  (continuous allocation))
- physic. channel (Code 3; Repetition period=16; Repetition length=3; Activation time = 23 => Offset = 7 =>  $CFN_{off} = 7, 23, 39, 55$ )

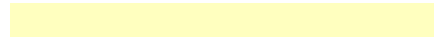
Figure 46a: Examples for frame allocations in TDD



O&M specifications



→ List of CRs:



**Other  
comments:**



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

## 10.3.7 Measurement Information elements

### 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
Reference time difference to cell	OP		Integer (-153088 ..153088 by step of 512)	In chips.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.43	Not required if measuring RSSI only
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.44	
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.42	
>>>DL CCTrCH info	OP			List of TFCS ID's to measure
>>>DL Timeslot info list	OP	1 to <maxTime slotCount>		List of timeslots to measure The UE shall report Timeslot ISCP values according to 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		Cell Selection and Re-selection Info 10.3.2.3	Only when sent in system information
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Qmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qmin for the serving cell
>>TDD				
>>> Qmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell
>Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
>CHOICE <i>signaling option</i>	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>Qoffset <sub>s,n</sub>	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.

>>Alternative 2				(no data) Used when Alternative 2 according to TS 25.304 of how offset parameters should be signalled
>HCS neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	

### 10.3.7.3 Cell measured results

Includes non frequency related measured results for a cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Identity	OP		Cell Identity 10.3.2.2	
SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>CPICH Ec/N0	OP		Enumerated(-20..0)	In dB
>>CPICH RSCP	OP		Enumerated(-115..-40)	In dBm
>>CPICH SIR	OP		Enumerated(-10..20)	In dB Note 1
>>Pathloss	OP		Enumerated(46..158)	In dB
>>CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	Note 2
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH RSCP	OP		<a href="#">Primary CCPCH RSCP 10.3.7.X</a>	
>>Pathloss	<u>OP</u>		Enumerated(46..158)	
<u>&gt;&gt;&gt;DL CCTrCH SIR</u>	<u>OP</u>	1 to <u>&lt;maxCCTrCHcount&gt;</u>		<u>SIR measurements for each DL CCTrCH</u>
<u>&gt;&gt;&gt;&gt;Timeslot</u>	<u>OP</u>	1 to <u>&lt;maxTS perCCTrCHcount&gt;</u>		<u>All timeslots on which the CCTrCH is mapped on</u>
<u>&gt;&gt;&gt;&gt;&gt;ISCP</u>	<u>OP</u>			
<u>&gt;&gt;&gt;&gt;&gt;RSCP</u>	<u>OP</u>			
<u>&gt;&gt;&gt;&gt;&gt;DL Timeslot ISCPlist</u>	<u>OP</u>	1 to <u>&lt;maxTimeslotS toMEASURE RE count&gt;</u>		<u>ISCP measurements for each timeslot indicated by the UTRAN</u>
<u>&gt;&gt;&gt;&gt;&gt;&gt;Timeslot ISCP</u>	<u>OMP</u>		<u>Timeslot ISCP Info 10.3.7.X</u>	<u>The UE shall report the Timeslot ISCP in the same order as indicated in the cell info</u>

Multi Bound	Explanation
<i>MaxCCTrCHcount</i>	Maximum number of DL CCTrCH allocated to an UE
<i>MaxTSperCCTrCHcount</i>	Maximum number of TS on which a single DL CCTrCH is mapped on
<i>MaxTimeslotTSmeasurecount</i>	Maximum number of TS on which the UE has to measure report Timeslot ISCP measurements

NOTE 1: If CPICH SIR can be used has not been concluded in WG4

NOTE 2: Feasibility of performing these measurements with compressed mode is unclear.

### 10.3.7.5 Cell reporting quantities

Includes non frequency related cell reporting quantities

For all boolean types TRUE means inclusion in the report is requested

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated( No report, type 1, type 2)	
Cell Identity	MP		Boolean	
CHOICE mode	MP			
>FDD				
>>CPICH Ec/N0	MP		Boolean	
>>CPICH RSCP	MP		Boolean	
>>CPICH SIR	MP		Boolean	Note 1
>>Pathloss	MP		Boolean	
>>CFN-SFN observed time difference	MP		Boolean	
>TDD				
>>DL CCTrCH SIR	MP		Boolean	
>>Timeslot ISCP	MP		Boolean	
>>Primary CCPCH RSCP	MP		Boolean	
>>Pathloss	MP		Boolean	

Note 1: If CPICH SIR can be used has not been concluded in WG4

### 10.3.7.34 Intra-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Enumerated (1a,1b,1c,1d, 1e,1f,1g,1h,1i,1j)	

## 10.3.7.38 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE mode	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(C PICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP  If used in Inter system measurement quantity only Ec/N0 an RSCP is allowed. If used in inter-frequency measurement quantity RSSI is not allowed. Note 1
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Pr imary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP If used in inter-frequency measurement quantity RSSI is not allowed.

Note 1: If CPICH SIR can be used has not been concluded in WG4



## 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: DL CCTrCH below a certain threshold (TDD only)~~

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

Event 1*j*: 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 <maxEvent count>		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition	CV == clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells that can trigger the event
>Reporting Range	CV == clause 1		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 <maxCells Forbidden>		In event 1a,1b
>>CHOICE mode	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>W	CV – clause 1		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	CV == clause 2		Real(0..7.5 by step of 0.5)	In dB. In event 1a, 1b, 1c,1d, 1g, 1 <i>h</i> , <del>or 1i-1j</del> .
>Reporting deactivation threshold	CV == clause 3		Enumerated(not applicable, 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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Replacement activation threshold	CV <u>  </u> clause 4		Enumerated( not applicable, 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.
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	MP		Enumerated( 1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is <u>  </u> "released" <u>  </u> after the indicated amount of reporting from the UE itself.
>Reporting interval	MP		Enumerated( no periodical reporting, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in seconds

Condition	Explanation
<i>Clause 0</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1 <sup>e</sup> " or "1f", otherwise the IE is not needed
<i>Clause 1</i>	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
<i>Clause 2</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1c", "1d", "1g", "1h", "1i" or "1j", otherwise the IE is not needed
<i>Clause 3</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
<i>Clause 4</i>	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed

Multi Bound	Explanation
<i>MaxEventCount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>MaxCellsForbidden</i>	Maximum number of cells that can be forbidden to affect reporting range

NOTE 1: When best PCCPCH in active set changes, all active cells are reported.

## 10.3.7.42 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated( No report, type 1, type 2)	
CHOICE <i>mode</i>	MP			
>FDD				
>>Reporting quantity	MP		Enumerated( CPICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, No report)	Note 1
>TDD				
>>Reporting quantity list	MP	1 to 2		
>>>Reporting quantity	MP		Enumerated( Timeslot ISCP, Primary CCPCH RSCP, No report)	

NOTE 1: If CPICH SIR can be used has not been concluded in WG4

## 10.3.7.69 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" **FDD** cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Measurement	MP			
>Intra-frequency measured results list			Intra-frequency measured results list 10.3.7.35	
>Inter-frequency measured results list			Inter-frequency measured results list 10.3.7.15	
>Inter-system measured results list			Inter-system measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.93	
>Quality measured results list			Quality measured results list 10.3.7.79	
>UE Internal measured results			UE Internal measured results 10.3.7.102	
>LCS measured results			LCS measured results 10.3.7.56	

## 10.3.7.70 Measured results on RACH

Contains the measured results on RACH of the quantity indicated optionally by Reporting Quantity in the system information broadcasted on BCH. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" **FDD** cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE <i>mode</i>	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot List	OP	1 to 14		
>>Timeslot ISCP	OP/MP		Timeslot ISCP info 10.3.7.x	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.x	
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	It is absent for current cell
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>CHOICE measurement quantity	OP			It is absent for current cell
>>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.x	It is absent for current cell

NOTE 1: If CPICH SIR can be used has not been concluded in WG4

Note 2: Monitored cells consist of current cell and neighbouring cells.

## 10.3.7.79 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to <MaxBLER >		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>DL Transport Channel BLER	OP		Real(0.00 ..5.10, by step of 0.02)	In dB= -Log10(Transport channel BLER)
<u>CHOICE mode</u>				
<u>&gt;FDD</u>				
<u>&gt;&gt;SIR</u>	OP		Integer(-10..20)	In dB
<u>&gt;TDD</u>				
<u>&gt;&gt;SIR measurement results</u>	<u>OP</u>	<u>1 to &lt;MaxCCTrCHcount&gt;</u>		<u>SIR measurements for DL CCTrCH</u>
<u>&gt;&gt;&gt;TFCS ID</u>	<u>MP</u>		<u>Enumerated (1..8)</u>	
<u>&gt;&gt;&gt;Timeslot list</u>	<u>MP</u>	<u>1 &lt;MaxTime slotCount&gt;</u>		<u>for all timeslot on which the CCTrCH is mapped on</u>
<u>&gt;&gt;&gt;&gt;SIR</u>	<u>MP</u>		<u>Integer(-10...20)</u>	<u>the UE shall report in ascending timeslot order</u>

Multi Bound	Explanation
<i>MaxBLER</i>	Maximum number of transport channels with BLER measurements that can be included in a measurement report
<u>MaxCCTrCH</u>	<u>Maximum number of CCTrCHs for which SIR measurements can be included in a measurement report</u>
<u>MaxTimeslot</u>	<u>Maximum number of timeslots on which a specific CCTrCH is mapped on</u>

## 10.3.7.86 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <MaxBLER >		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
<u>CHOICE mode</u>				
<u>&gt;FDD</u>				
<u>&gt;&gt;SIR</u>	MP		Boolean	TRUE means report requested
<u>&gt;TDD</u>				
<u>&gt;&gt;SIR measurement list</u>	<u>OP</u>	<u>1 to &lt;MaxCCTrCHcount&gt;</u>		<u>SIR measurements shall be reported for all listed TFCS IDs</u>
<u>&gt;&gt;&gt;TFCS ID</u>	<u>MP</u>		<u>Enumerated (1..8)</u>	

Multi Bound	Explanation
<i>MaxBLER</i>	Maximum number of transport channels with BLER measurements that can be included in a measurement report
<u>MaxCCTrCH</u>	<u>Maximum number of CCTrCHs for which SIR measurements can be included in a measurement report</u>

Condition	Explanation
<i>BLER reporting</i>	This information element is absent if 'DL Transport Channel BLER' is 'No' and optional, if 'DL Transport Channel BLER' is 'Yes'

10.3.7.102 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		Real(-50..33)	UE transmitted power In dBm
>>UE Rx-Tx report entries	OP	1 to <maxUsedRLcount>		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference	MP		UE Rx-Tx time difference 10.3.7.109	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE transmitted Power <u>list</u>	OP	1 to <maxUsedUpITScout>		UE transmitted power for each used <u>uplink timeslot</u> <del>(TDD)</del> <u>in ascending timeslot number order</u>
<u>&gt;&gt;&gt;UE transmitted power</u>	<u>MP</u>		<u>UE transmitted power info 10.3.7.x</u>	
<u>&gt;&gt;Applied TA</u>	<u>OP</u>		<u>Uplink Timing Advance 10.3.6.69</u>	

Multi Bound	Explanation
<i>MaxUsedRLcount</i>	Maximum number of radio links that can be included in a measurement report for Rx-Tx time difference
<i>MaxUsedUpITScout</i>	Maximum number of TS used for UL transmission

10.3.7.105 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE mode</u>	<u>MP</u>			
<u>&gt;FDD</u>				
<u>&gt;&gt;Measurement quantity</u>	MP		Enumerated( UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	
<u>&gt;TDD</u>				
<u>&gt;&gt;Measurement quantity</u>	<u>MP</u>		<u>Enumerated( UE Transmitted Power, UTRA Carrier RSSI)</u>	
Filter coefficient	MP		Filter coefficient 10.3.7.9	

### 10.3.7.x Primary CCPCH RSCP info

NOTE: Only for TDD

<u>Information Element</u>	<u>Presence</u>	<u>Multi</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Primary CCPCH RSCP</u>	<u>MP</u>		<u>Enumerated (-115, -114 ... -25)</u>	<u>Granularity 1dB</u>

### 10.3.7.x Timeslot ISCP info

NOTE: Only for TDD

<u>Information Element</u>	<u>Presence</u>	<u>Multi</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Timeslot ISCP</u>	<u>MP</u>		<u>Enumerated (-115, -114 ... -25)</u>	<u>Granularity 1dB</u>

### 10.3.7.x UE Transmitted Power info

<u>Information Element</u>	<u>Presence</u>	<u>Multi</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>UE Transmitted Power</u>	<u>MP</u>		<u>Enumerated (-50, -49 ... 33)</u>	<u>Granularity 1dB</u>

#### 10.3.7.108 UE Internal reporting quantity

For all boolean types TRUE means inclusion in the report is requested



Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Transmitted Power	MP		Boolean	
>CHOICE mode	MP			
>>FDD				
>>>UE Rx-Tx time difference	MP		Boolean	
>>TDD				
>>>Applied TA	MP		Boolean	

## 14 Specific functions

### 14.1 Intra-frequency measurements

#### 14.1.1 Intra-frequency measurement quantities

- 1 Downlink  $E_c/I_0$  (chip energy per total received channel power density)
- 2 Downlink path loss.
- 3 Downlink received signal code power (RSCP) after despreading.
- 4 Downlink signal-to-interference ratio (SIR) after despreading on a specific DL physical channel (RSCP/ISCP)

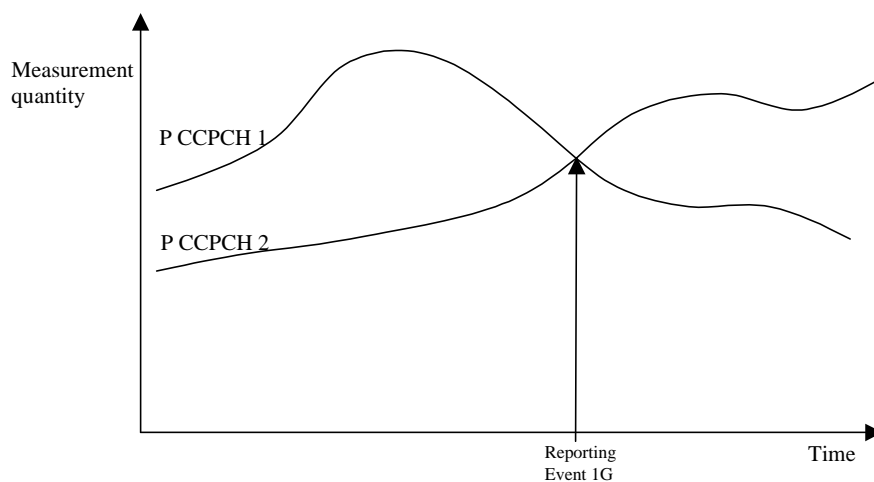
NOTE: If CPICH SIR can be used has not been concluded in TSG-RAN WG4

~~5 Averaged signal-to-interference ratio (SIR) for all DL codes belonging to one TS and to one CCTrCH~~

~~65 ISCP measured on Timeslot basis~~

#### 14.1.3 Intra-frequency reporting events for TDD

##### 14.1.3.1 Reporting event 1G: Change of best cell



**Figure 52: A primary CCPCH becomes better than the previous best primary CCPCH**

If any of the primary CCPCHs becomes better than the previously best primary CCPCH, and event 1G has been ordered by UTRAN then this event shall trigger a report to be sent from the UE. The corresponding report contains (at least) the new best primary CCPCH.

14.1.3.2 DL CCTrCH below a certain threshold

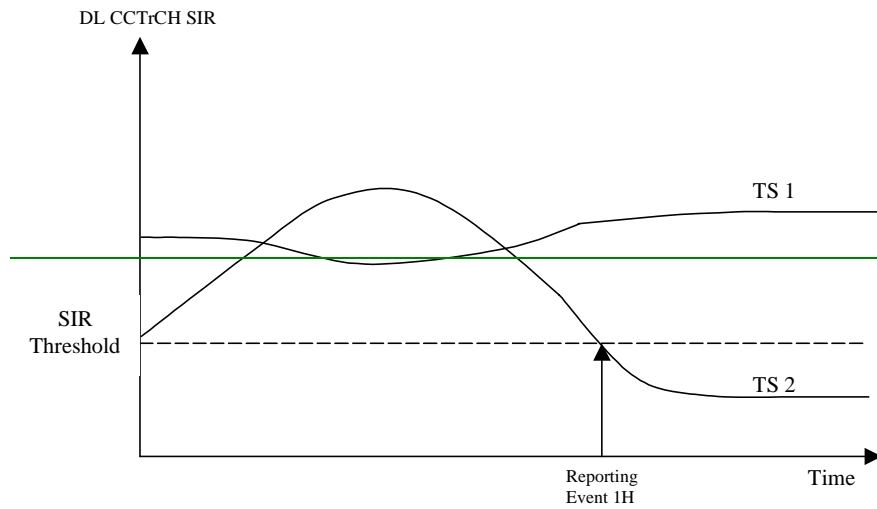


Figure 53: A SIR value of a timeslot becomes worse than an absolute threshold

14.1.3.3 Reporting event 1H: Timeslot ISCP below a certain threshold

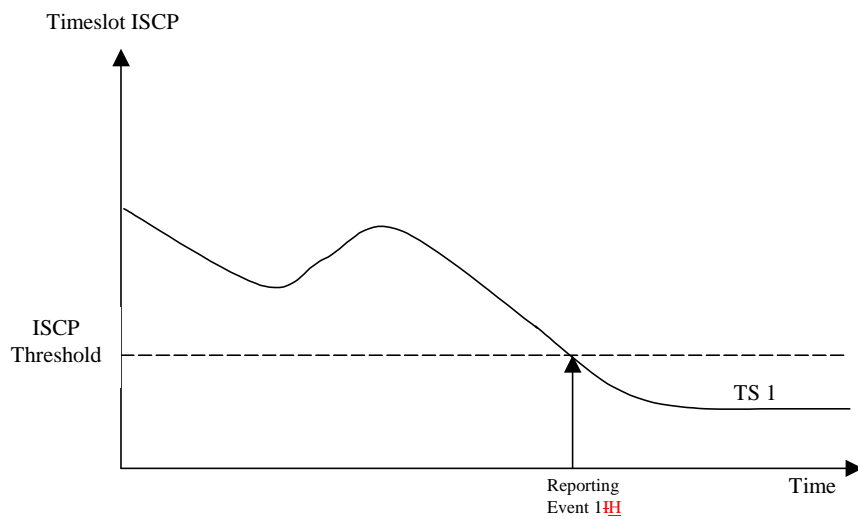


Figure 54: An ISCP value of a timeslot becomes worse than an absolute threshold

### 14.1.3.4 Reporting event 1I: Timeslot ISCP above a certain threshold

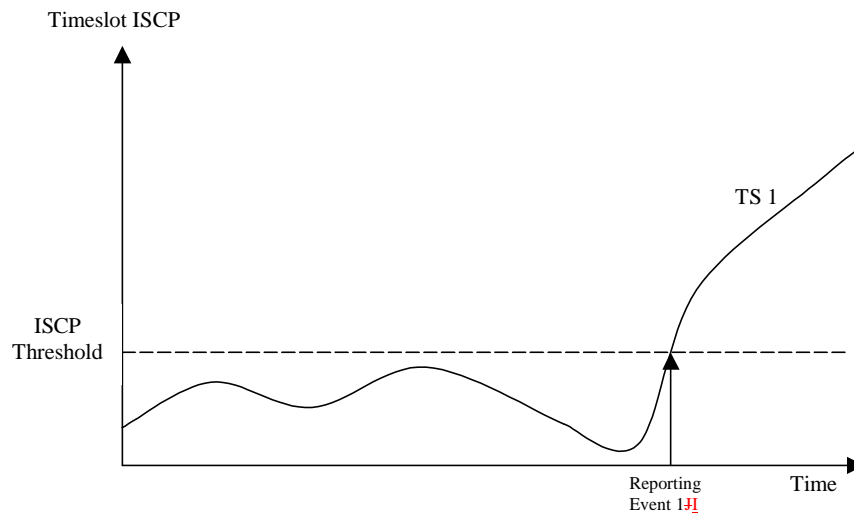


Figure 55: An ISCP value of a timeslot becomes better than a certain threshold

## 14.1.4 Event-triggered periodic intra-frequency measurement reports

### 14.1.4.3 Timeslot replacement failure (TDD only)

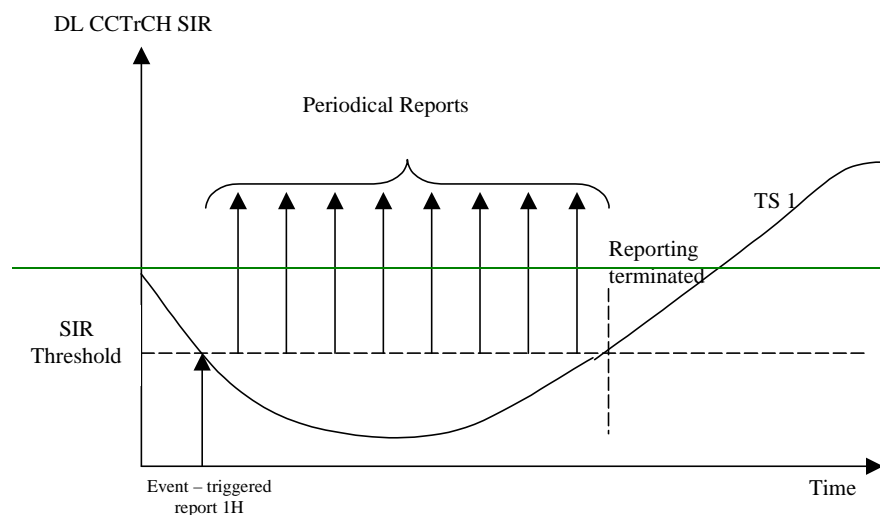


Figure 58: Periodic reporting triggered by event 1H

When the averaged SIR value of one timeslot belonging to a DL CCTrCH triggers event 1H, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result to a change of the used downlink timeslots. However, in some situations the DCA algorithm in the UTRAN can not change the timeslots due to capacity shortage for example.

The UE shall continue reporting after the initial report by reverting to periodical measurements reporting, see Figure 58. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to UTRAN at predefined intervals. The report shall include interference measurements of selected downlink timeslots of the current cell to support the DCA algorithm.

The event triggered periodic measurement reporting shall be terminated either when the DCA algorithm has replaced the worse downlink timeslot or when the reason for the event 1H, which has triggered the periodical measurement reporting, are not given anymore.

The reporting period is assigned by the UTRAN. If the reporting period is set to zero event triggered periodic measurements reporting shall not be applied.

## 14.2 Inter-frequency measurements

The frequency quality estimate used in events 2a, 2b 2c, 2d and 2e is defined as

$$Q_{carrier\ j} = 10 \cdot \text{Log}M_{carrier\ j} = W_j \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_{A_j}} M_{i\ j} \right) + (1 - W_j) \cdot 10 \cdot \text{Log}M_{Best\ j},$$

The variables in the formula are defined as follows:

$Q_{frequency\ j}$  is the estimated quality of the active set on frequency j

$M_{frequency\ j}$  is the estimated quality of the active set on frequency j.

$M_{i\ j}$  is a measurement result of cell i in the active set on frequency j.

$N_{A_j}$  is the number of cells in the active set on frequency j.

$M_{Best\ j}$  is the measurement result of the strongest cell in the active set on frequency j

$W_j$  is a parameter sent from UTRAN to UE and used for frequency j

### 14.2.1 Inter-frequency reporting events for FDD

Within the measurement reporting criteria field in the MEASUREMENT CONTROL message UTRAN notifies the UE which events should trigger the UE to send a MEASUREMENT REPORT message. Examples of inter-frequency reporting events that would be useful for inter-frequency handover evaluation are given below. Note that normally the UEs do not need to report all these events. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All events are evaluated with respect to one of the measurement quantities given in section 14.x.x. The measurement objects are the monitored primary common pilot channels (CPICH) in FDD mode and the monitored primary common control channels (PCCPCH) in TDD mode. A "non-used frequency" is a frequency that the UE have been ordered to measure upon but are not used of the active set. A "used frequency" is a frequency that the UE have been ordered to measure upon and is also currently used for the connection.

#### 14.2.1.1 Event 2a: Change of best frequency.

If any of the non- used frequencies quality estimate becomes better than the currently used frequency quality estimate, and event 2a has been ordered by UTRAN then this event shall trigger a report to be sent from the UE when the hysteresis and time to trigger conditions is fulfilled. The corresponding report contains (at least) the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency that triggered the event.

#### 14.2.1.2 Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains at least the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency that triggered the event.

#### 14.2.1.3 Event 2c: The estimated quality of a non-used frequency is above a certain threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains at least the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency.

#### 14.2.1.4 Event 2d: The estimated quality of the currently used frequency is below a certain threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains at least the best primary CPICH (FDD) or primary CCPCH (TDD) on the used frequency.

#### 14.2.1.5 Event 2e: The estimated quality of a non-used frequency is below a certain threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of a non-used frequency is below the value of the IE "Threshold non-used frequency" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains at least the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency.

#### 14.2.1.6 Event 2 f: The estimated quality of the currently used frequency is above a certain threshold

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of the currently used frequency is above the value of the IE "Threshold used frequency" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains at least the best primary CPICH (FDD) or primary CCPCH (TDD) on the used frequency.

### 14.3 Inter-system measurements

The estimated quality of the active set in UTRAN in events 3a is defined as

$$Q_{UTRAN} = 10 \cdot \text{Log} M_{UTRAN} = W \cdot 10 \cdot \text{Log} \left( \sum_{i=1}^{N_A} M_i \right) + (1 - W) \cdot 10 \cdot \text{Log} M_{Best},$$

The variables in the formula are defined as follows:

$Q_{UTRAN}$  is the estimated quality of the active set on the currently used UTRAN frequency

$M_{UTRAN}$  is the estimated quality of the active set on currently used UTRAN frequency expressed in another unit.

$M_i$  is a measurement result of cell  $i$  in the active set.

$N_A$  is the number of cells in the active set.

$M_{Best}$  is the measurement result of the strongest cell in the active set.

$W$  is a parameter sent from UTRAN to UE

#### 14.3.1 Inter-System reporting events for FDD

Within the measurement reporting criteria field in the MEASUREMENT CONTROL message the UTRAN notifies the UE which events should trigger the UE to send a MEASUREMENT REPORT message. Examples of inter-system reporting events that would be useful for inter-system handover evaluation are given below. Note that normally the UEs do not need to report all these events. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All events are measured with respect to one of the measurement quantities given in section 14.x.x The measurement objects are the monitored primary common pilot channels (CPICH) in FDD mode and the monitored primary common control channels (PCCPCH) in TDD mode for UTRAN and objects specific for other systems. A "used UTRAN frequency" is a frequency that the UE have been ordered to measure upon and is also currently used for the connection to UTRAN. "Other system" is e.g. GSM.

- 14.3.1.1 Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of the currently used frequency is below the value of the IE "Threshold own system" and the hysteresis and time to trigger conditions are fulfilled and the estimated quality of the other system is above the value of the IE "Threshold other system" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains information specific for the other system and the best primary CPICH (FDD) or primary CCPCH (TDD) on the used frequency.

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

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the estimated quality of the other system is below the value of the IE "Threshold other system" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains information specific for the other system and the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency.

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

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the estimated quality of the other system is above the value of the IE "Threshold other system" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains information specific for the other system and the best primary CPICH (FDD) or primary CCPCH (TDD) on the non-used frequency.

- 14.3.1.4 Event 3d: Change of best cell in other system

If any of the quality estimates for the cells in the other system becomes better than the quality estimate for the currently best cell in the other system, and event 3d has been ordered by UTRAN then this event shall trigger a report to be sent from the UE when the hysteresis and time to trigger conditions is fulfilled. The corresponding report contains (at least) information the best cell in the other system.

## 11.3.7 Measurement information elements

Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CellIdentity  
FROM UTRANMobility-IEs

DRX-CycleLengthCoefficient  
FROM UserEquipment-IEs

RB-Identity  
FROM RadioBearer-IEs

TransportChannelIdentity,  
TFCS-Identity  
FROM TransportChannel-IEs

BurstType,  
FrequencyInfo,  
MaxAllowedUL-TX-Power,  
PrimaryCCPCH-Info,  
PrimaryCCPCH-TX-Power,  
PrimaryCPICH-Info,  
PrimaryCPICH-TX-Power,  
Timeslot,

UL-TimingAdvance  
FROM PhysicalChannel-IEs

BSIC  
FROM Other-IEs

maxAdditionalMeas,  
maxAddRLcount,  
maxBLER,  
maxCCTrCHcount,  
maxCellCount,  
maxCellsForbidden,  
maxDelRLcount,  
maxEventCount,  
maxFreqCount,  
maxInterCells,  
maxInterRAT,  
maxInterSys,  
maxInterSysCells,  
maxIntraCells,  
maxN-BadSAT,  
maxN-SAT,  
maxNoCells,  
maxNonUsedFrequency,  
maxNumFreq,  
maxTraff,  
maxTrCHcount,  
maxTSperCCTrCHcount,  
maxTStoMeasureCount,  
maxUsedRLcount,  
maxUsedUplTScout  
FROM Constant-definitions;

```
AcquisitionSatInfo ::=                               SEQUENCE {
  satID                                             INTEGER (0..63),
  doppler0thOrder                                 INTEGER (-2048..2047),
  extraDopplerInfo                               OPTIONAL,
  codePhase                                       INTEGER (0..1022),
  integerCodePhase                               INTEGER (0..19),
  gps-BitNumber                                  INTEGER (0..3),
  codePhaseSearchWindow                         CodePhaseSearchWindow,
  azimuthAndElevation                           AzimuthAndElevation                               OPTIONAL
}
```

```
AcquisitionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
  AcquisitionSatInfo
```

```
ActiveSetCellReport ::= ENUMERATED {
  includeAll,
  excludeAll,
```

```

                                other }

-- **TODO**, definition to be checked from TS 09.31
AdditionalAssistanceData ::=      SEQUENCE {
}

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                MeasurementIdentityNumber

AlmanacSatInfo ::=              SEQUENCE {
    satID                        INTEGER (0..63),
    deltaI                        BIT STRING (SIZE (16)),
    e                            BIT STRING (SIZE (16)),
    m0                           BIT STRING (SIZE (24)),
    a-Sqrt                       BIT STRING (SIZE (24)),
    omega0                       BIT STRING (SIZE (24)),
    omegaDot                     BIT STRING (SIZE (16)),
    omega                        BIT STRING (SIZE (24)),
    af0                          BIT STRING (SIZE (11)),
    af1                          BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=          SEQUENCE (SIZE (1..maxN-SAT)) OF
                                AlmanacSatInfo

AverageRLC-BufferPayload ::=    ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k }

AzimuthAndElevation ::=        SEQUENCE {
    azimuth                      INTEGER (0..31),
    elevation                    INTEGER (0..7)
}

BadSatList ::=                  SEQUENCE (SIZE (1..maxN-BadSAT)) OF
                                INTEGER (0..63)

BCCH-ARFCN ::=                  INTEGER (0..1023)

BLER-MeasurementResults ::=     SEQUENCE {
    transportChannelIdentity      TransportChannelIdentity,
    dl-TransportChannelBLER       DL-TransportChannelBLER           OPTIONAL
}

BLER-MeasurementResultsList ::= SEQUENCE (SIZE(1..maxBLER)) OF
                                BLER-MeasurementResults

BLER-TransChIdList ::=          SEQUENCE (SIZE (1..maxBLER)) OF
                                TransportChannelIdentity

-- IE value 0 = true value -0.05, IE value 16 = true value -0.003125,
-- IE value 17 = true value 0.003125, IE value 32 = true value 0.05
BTS-ClockDrift ::=              INTEGER (0..31)

BurstModeParameters ::=         SEQUENCE {
    burstStart                    INTEGER (0..15),
    burstLength                  INTEGER (10..25),
    burstFreq                    INTEGER (1..16)
}

CCTrCH-Timeslot ::=             SEQUENCE {
    iscp                          DL-TimeslotISCP           OPTIONAL,
    rscp                          RSCP                       OPTIONAL
}

CCTrCH-TimeslotList ::=         SEQUENCE (SIZE(1..maxTSperCCTrCHcount)) OF
                                CCTrCH-Timeslot

CellDCH-ReportCriteria ::=      CHOICE {
    intraFreqReportingCriteria    IntraFreqReportingCriteria,
    periodicalReportingCriteria   PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=        INTEGER (-20..20)

CellInfo ::=                     SEQUENCE {
    cellIndividualOffset          CellIndividualOffset           DEFAULT 1,
    referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell   OPTIONAL,
    modeSpecificInfo              CHOICE {

```



```

    fdd
        primaryCPICH-Info
        primaryCPICH-TX-Power
        readSFN-Indicator
        tx-DiversityIndicator
    },
    tdd
        primaryCCPCH-Info
        primaryCCPCH-TX-Power
        dl-CCTrCH-Info
        dl-tTimeslotInfoList
    }
}

CellInfoSI ::=
    cellIndividualOffset
    referenceTimeDifferenceToCell
    modeSpecificInfo
        fdd
            primaryCPICH-Info
            primaryCPICH-TX-Power
            readSFN-Indicator
            tx-DiversityIndicator
        },
        tdd
            primaryCCPCH-Info
            primaryCCPCH-TX-Power
            dl-CCTrCH-Info
            dl-tTimeslotInfoList
    },
    cellSelectionReselectionInfo
    signallingOption
}

CellMeasuredResults ::=
    cellIdentity
    sfn-SFN-ObsTimeDifference
    modeSpecificInfo
        fdd
            primaryCPICH-Info
            cpich-Ec-N0
            cpich-RSCP
            cpich-SIR
            pathloss
            cfn-SFN-ObsTimeDifference
        },
        tdd
            primaryCCPCH-Info
            primaryCCPCH-RSCP
            pathloss
            dl-CCTrCH-SIR-List
            dl-tTimeslotISCP-List
    }
}

CellMeasurementEventResults ::=
    fdd
        SEQUENCE (SIZE (1..maxCellCount)) OF
            PrimaryCPICH-Info,
    tdd
        SEQUENCE (SIZE (1..maxCellCount)) OF
            PrimaryCCPCH-Info
}

CellPosition ::=
    relativeNorth
    relativeEast
    relativeAltitude
}

CellReportingQuantities ::=
    sfn-SFN-OTD-Type
    cellIdentity
    modeSpecificInfo
        fdd
            cpich-Ec-N0
            cpich-RSCP
            cpich-SIR
            pathloss
            cfn-SFN-ObsTimeDifference
        }
}

```

```

    },
    tdd
}
}
}

CellSelectionReselectionInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd Qmin-FDD,
        tdd Qmin-TDD
    } OPTIONAL,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    signallingOption SignallingOption OPTIONAL
}

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

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

CellToReport ::= SEQUENCE {
    frequency Frequency,
    bsic BSIC
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellCount)) OF
    CellToReport

CFN-SFN-ObsTimeDifference ::= INTEGER (0..9830399)

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
    w12, w16, w24, w32, w48, w64,
    w96, w128, w192 }

CompressedNavModel ::= SEQUENCE {
    iode BIT STRING (SIZE (4)),
    t-oe BIT STRING (SIZE (7)),
    c-rc BIT STRING (SIZE (12)),
    c-rs BIT STRING (SIZE (12)),
    c-ic BIT STRING (SIZE (9)),
    c-is BIT STRING (SIZE (9)),
    c-uc BIT STRING (SIZE (11)),
    c-us BIT STRING (SIZE (11)),
    e BIT STRING (SIZE (16)),
    m0 BIT STRING (SIZE (22)),
    a-Sqrt BIT STRING (SIZE (13)),
    delta-n BIT STRING (SIZE (11)),
    omega0 BIT STRING (SIZE (14)),
    omegaDot BIT STRING (SIZE (12)),
    i0 BIT STRING (SIZE (15)),
    iDot BIT STRING (SIZE (11)),
    omega BIT STRING (SIZE (21)),
    t-oc BIT STRING (SIZE (7)),
    af0 BIT STRING (SIZE (7)),
    af1 BIT STRING (SIZE (3)),
    af2 BIT STRING (SIZE (1))
}

CPICH-Ec-N0 ::= INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::= INTEGER (0..26)

CPICH-RSCP ::= INTEGER (-115..-40)

CPICH-SIR ::= INTEGER (-10..20)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID INTEGER (0..63),

```

```

    iode                BIT STRING (SIZE (8)),
    udre                UDRE,
    prc                 INTEGER (-2048..2048),
    rrc                 INTEGER (-125..125),
    deltaPRC2           INTEGER (-127..127),
    deltaRRC2           INTEGER (-7..7),
    deltaPRC3           INTEGER (-127..127),
    deltaRRC3           INTEGER (-7..7)
}

DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-CorrectionSatInfo

DGPS-Information ::= SEQUENCE {
    satID                SatID,
    iode                 IODE,
    udre                 UDRE,
    scaleFactor          ScaleFactor,
    prc                  PRC,
    rrc                  RRC
}

DGPS-InformationList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-Information

DiffCorrectionStatus ::= ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- **TODO**, not defined yet
DL-CCTrCH-Info ::= SEQUENCE {
}

DL-CCTrCH-SIR ::= SEQUENCE {
    ccTrCH-TimeslotList
}

DL-CCTrCH-SIR-List ::= SEQUENCE (SIZE(1..maxCCTrCHcount)) OF
    DL-CCTrCH-SIR

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

-- **TODO**, not defined yet
DL-TimeslotInfo ::= SEQUENCE {
}

-- **TODO**, not defined yet
DL-TimeslotISCP ::= SEQUENCE {
}

DL-TimeslotISCP-List ::= SEQUENCE (SIZE(1..maxTStoMeasureCount)) OF
    DL-TimeslotISCP

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

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

EnvironmentCharacterization ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined }

Eventla ::= SEQUENCE {
    triggeringCondition    TriggeringCondition,
    reportingRange         ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList,
    w                      W,
    hysteresis              Hysteresis OPTIONAL,
    reportDeactivationThreshold ReportDeactivationThreshold
}

Eventlb ::= SEQUENCE {
    triggeringCondition    TriggeringCondition,
    reportingRange         ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList,
    w                      W,
    hysteresis              Hysteresis OPTIONAL
}

```

```

}

Event1c ::=
    hysteresis
    replacementActivationThreshold
}
SEQUENCE {
    Hysteresis
    ReplacementActivationThreshold
}
OPTIONAL,

Event2a ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
}
OPTIONAL

Event2b ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
}
OPTIONAL

Event2c ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
}
OPTIONAL

Event2d ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event2e ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
}
OPTIONAL

Event2f ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event3a ::=
    thresholdOwnSystem
    w
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event3b ::=
    thresholdOtherSystem
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    Hysteresis,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event3c ::=
    thresholdOtherSystem
}
SEQUENCE {
    Threshold,
}

```

```

    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}

Event3d ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}

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

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

EventIDIntraFreq ::=
    ENUMERATED {
        e1a, e1b, e1c, e1d, e1e,
        e1f, e1g, e1h, e1i, e1j }

EventIDTrafficVolume ::=
    ENUMERATED {
        e4a, e4b }

EventResults ::=
    CHOICE {
        intraFreqEventResults
        interFreqEventResults
        interSystemEventResults
        trafficVolumeEventResults
        qualityEventResults
        ue-InternalEventResults
        lcs-MeasurementEventResults
    }

ExtraDopplerInfo ::=
    SEQUENCE {
        doppler1stOrder
        dopplerUncertainty
    }

FACH-MeasurementOccasionInfo ::=
    SEQUENCE {
        k-UTRA
        otherRAT-InSysInfoList
    }

FilterCoefficient ::=
    ENUMERATED {
        fc1, fc2, fc3, fc4, fc6, fc8,
        fc12, fc16, fc24, fc32, fc64,
        fc128, fc256, fc512, fc1024,
        spare1 }

FineSFN-SFN ::=
    ENUMERATED {
        fs0, fs0-25, fs0-5, fs0-75 }

ForbiddenAffectCell ::=
    SEQUENCE {
        modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    primaryCPICH-Info
                }
            ,
            tdd
                SEQUENCE {
                    primaryCCPCH-Info
                }
        }
    }

ForbiddenAffectCellList ::=
    SEQUENCE (SIZE(1..maxCellsForbidden)) OF
        ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP }

-- **TODO**, not defined yet
Frequency ::=
    SEQUENCE {

}

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..maxN-SAT)) OF
    GPS-MeasurementParam

GPS-TOW-lmsec ::= INTEGER (0..604700000)

GPS-TOW-Assist ::= SEQUENCE {
    satID                INTEGER (0..63),
    tlm-Message          BIT STRING (SIZE (14)),
    antiSpoof            BOOLEAN,
    alert                BOOLEAN,
    tlm-Reserved         BIT STRING (SIZE (2))
}

GPS-TOW-AssistList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    GPS-TOW-Assist

GPS-TOW-HighResolution ::= INTEGER (0..999)

GSM-CarrierRSSI ::= BIT STRING (SIZE (6))

-- **TODO**, not defined yet
GSM-OutputPower ::= SEQUENCE {
}

HCS-CellReselectInformation ::= SEQUENCE {
    penaltyTime          PenaltyTime
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO             HCS-PRIO                OPTIONAL,
    q-HCS                Q-HCS                    OPTIONAL,
    hcs-CellReselectInformation HCS-CellReselectInformation OPTIONAL
}

HCS-PRIO ::= INTEGER (0..7)

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

-- Actual value = IE value * 0.5
HysteresisInterFreq ::= INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo        FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxInterCells)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellList    OPTIONAL
}

InterFreqCellInfoSI-List ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList    NewInterFreqCellSI-List  OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreqCount)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a    Event2a,
    event2b    Event2b,
    event2c    Event2c,
    event2d    Event2d,
    event2e    Event2e,
    event2f    Event2f
}

```

```

}

InterFreqEventList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
                        InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID              EventIDInterFreq,
    interFreqCellList   InterFreqCellList
}

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria    CHOICE {
        intraFreqReportingCriteria SEQUENCE {
            intraFreqMeasQuantity
        },
        interFreqReportingCriteria SEQUENCE {
            filterCoefficient,
            modeSpecificInfo     CHOICE {
                fdd              SEQUENCE {
                    freqQualityEstimateQuantity-FDD  FreqQualityEstimateQuantity-FDD
                },
                tdd              SEQUENCE {
                    freqQualityEstimateQuantity-TDD  FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::= SEQUENCE {
    frequencyInfo          FrequencyInfo          OPTIONAL,
    ultra-CarrierRSSI     UTRA-CarrierRSSI       OPTIONAL,
    interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxNumFreq)) OF
                                InterFreqMeasuredResults

InterFreqMeasurementSysInfo ::= SEQUENCE {
    interFreqMeasurementID MeasurementIdentityNumber OPTIONAL,
    interFreqCellInfoSI-List InterFreqCellInfoSI-List   OPTIONAL,
    interFreqMeasQuantity  InterFreqMeasQuantity         OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    interFreqReportingCriteria InterFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting                NULL
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList InterFreqEventList OPTIONAL
}

InterFreqReportingQuantity ::= SEQUENCE {
    ultra-Carrier-RSSI    BOOLEAN,
    frequencyQualityEstimate BOOLEAN,
    nonFreqRelatedQuantities CellReportingQuantities
}

InterFreqSetUpdate ::= SEQUENCE {
    ue-AutonomousUpdateMode UE-AutonomousUpdateMode
}

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList InterFreqCellInfoList,
    interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
    interFreqReportingQuantity InterFreqReportingQuantity OPTIONAL,
    reportingCellStatus ReportingCellStatus OPTIONAL,
    measurementValidity MeasurementValidity OPTIONAL,
    interFreqSetUpdate InterFreqSetUpdate OPTIONAL,
    reportCriteria InterFreqReportCriteria
}

InterSystemCellID ::= INTEGER (0..maxInterSysCells)

InterSystemCellInfoList ::= SEQUENCE {
    removedInterSystemCellList RemovedInterSystemCellList,
    newInterSystemCellList NewInterSystemCellList
}

```

```

InterSystemEvent ::= CHOICE {
    event3a          Event3a,
    event3b          Event3b,
    event3c          Event3c,
    event3d          Event3d
}

InterSystemEventList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    InterSystemEvent

InterSystemEventResults ::= SEQUENCE {
    eventID          EventIDInterSystem,
    cellToReportList CellToReportList
}

InterSystemInfo ::= ENUMERATED {
    gsm, spare1 }

InterSystemMeasQuantity ::= SEQUENCE {
    measQuantityUTRAN-QualityEstimate IntraFreqMeasQuantity,
    systemSpecificInfo CHOICE {
        gsm SEQUENCE {
            measurementQuantity MeasurementQuantityGSM,
            filterCoefficient FilterCoefficient,
            bsic-VerificationRequired BOOLEAN
        },
        is-2000 SEQUENCE {
            tadd-EcIo INTEGER (0..63),
            tcomp-EcIo INTEGER (0..15),
            softSlope INTEGER (0..63) OPTIONAL,
            addIntercept INTEGER (0..63) OPTIONAL
        }
    }
}

InterSystemMeasuredResults ::= CHOICE {
    gsm SEQUENCE {
        frequency Frequency,
        gsm-CarrierRSSI GSM-CarrierRSSI OPTIONAL,
        pathloss Pathloss OPTIONAL,
        bsic BSIC OPTIONAL,
        observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
    },
    other NULL
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterSys)) OF
    InterSystemMeasuredResults

InterSystemMeasurement ::= SEQUENCE {
    interSystemCellInfoList InterSystemCellInfoList OPTIONAL,
    interSystemMeasQuantity InterSystemMeasQuantity OPTIONAL,
    interSystemReportingQuantity InterSystemReportingQuantity OPTIONAL,
    reportingCellStatus ReportingCellStatus OPTIONAL,
    reportCriteria InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::= SEQUENCE {
    interSystemMeasurementID MeasurementIdentityNumber OPTIONAL,
    interSystemCellInfoList InterSystemCellInfoList OPTIONAL,
    interSystemMeasQuantity InterSystemMeasQuantity OPTIONAL
}

InterSystemReportCriteria ::= CHOICE {
    interSystemReportingCriteria InterSystemReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting NULL
}

InterSystemReportingCriteria ::= SEQUENCE {
    interSystemEventList InterSystemEventList OPTIONAL
}

InterSystemReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality BOOLEAN,
    systemSpecificInfo CHOICE {
        gsm SEQUENCE {
            pathloss BOOLEAN,
            observedTimeDifferenceGSM BOOLEAN,
            gsm-Carrier-RSSI BOOLEAN,
        }
    }
}

```



```

        bsic
    },
    spare1
}
}

IntraFreqCellID ::= INTEGER (0..maxIntraCells)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
    newIntraFreqCellList NewIntraFreqCellList OPTIONAL
}

IntraFreqCellInfoSI ::= SEQUENCE {
    cellInfo CellInfoSI
}

IntraFreqCellInfoSI-List ::= SEQUENCE {
    removedIntraFreqCellList RemovedIntraFreqCellList OPTIONAL,
    newIntraFreqCellList NewIntraFreqCellSI-List OPTIONAL
}

IntraFreqEvent ::= CHOICE {
    e1a Event1a,
    e1b Event1b,
    e1c Event1c,
    e1d Hysteresis,
    e1e TriggeringCondition,
    e1f TriggeringCondition,
    e1g Hysteresis,
    e1h Hysteresis,
    e1i Hysteresis,
    e1j Hysteresis
}

IntraFreqEventCriteria ::= SEQUENCE {
    event IntraFreqEvent,
    timeToTrigger TimeToTrigger,
    reportingAmount ReportingAmount,
    reportingInterval ReportingInterval
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID EventIDIntraFreq,
    cellMeasurementEventResults CellMeasurementEventResults
}

IntraFreqMeasQuantity ::= SEQUENCE {
    filterCoefficient FilterCoefficient,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            intraFreqMeasQuantity-FDD IntraFreqMeasQuantity-FDD
        },
        tdd SEQUENCE {
            intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
        }
    }
}

IntraFreqMeasQuantity-FDD ::= ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    cpich-SIR,
    pathloss,
    ultra-CarrierRSSI }

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

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

IntraFreqMeasuredResults ::= SEQUENCE {
    cellMeasuredResults CellMeasuredResults
}

```

```

}

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    IntraFreqMeasuredResults

IntraFreqMeasurementSysInfo ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentityNumber          OPTIONAL,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List          OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity            OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH            OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH          OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    periodicalReportingCriteria     PeriodicalReportingCriteria,
    noReporting                     NULL
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList              IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities    CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    unlistedSetReportingQuantities CellReportingQuantities          OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference      SFN-SFN-ObsTimeDifference,
    modeSpecificInfo               CHOICE {
        fdd                        SEQUENCE {
            intraFreqRepQuantityRACH-FDD      IntraFreqRepQuantityRACH-FDD
        },
        tdd                        SEQUENCE {
            intraFreqRepQuantityRACH-TDDList   IntraFreqRepQuantityRACH-TDDList
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    cpich-SIR, 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,
    reportingCellStatus            ReportingCellStatus             OPTIONAL,
    measurementValidity            MeasurementValidity             OPTIONAL,
    reportCriteria                 IntraFreqReportCriteria
}

IODD ::= INTEGER (0..255)

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

K-InterRAT ::= INTEGER (0..12)

```

```

LCS-Accuracy ::=                               BIT STRING (SIZE (7))

LCS-CipherParameters ::=                      SEQUENCE {
  cipheringKeyFlag                             BIT STRING (SIZE (1)),
  cipheringSerialNumber                       INTEGER (0..65535)
}

LCS-Error ::=                                 SEQUENCE {
  errorReason                                  LCS-ErrorCause,
  additionalAssistanceData                    AdditionalAssistanceData
  -- The IE above is defined in GSM 09.31, the actual definition
  -- will have to be checked
}

LCS-ErrorCause ::=                            ENUMERATED {
  notEnoughOTDOA-Cells,
  notEnoughGPS-Satellites,
  assistanceDataMissing,
  methodNotSupported,
  undefinedError,
  requestDeniedByUser,
  notProcessedAndTimeout }

LCS-EventID ::=                               ENUMERATED {
  e7a, e7b, e7c }

LCS-EventParam ::=                            SEQUENCE {
  eventID                                      LCS-EventID,
  reportingAmount                             ReportingAmount,
  reportFirstFix                              BOOLEAN,
  measurementInterval                         LCS-MeasurementInterval,
  eventSpecificInfo                           LCS-EventSpecificInfo
}

LCS-EventParamList ::=                       SEQUENCE (SIZE (1..maxEventCount)) OF
  LCS-EventParam

LCS-EventSpecificInfo ::=                     CHOICE {
  e7a                                          ThresholdPositionChange,
  e7b                                          ThresholdSFN-SFN-Change,
  e7c                                          ThresholdSFN-GPS-TOW
}

LCS-GPS-AcquisitionAssistance ::=            SEQUENCE {
  referenceTime                               CHOICE {
    utran-ReferenceTime                       UTRAN-ReferenceTime,
    gps-ReferenceTimeOnly                     INTEGER (0..604700000)
  },
  satelliteInformationList                    AcquisitionSatInfoList
}

LCS-GPS-Almanac ::=                           SEQUENCE {
  almanacSatInfoList                          AlmanacSatInfoList
}

LCS-GPS-AssistanceSIB ::=                     SEQUENCE {
  lcs-CipherParameters                        LCS-CipherParameters                OPTIONAL,
  referenceGPS-TOW                             ReferenceGPS-TOW,
  status                                        DiffCorrectionStatus,
  btsClockDrift                                BTS-ClockDrift                        OPTIONAL,
  timeOffset                                   LCS-TimeOffset                       OPTIONAL,
  ioddd                                        IODD                                  OPTIONAL,
  dgps-InformationList                         DGPS-InformationList                 OPTIONAL
}

LCS-GPS-AssistanceData ::=                     SEQUENCE {
  lcs-GPS-ReferenceTime                        LCS-GPS-ReferenceTime                OPTIONAL,
  lcs-GPS-ReferenceLocation                    LCS-GPS-ReferenceLocation            OPTIONAL,
  lcs-GPS-DGPS-Corrections                     LCS-GPS-DGPS-Corrections             OPTIONAL,
  lcs-GPS-NavigationModel                      LCS-GPS-NavigationModel              OPTIONAL,
  lcs-GPS-IonosphericModel                     LCS-GPS-IonosphericModel            OPTIONAL,
  lcs-GPS-UTC-Model                            LCS-GPS-UTC-Model                    OPTIONAL,
  lcs-GPS-Almanac                              LCS-GPS-Almanac                      OPTIONAL,
  lcs-GPS-AcquisitionAssistance                LCS-GPS-AcquisitionAssistance        OPTIONAL,
  lcs-GPS-Real-timeIntegrity                   LCS-GPS-Real-timeIntegrity           OPTIONAL
}

LCS-GPS-DGPS-Corrections ::=                  SEQUENCE {
  gps-TOW                                       INTEGER (0..604799),
  statusHealth                                 DiffCorrectionStatus,
  dgps-CorrectionSatInfoList                  DGPS-CorrectionSatInfoList
}

```

```

}

LCS-GPS-IonosphericModel ::= SEQUENCE {
    alfa0 BIT STRING (SIZE (8)),
    alfa1 BIT STRING (SIZE (8)),
    alfa2 BIT STRING (SIZE (8)),
    alfa3 BIT STRING (SIZE (8)),
    beta0 BIT STRING (SIZE (8)),
    beta1 BIT STRING (SIZE (8)),
    beta2 BIT STRING (SIZE (8)),
    beta3 BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::= SEQUENCE {
    referenceSFN ReferenceSFN OPTIONAL,
    gps-TOW-lmsec GPS-TOW-lmsec,
    gps-TOW-HighResolution GPS-TOW-HighResolution OPTIONAL,
    gps-MeasurementParamList GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::= SEQUENCE {
    n-SAT INTEGER (1..16),
    navigationModelSatInfoList NavigationModelSatInfoList
}

-- **TODO**, definition in 23.032
LCS-GPS-ReferenceLocation ::= SEQUENCE {
}

LCS-GPS-Real-timeIntegrity ::= SEQUENCE {
    badSatList BadSatList
}

LCS-GPS-ReferenceTime ::= SEQUENCE {
    gps-Week INTEGER (0..1023),
    gps-TOW INTEGER (0..604700000000),
    sfn INTEGER (0..4095),
    gps-TOW-AssistList GPS-TOW-AssistList OPTIONAL
}

LCS-GPS-UTC-Model ::= SEQUENCE {
    a0 BIT STRING (SIZE (32)),
    a1 BIT STRING (SIZE (24)),
    delta-t-LS BIT STRING (SIZE (8)),
    t-ot BIT STRING (SIZE (8)),
    wn-t BIT STRING (SIZE (8)),
    wn-lsf BIT STRING (SIZE (8)),
    dn BIT STRING (SIZE (8)),
    delta-t-LSF BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::= SEQUENCE {
    ip-Spacing IP-Spacing,
    ip-Length IP-Length,
    ip-Offset INTEGER (0..9),
    seed INTEGER (0..63),
    burstModeParameters BurstModeParameters
}

LCS-MeasuredResults ::= SEQUENCE {
    lcs-MultipleSets LCS-MultipleSets OPTIONAL,
    lcs-ReferenceCellIdentity PrimaryCPICH-Info OPTIONAL,
    lcs-OTDOA-Measurement LCS-OTDOA-Measurement OPTIONAL,
    lcs-Position LCS-Position OPTIONAL,
    lcs-GPS-Measurement LCS-GPS-Measurement OPTIONAL,
    lcs-Error LCS-Error OPTIONAL
}

LCS-Measurement ::= SEQUENCE {
    lcs-ReportingQuantity LCS-ReportingQuantity,
    reportCriteria LCS-ReportCriteria,
    lcs-OTDOA-AssistanceData LCS-OTDOA-AssistanceData OPTIONAL,
    lcs-GPS-AssistanceData LCS-GPS-AssistanceData OPTIONAL
}

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a LCS-Position,
    event7b LCS-OTDOA-Measurement,
    event7c LCS-GPS-Measurement
}

```

```

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets INTEGER (2..3),
    numberOfReferenceCells INTEGER (1..3),
    referenceCellRelation ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell LCS-OTDOA-ReferenceCell OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters LCS-IPDL-Parameters OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters LCS-CipherParameters OPTIONAL,
    searchWindowSize OTDOA-SearchWindowSize,
    referenceCellPosition ReferenceCellPosition,
    lcs-IPDL-Parameters LCS-IPDL-Parameters OPTIONAL,
    cellToMeasureInfoList CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {
    sfn INTEGER (0..4095),
    -- Actual value = IE value * 0.25 + 876
    ue-Rx-Tx-TimeDifference INTEGER (0..1184),
    qualityType QualityType,
    qualityChoice CHOICE {
        std-10 ReferenceQuality10,
        std-50 ReferenceQuality50,
        cpich-EcN0 CPICH-Ec-N0-OTDOA,
        defaultQuality ReferenceQuality
    },
    neighborList NeighborList OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    frequencyInfo FrequencyInfo OPTIONAL,
    sfn-SFN-ObsTimeDifference SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN FineSFN-SFN OPTIONAL,
    searchWindowSize OTDOA-SearchWindowSize,
    relativeNorth INTEGER (-20000..20000) OPTIONAL,
    relativeEast INTEGER (-20000..20000) OPTIONAL,
    relativeAltitude INTEGER (-4000..4000) OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..15)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    frequencyInfo FrequencyInfo OPTIONAL,
    cellPosition ReferenceCellPosition OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN ReferenceSFN,
    gps-TOW INTEGER (0..6047000000),
    positionEstimate PositionEstimate
}

LCS-ReportCriteria ::= CHOICE {
    lcs-ReportingCriteria LCS-ReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting NULL
}

LCS-ReportingCriteria ::= SEQUENCE {
    eventParameterList LCS-EventParamList OPTIONAL
}

LCS-ReportingQuantity ::= SEQUENCE {

```

```

methodType                LCS-MethodType,
positioningMethod          PositioningMethod,
responseTime               LCS-ResponseTime,
accuracy                   LCS-Accuracy                OPTIONAL,
gps-TimingOfCellWanted    BOOLEAN,
multipleSets               BOOLEAN,
environmentCharacterization EnvironmentCharacterization    OPTIONAL
}

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

LCS-TimeOffset ::=        INTEGER (0..4095)

MaxNumberOfReportingCells ::= ENUMERATED {
                            mandatoryCellsOnly,
                            mandatoryCellsPlus1,
                            mandatoryCellsPlus2,
                            mandatoryCellsPlus3,
                            mandatoryCellsPlus4,
                            mandatoryCellsPlus5,
                            mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::= ENUMERATED {
                            noReport,
                            currentCell,
                            currentAnd-1-BestNeighbour,
                            currentAnd-2-BestNeighbour,
                            currentAnd-3-BestNeighbour,
                            currentAnd-4-BestNeighbour,
                            currentAnd-5-BestNeighbour,
                            currentAnd-6-BestNeighbour }

MeasuredResults ::=        CHOICE {
    intraFreqMeasuredResultsList  IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList  InterFreqMeasuredResultsList,
    interSystemMeasuredResultsList InterSystemMeasuredResultsList,
    trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults         QualityMeasuredResults,
    ue-InternalMeasuredResults    UE-InternalMeasuredResults,
    lcs-MeasuredResults            LCS-MeasuredResults
}

MeasuredResultsList ::=    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                            MeasuredResults

MeasuredResultsOnRACH ::=  SEQUENCE {
    currentCell                SEQUENCE {
        modeSpecificInfo      CHOICE {
            fdd                SEQUENCE {
                measurementQuantity CHOICE {
                    cpich-Ec-NO          CPICH-Ec-NO,
                    cpich-RSCP          CPICH-RSCP,
                    cpich-SIR           CPICH-SIR,
                    pathloss            Pathloss
                }
            },
            tdd                SEQUENCE {
                timeslotISCP          TimeslotISCP-List OPTIONAL,
                primaryCCPCH-RSCP    PrimaryCCPCH-RSCP OPTIONAL
            }
        }
    },
    monitoredCells              MonitoredCellRACH-List    OPTIONAL
}

MeasurementCommand ::=     CHOICE {
    setup                       MeasurementType,
    modify                       SEQUENCE {
        measurementType          MeasurementType    OPTIONAL
    },
    release                       NULL
}

MeasurementControlSysInfo ::= SEQUENCE {
    intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo    OPTIONAL,
    interFreqMeasurementSysInfo InterFreqMeasurementSysInfo    OPTIONAL,
    interSystemMeasurementSysInfo InterSystemMeasurementSysInfo    OPTIONAL,
    trafficVolumeMeasSysInfo    TrafficVolumeMeasSysInfo    OPTIONAL,
    ue-InternalMeasurementSysInfo UE-InternalMeasurementSysInfo    OPTIONAL
}

```

```

}

-- **TODO**, not defined yet
MeasurementIdentityNumber ::= SEQUENCE {
}

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

MeasurementReportingMode ::= SEQUENCE {
    measurementReportTransferMode TransferMode,
    periodicalOrEventTrigger PeriodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
    intraFrequencyMeasurement IntraFrequencyMeasurement,
    interFrequencyMeasurement InterFrequencyMeasurement,
    interSystemMeasurement InterSystemMeasurement,
    lcs-Measurement LCS-Measurement,
    trafficVolumeMeasurement TrafficVolumeMeasurement,
    qualityMeasurement QualityMeasurement,
    ue-InternalMeasurement UE-InternalMeasurement
}

MeasurementValidity ::= SEQUENCE {
    resume-Release Resume-Release
}

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

MonitoredCellRACH-Result ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference SFN-SFN-ObsTimeDifference OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info,
            measurementQuantity CHOICE {
                cpich-Ec-N0 CPICH-Ec-N0,
                cpich-RSCP CPICH-RSCP,
                cpich-SIR CPICH-SIR,
                pathloss Pathloss OPTIONAL
            }
        },
        tdd SEQUENCE {
            primaryCCPCH-Info PrimaryCCPCH-Info,
            primaryCCPCH-RSCP PrimaryCCPCH-RSCP OPTIONAL
        }
    }
}

MonitoredSetCellReport ::= ENUMERATED {
    excludeAll,
    other }

MultipathIndicator ::= ENUMERATED {
    nm,
    low,
    medium,
    high }

NavigationModelSatInfo ::= SEQUENCE {
    satID INTEGER (0..63),
    satelliteStatus SatelliteStatus,
    compression CHOICE {
        uncompressed UncompressedNavModel,
        compressed CompressedNavModel
    }
}

NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    NavigationModelSatInfo

Neighbor ::= SEQUENCE {
    neighborIdentity PrimaryCPICH-Info OPTIONAL,
    neighborQuantity NeighborQuantity,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2
}

NeighborList ::= SEQUENCE (SIZE (1..15)) OF
    Neighbor

```

```

-- **TODO**, to be defined fully
NeighborQuantity ::= SEQUENCE {
}

NewInterFreqCell ::= SEQUENCE {
    interFreqCellID          OPTIONAL,
    frequencyInfo            OPTIONAL,
    cellInfo                  CellInfo
}

NewInterFreqCellList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    NewInterFreqCell

NewInterFreqCellSI ::= SEQUENCE {
    interFreqCellID          OPTIONAL,
    frequencyInfo            OPTIONAL,
    cellInfo                  CellInfoSI
}

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

NewInterSystemCell ::= SEQUENCE {
    technologySpecificInfo   CHOICE {
        gsm                   SEQUENCE {
            q-Offset           Q-Offset          OPTIONAL,
            hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL,
            q-Min              Q-Min,
            maxAllowedUL-TX-Power MaxAllowedUL-TX-Power,
            bsic               BSIC,
            bcch-ARFCN         BCCH-ARFCN,
            gsm-OutputPower    GSM-OutputPower   OPTIONAL
        },
        is-2000                SEQUENCE {
            is-2000SpecificMeasInfo IS-2000SpecificMeasInfo
        }
    }
}

NewInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
    NewInterSystemCell

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

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

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

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

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

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

ObservedTimeDifferenceToGSM ::= INTEGER (0..4095)

OtherRAT-InSysInfo ::= SEQUENCE {
    rat-Type                 RAT-Type,
    k-InterRAT               K-InterRAT
}

OtherRAT-InSysInfoList ::= SEQUENCE (SIZE (1..maxInterRAT)) OF
    OtherRAT-InSysInfo

OTDOA-SearchWindowSize ::= ENUMERATED {
    c10, c20, c30, c40, c50,
}

```



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c60, c70, moreThan70 }

Pathloss ::=
INTEGER (46..158)

PenaltyTime ::=
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
}
OPTIONAL,
OPTIONAL

-- **TODO**, contents to be defined, source 23.032
PositionEstimate ::=
CHOICE {
  ellipsoidPoint
  ellipsoidPointUncertCircle
  ellipsoidPointUncertEllipse
  ellipsoidPointAltitude
  ellipsoidPointAltitudeEllipse
}

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

PRC ::=
INTEGER (-32767..32767)

-- **TODO**, not defined yet
PrimaryCCPCH-RSCP ::= SEQUENCE {
}
PrimaryCCPCH-RSCP ::= INTEGER (-115..-25)

Q-Accept-s-n ::=
INTEGER (0..63)

Q-HCS ::=
INTEGER (0..99)

Q-Offset ::=
INTEGER (-50..50)

-- Actual value = IE value * 0.5
Q-OffsetS-N ::=
INTEGER (-40..40)

-- **TODO**, not defined yet
Q-Min ::=
SEQUENCE {
}

Qmin-FDD ::=
INTEGER (-20..0)

-- Actual value = IE value * 2 - 115
Qmin-TDD ::=
INTEGER (0..45)

-- **TODO**, not defined yet
QualityEventResults ::=
SEQUENCE {
}

-- **TODO**, not defined yet
QualityMeasQuantity ::=
SEQUENCE {
}

QualityMeasuredResults ::=
SEQUENCE {
  blerMeasurementResultsList
  dl-PhysicalChannelBER
  modeSpecificInfo
  fdd
  sir
}
BLER-MeasurementResultsList
DL-PhysicalChannelBER
CHOICE {
  SEQUENCE {
  SIR
}
OPTIONAL,
OPTIONAL,
OPTIONAL

```

```

}
}
}
}
}

QualityMeasurement ::=
    qualityMeasurementObject      SEQUENCE {
        qualityMeasQuantity        QualityMeasQuantity          OPTIONAL,
        qualityReportingQuantity    QualityReportingQuantity        OPTIONAL,
        reportCriteria              QualityReportCriteria
    }

-- **TODO**, not defined yet
QualityMeasurementObject ::=
    SEQUENCE {

QualityReportCriteria ::=
    CHOICE {
        qualityReportingCriteria    QualityReportingCriteria,
        periodicalReportingCriteria PeriodicalReportingCriteria,
        noReporting                 NULL
    }

-- **TODO**, not defined yet
QualityReportingCriteria ::=
    SEQUENCE {

QualityReportingQuantity ::=
    SEQUENCE {
        dl-TransChBLER              BOOLEAN,
        bler-TransChIdList          BLER-TransChIdList          OPTIONAL,
        modeSpecificInfo            CHOICE {
            fdd                      SEQUENCE {
                sir                  BOOLEAN
            }
            tdd                      SEQUENCE {
                sir-MeasurementList  SIR-MeasurementList          OPTIONAL
            }
        }
    }
}

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

RAT-Type ::=
    ENUMERATED {
        gsm, is2000, spare1, spare2,
        spare3, spare4, spare5, spare6,
        spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14 }

-- **TODO**, definition to be checked from 23.032
ReferenceCellPosition ::=
    SEQUENCE {

ReferenceCellRelation ::=
    ENUMERATED {
        first-12-second-3,
        first-13-second-2,
        first-1-second-23 }

ReferenceGPS-TOW ::=
    INTEGER (0..60470000000)

ReferenceQuality ::=
    ENUMERATED {
        m0-19, m20-39, m40-79,
        m80-159, m160-319, m320-639,
        m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::=
    INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::=
    INTEGER (1..32)

ReferenceSFN ::=
    INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::=
    CHOICE {
        -- Actual value = IE value * 40
        accuracy40          INTEGER (0..960),
        -- Actual value = IE value * 256
        accuracy256        INTEGER (0..150),
        -- Actual value = IE value * 2560
    }

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    accuracy2560                                INTEGER (0..15)
}
RemovedInterFreqCell ::= SEQUENCE {
    interFreqCellID                               InterFreqCellID
}
RemovedInterFreqCellList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    RemovedInterFreqCell
RemovedInterSystemCell ::= SEQUENCE {
    interSystemCellID                             InterSystemCellID
}
RemovedInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
    RemovedInterSystemCell
RemovedIntraFreqCell ::= SEQUENCE {
    intraFreqCellID                               IntraFreqCellID
}
RemovedIntraFreqCellList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    RemovedIntraFreqCell
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 ::= SEQUENCE {
    maxNumberOfReportingCells                     MaxNumberOfReportingCells,
    measurement CHOICE {
        intraFreq                               ReportingCellStatusIntraFreq,
        otherMeasurement                         NULL
    }
}
ReportingCellStatusIntraFreq ::= SEQUENCE {
    activeSetCellReport                           ActiveSetCellReport,
    monitoredSetCellReport                       MonitoredSetCellReport
}
ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity                   IntraFreqReportingQuantity,
    reportCriteria                               CellDCH-ReportCriteria
}
ReportingInterval ::= ENUMERATED {
    noPeriodicalreporting, ri0-25,
    ri0-5, ril, ri2, ri4, ri8, ril6 }
ReportingIntervalLong ::= ENUMERATED {
    ril0, ril0-25, ril0-5, ril1,
    ril2, ril3, ril4, ril6, ril8,
    ril12, ril16, ril20, ril24,
    ril28, ril32, ril64 }
-- Actual value = IE value * 0.5
ReportingRange ::= INTEGER (0..29)
Resume-Release ::= CHOICE {
    resume                                       UE-State,
    release                                       NULL
}
RL-AdditionInfo ::= SEQUENCE {
    primaryCPICH-Info                             PrimaryCPICH-Info
}
RL-AdditionInfoList ::= SEQUENCE (SIZE(1..maxAddRLcount)) OF
    RL-AdditionInfo
RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList                           RL-AdditionInfoList
}

```

OPTIONAL,

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    rl-RemovalInfoList                RL-RemovalInfoList                OPTIONAL
}

RL-RemovalInfo ::=
    primaryCPICH-Info                SEQUENCE {
}                                       PrimaryCPICH-Info

RL-RemovalInfoList ::=
    SEQUENCE (SIZE(1..maxDelRLcount)) OF
    RL-RemovalInfo

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

RRC ::=
    INTEGER (-127..127)

-- **TODO**, not defined yet
RSCP ::=
    SEQUENCE {
}

SatelliteStatus ::=
    ENUMERATED {
        ns-NN-U,
        es-SN,
        es-NN-U,
        es-NN-C }

SatID ::=
    INTEGER (0..31)

ScaleFactor ::=
    ENUMERATED {
        prc0-02-rrc0-002,
        prc0-32-rrc0-032 }

SFN-SFN-ObsTimeDifference ::=
    CHOICE {
        type1                SFN-SFN-ObsTimeDifference1,
        -- Actual value for type2 = IE value * 0.25
        type2                SFN-SFN-ObsTimeDifference2
    }

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

SFN-SFN-ObsTimeDifference2 ::=
    INTEGER (-5119..5120)

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

SignallingOption ::=
    CHOICE {
        alternative1        SEQUENCE {
            q-OffsetS-N                OPTIONAL
        },
        alternative2        NULL
    }

SIR ::=
    INTEGER (-10..20)

SIR-MeasurementList ::= SEQUENCE (SIZE (1..maxCCTrCHcount)) OF
    SIR-MeasurementResults

SIR-MeasurementResults ::= SEQUENCE {
    tfcs-ID                TFCS-Identity,
    sir-TimeslotList        SIR-TimeslotList
}

SIR-TimeslotList ::= SEQUENCE (SIZE (1..maxTimeSlotCount)) OF
    SIR

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

-- **TODO**, not defined yet
Threshold ::=
    SEQUENCE {
}

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 }

TimeslotInfo ::=                  SEQUENCE {
                                   timeslotNumber      TimeslotNumber,
                                   burstType           BurstType
                                   }

TimeslotInfoList ::=              SEQUENCE (SIZE (1..maxTimeSlotCount)) OF
                                   TimeslotInfo


**TODO**, not defined yet
TimeslotISCP ::=                  SEQUENCE {
                                   }


TimeslotISCP ::=                  INTEGER (-115..-25)

TimeslotISCP-List ::=             SEQUENCE (SIZE(1..maxTStoMeasureCount)) OF
                                   TimeslotISCP

TimeslotListWithISCP ::=          SEQUENCE (SIZE (1..14)) OF
                                   TimeslotWithISCP

TimeslotNumber ::=                INTEGER (0..14)

TimeslotWithISCP ::=              SEQUENCE {
                                   timeslot            Timeslot,
                                   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
                                   }

TrafficVolumeEventResults ::=      SEQUENCE {
                                   transportChannelCausingEvent TransportChannelIdentity,
                                   trafficVolumeEventIdentity EventIDTrafficVolume
                                   }

TrafficVolumeEventType ::=         ENUMERATED {
                                   e4a,
                                   e4b }

TrafficVolumeMeasObject ::=        SEQUENCE {
                                   targetTransportChannelID TransportChannelIdentity
                                   }

TrafficVolumeMeasObjectList ::=    SEQUENCE (SIZE (1..maxTrChcount)) OF
                                   TrafficVolumeMeasObject

TrafficVolumeMeasQuantity ::=      ENUMERATED {
                                   rlc-BufferPayload,
                                   averageRLC-BufferPayload,
                                   varianceOfRLC-BufferPayload }

TrafficVolumeMeasSysInfo ::=       SEQUENCE {
                                   trafficVolumeMeasurementID MeasurementIdentityNumber OPTIONAL,
                                   trafficVolumeMeasObjectList TrafficVolumeMeasObjectList OPTIONAL,
                                   trafficVolumeMeasQuantity TrafficVolumeMeasQuantity OPTIONAL
                                   }

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

```

```

}

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

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

TrafficVolumeMeasurementObject ::= SEQUENCE {
    targetTransportChannelID             TransportChannelIdentity
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasurementObject

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList                 TransChCriteriaList             OPTIONAL,
    timeToTrigger                       TimeToTrigger                   OPTIONAL,
    pendingTimeAfterTrigger              PendingTimeAfterTrigger         OPTIONAL,
    tx-InterruptionAfterTrigger          TX-InterruptionAfterTrigger    OPTIONAL,
    reportingAmount                      ReportingAmount                 OPTIONAL,
    reportingInterval                    ReportingInterval               OPTIONAL
}

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

TrafficVolumeThreshold ::= ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th1536,
    th2048, th3072, th4096, th6144,
    th8192 }

TransChCriteria ::= SEQUENCE {
    transportChannelID                   TransportChannelIdentity,
    eventSpecificParameters              SEQUENCE (SIZE (1..2)) OF
        TrafficVolumeEventParam         OPTIONAL
}

TransChCriteriaList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TransChCriteria

TransferMode ::= ENUMERATED {
    acknowledgedModeRLC,
    unacknowledgedModeRLC }

TransmittedPowerThreshold ::= INTEGER (-50..33)

TriggeringCondition ::= ENUMERATED {
    activeSetCellsOnly,
    monitoredCellsOnly,
    activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::= ENUMERATED {
    txiat0-25, txiat0-5, txiat1,
    txiat2, txiat4, txiat8, txiat16 }

UDRE ::= ENUMERATED {
    lessThan1,
    between1-and-4,
    between4-and-8,
    over8 }

UE-6AB-Event ::= SEQUENCE {
    timeToTrigger                        TimeToTrigger,
    transmittedPowerThreshold            TransmittedPowerThreshold
}

```

```

UE-6FG-Event ::= SEQUENCE {
    timeToTrigger          TimeToTrigger,
    ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
}

UE-AutonomousUpdateMode ::= CHOICE {
    on                NULL,
    onWithNoReporting NULL,
    off               RL-InformationLists
}

UE-InternalEventParam ::= CHOICE {
    event6a          UE-6AB-Event,
    event6b          UE-6AB-Event,
    event6c          TimeToTrigger,
    event6d          TimeToTrigger,
    event6e          TimeToTrigger,
    event6f          UE-6FG-Event,
    event6g          UE-6FG-Event
}

UE-InternalEventParamList ::= SEQUENCE (SIZE (1..maxEventCount)) 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,
modeSpecificInfo         CHOICE {
    fdd                   SEQUENCE {
        measurementQuantityFDD UE-MeasurementQuantityFDD
    },
    tdd                   SEQUENCE {
        measurementQuantityTDD UE-MeasurementQuantityTDD
    }
}
}

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-TransmittedPowerFDD UE-TransmittedPowerFDD OPTIONAL,
            ue-RX-TX-ReportEntryList UE-RX-TX-ReportEntryList OPTIONAL
        },
        tdd SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity UE-InternalMeasQuantity OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity OPTIONAL,
    reportCriteria UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID MeasurementIdentityNumber OPTIONAL,
    ue-InternalMeasQuantity UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::= CHOICE {
    ue-InternalReportingCriteria,
    periodicalReportingCriteria,
    noReporting,
    NULL
}

UE-InternalReportingCriteria ::= SEQUENCE {
    ue-InternalEventParamList UE-InternalEventParamList OPTIONAL
}

```

```

UE-InternalReportingQuantity ::= SEQUENCE {
    ue-TransmittedPower          BOOLEAN,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            ue-RX-TX-TimeDifferenece  BOOLEAN,
        },
        tdd                       SEQUENCE {
            appliedTA                BOOLEAN
        }
    }
    ue-Position                  BOOLEAN
}

UE-MeasurementQuantityFDD ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-MeasurementQuantityTDD ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI}

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info           PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference     UE-RX-TX-TimeDifference
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxUsedRLcount)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::= INTEGER (876..1172)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (769..1280)

UE-State ::= ENUMERATED {
    cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPowerFDD ::= INTEGER (-50..33)


    **TODO**, not defined yet
    UE-TransmittedPowerTDD ::= SEQUENCE {
    }
    UE-TransmittedPowerTDD ::= INTEGER (-50..33)
    UE-TransmittedPowerInfoTDD ::= SEQUENCE {
        ue-TransmittedPowerTDD      UE-TransmittedPowerTDD,
        appliedTA                    UL-TimingAdvance
    }


UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxUsedUplTScout)) OF
    UE-TransmittedPowerInfoTDD

UncompressedNavModel ::= SEQUENCE {
    iode          BIT STRING (SIZE (8)),
    t-oe          BIT STRING (SIZE (16)),
    c-rc          BIT STRING (SIZE (16)),
    c-rs          BIT STRING (SIZE (16)),
    c-ic          BIT STRING (SIZE (16)),
    c-is          BIT STRING (SIZE (16)),
    c-uc          BIT STRING (SIZE (16)),
    c-us          BIT STRING (SIZE (16)),
    e             BIT STRING (SIZE (32)),
    m0            BIT STRING (SIZE (32)),
    a-Sqrt        BIT STRING (SIZE (32)),
    delta-n       BIT STRING (SIZE (16)),
    omega0        BIT STRING (SIZE (32)),
    omegaDot      BIT STRING (SIZE (24)),
    i0            BIT STRING (SIZE (32)),
    iDot          BIT STRING (SIZE (14)),
    omega         BIT STRING (SIZE (32)),
    t-oc          BIT STRING (SIZE (16)),
    af0           BIT STRING (SIZE (22)),
    af1           BIT STRING (SIZE (16)),
    af2           BIT STRING (SIZE (8))
}

UTRA-CarrierRSSI ::= INTEGER (-95..-30)

```



```
UTRAN-ReferenceTime ::=          SEQUENCE {
    gps-TOW                       INTEGER (0..604700000000),
    sfn                           INTEGER (0..4095)
}

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

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

END
```

# CHANGE REQUEST

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

**25.331 CR 262r4**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN#8**  
list expected approval meeting # here ↑

for approval   
for information

strategic   
non-strategic  (for SMG use only)

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-05-11

**Subject:** Signalling of IEs related to System Information on FACH

**Work item:**

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

**Reason for change:** When a UE in Cell\_DCH state, which needs to listen to system information on the FACH, performs handover, it has to be signalled:  

- the TFCS of the S-CCPCH on which is mapped the FACH carrying this system information in the new cell
- each TFS of FACH/PCH mapped on this S-CCPCH.

 These IEs needs to be added in Radio Bearer Setup, Radio Bearer Reconfiguration, Radio Bearer Release, Transport Channel Reconfiguration, Physical Channel Reconfiguration and Active Set Update messages to provide this information to the UE.

**Clauses affected:** 10.3.6.50, 10.3.6.18, 11.3.6

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

**Other comments:**



help.doc

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

### 10.3.6.18 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info			Primary CPICH info 10.3.6.43	
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.32	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.29	
>TDD				
>>Primary CCPCH info			Primary CCPCH info 10.3.6.41	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.15	Note 1
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	<a href="#">Note 2</a>
<a href="#">TFCS</a>	<a href="#">OP</a>		<a href="#">Transport format combination set 10.3.5.17</a>	<a href="#">For FACHs and PCH Note 1, Note 2</a>
<a href="#">FACH/PCH information</a>	<a href="#">OP</a>	1 to <maxFACHcount>		<a href="#">Note 1, Note 2</a>
> <a href="#">TFS</a>	<a href="#">OP</a>		<a href="#">Transport format set 10.3.5.20</a>	<a href="#">For each FACHs and PCH Note 1, Note 2</a>
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1, <a href="#">Note 2</a>
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1, <a href="#">Note 2</a>

NOTE 1: This IE shall not be set in case of CELL UPDATE CONFIRM message.

[NOTE 2: These IEs are present when the UE needs to listen to system information on FACH in CELL\\_DCH state.](#)

Multi Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

### 10.3.6.50 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.15	
TFCI combining indicator	OP		TFCI combining indicator 10.3.6.60	
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	Note 1
<u>TFCS</u>	<u>OP</u>		<u>Transport format combination set 10.3.5.17</u>	<u>For FACHs and PCH Note 1</u>
<u>FACH/PCH information</u>	<u>OP</u>	<u>1 to &lt;maxFACHcount&gt;</u>		<u>Note 1</u>
<u>&gt;TFS</u>	<u>OP</u>		<u>Transport format set 10.3.5.20</u>	<u>For each FACHs and PCH Note 1</u>
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1

NOTE 1: ~~The Secondary CCPCH info and the references to SIB~~ These IEs are present when the UE needs to listen to system information on FACH in CELL DCH state.

Multi Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

### 11.3.6 Physical channel information elements

DL-InformationPerRL ::=	SEQUENCE {	
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
primaryCPICH-Info	PrimaryCPICH-Info,	
pdsch-SHO-DCH-Info	PDSCH-SHO-DCH-Info	OPTIONAL,
pdsch-CodeMapping	PDSCH-CodeMapping	OPTIONAL
},		
tdd	SEQUENCE {	
primaryCCPCH-Info	PrimaryCCPCH-Info	
}		
},		
dl-DPCH-InfoPerRL	DL-DPCH-InfoPerRL	OPTIONAL,
secondaryCCPCH-Info	SecondaryCCPCH-Info	OPTIONAL,
<u>tfcs</u>	<u>TFCS</u>	<u>OPTIONAL,</u>
<u>fach-PCH-InformationList</u>	<u>FACH-PCH-InformationList</u>	<u>OPTIONAL,</u>
sib-ReferenceList	SIB-ReferenceListFACH	OPTIONAL
}		
RL-AdditionInformation ::=	SEQUENCE {	
primaryCPICH-Info	PrimaryCPICH-Info,	
dl-DPCH-InfoPerRL	DL-DPCH-InfoPerRL,	
tfci-CombiningIndicator	BOOLEAN,	
secondaryCCPCH-Info	SecondaryCCPCH-Info	OPTIONAL,

	tfcs	TFCS	OPTIONAL,
	fach-PCH-InformationList	FACH-PCH-InformationList	OPTIONAL,
	sib-ReferenceListFACH	SIB-ReferenceListFACH	OPTIONAL
	}		

**3GPP TSG RAN WG2#13**

**Document R2-001113**

**Oahu, Hawaii, May 22th-26th, 2000**

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

# CHANGE REQUEST

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

**25.331 CR 265r3**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8**  
*list expected approval meeting # here*

for approval **X**  
for information

strategic  (for SMG use only)  
non-strategic

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

**Proposed change affects:**

(at least one should be marked with an X)

(U)SIM  ME  UTRAN / Radio  Core Network

**Source:**

TSG-RAN WG2

**Date:**

May 22,2000

**Subject:**

Transport Format Combination Control

**Work item:**

**Category:**

(only one category shall be marked with an X)

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

**Release:**

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

**Reason for change:**

- Inclusion of a specific UE reconfiguration delay in RRC specification

In this paper a correction to the RRC specification is proposed which addresses the issue of the time it takes for a UE to reconfigure itself following reception of a Transport Format Combination Control message. This time has to be known by the RNC in order for it to efficiently manage access to the uplink radio resource. It is proposed that the UE will be capable of applying the instruction contained in the TFC Control message (and for example start transmitting at a higher rate) in frame CFN<sub>i</sub>+5, where CFN<sub>i</sub> is the frame number at which the complete RRC message was received. It is proposed that the new TFC subset will be put in use in frame CFN<sub>i</sub>+5, when frame CFN<sub>i</sub>+5 is also the frame corresponding to the frame boundary with the largest TTI. However, in the event that this is not the case the UE will apply the new TFC subset in the first frame following CFN<sub>i</sub>+5 during which the UE can begin transmission of a transport block on the uplink DCH which has the largest TTI.

**Clauses affected:**

8.2.5.3

**Other specs affected:**

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

**Other comments:**



help.doc

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

## 8.2.5 Transport format combination control

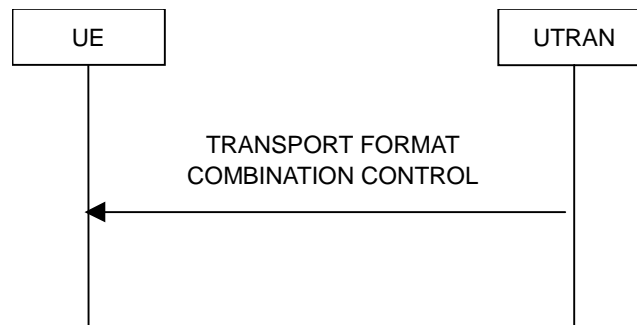


Figure 26: Transport format combination control, normal flow

### 8.2.5.1 General

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

### 8.2.5.2 Initiation

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

UTRAN should not initiate a transport format combination control procedure, during while awaiting the completion of the following procedures:

- Radio bearer establishment (section 8.2.1)
- Radio bearer release (section 8.2.3)
- Radio bearer reconfiguration (section 8.2.2)
- Transport channel reconfiguration (section 8.2.4)
- Physical channel reconfiguration (section 8.2.6)

To change the sub-set of allowed transport format combinations, the UTRAN shall set the allowed TFCs in the IE "TFC subset". The network can optionally specify the duration for which a new TFC sub-set applies. The network shall do this by using the IE "TFC Control duration".

To completely remove the previous restrictions of allowed transport format combinations, the UTRAN shall set the "full transport format combination" in the IE "TFC subset".

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

Upon reception of the TRANSPORT FORMAT COMBINATION CONTROL message, and if the variable ORDERED\_CONFIG is not set the UE shall determine whether the IE "TFC Control duration" is included.

If the IE "TFC Control duration" is not included then the UE shall:

- Store the newly specified TFC (sub)set in the variable to be called 'default TFC (sub)set'



- Configure the allowed transport format combinations as defined in subclause 8.5.7.5.3

If the IE "TFC Control duration" is included in the message then:

~~The TFC set or TFC sub-set specified in the message shall be activated at~~

~~$z$  where  $n$  is the frame (with 10 ms resolution) at which the UE received the message and  $z$  is specified in TR 25.926 (UE radio access capabilities).~~

The specified TFC set or sub-set shall then be applied for the number of (10 ms) frames specified in the IE "TFC Control duration".

If no further TFC Control messages are received during this interval then:

- At the end of the defined period the UE shall change the TFC (sub)set back to the 'default TFC (sub)set'.

If further TFC Control messages are received during the 'TFC Control duration' period then the UE shall re-configure itself in accordance with the TFC (sub)set defined in the most recently received message.

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

- frame  $n+5$ , when frame  $n+5$  also corresponds to the first 10 ms frame following the framing boundary between transport blocks with the largest TTI which are configured on the uplink CCTrCH;  $n$  is the downlink DPCH frame (with 10 ms resolution) during which the UE received the complete RRC "Transport Format Combination Control" message,
- or if the above condition is not met, the first 10 ms frame following the first framing boundary after frame  $n+5$ , where the framing boundary is that between the transport blocks with the largest TTI which are configured on the uplink CCTrCH.

#### 8.2.5.4 Incompatible simultaneous reconfiguration

If the variable ORDERED\_CONFIG is set, the UE shall

- keep the TFC subset as before the TRANSPORT FORMAT COMBINATION CONTROL message was received
- transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC. The UE shall set the IE "failure cause" to "incompatible simultaneous reconfiguration". When the transmission of TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been confirmed by RLC the procedure ends.

<b>CHANGE REQUEST</b>		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
<b>25.331</b>		<b>CR 269r1</b>	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: <b>TSG-RAN #8</b> <small>list expected approval meeting # here ↑</small>		for approval <input checked="" type="checkbox"/>	Current Version: <b>3.2.0</b>
	for information <input type="checkbox"/>	strategic <input type="checkbox"/>	(for SMG use only)
		non-strategic <input type="checkbox"/>	

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

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

**Source:** TSG-RAN WG2 **Date:** 22.05.2000

**Subject:** Signalling of partial failure in radio bearer related procedures

**Work item:**

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

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

**Reason for change:** Currently it is possible to setup, reconfigure and release several radio bearers with one message, but the information sent back to the UTRAN indicates only either that the operation can only either failed or succeeded. This contribution proposes to include the identities of the radio bearers for which the requested operation would have succeeded in the radio bearer setup, reconfiguration and failure messages. It must be noted that the actual changes to the bearers are not done – the basic idea is just to convey additional information to UTRAN.

**Clauses affected:** 8.2.1.4, 8.2.1.5, 8.2.2.6, 8.2.2.7, 8.2.3.4, 8.2.3.5, 10.2.25, 10.2.28, 10.2.31, 11.2, 11.3.4

**Other specs affected:**

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

**Other comments:**



help.doc

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

#### 8.2.1.4 Unsupported configuration in the UE

If UTRAN instructs the UE to use a configuration that it does not support, the UE transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC and set the IE "failure cause" the cause value "configuration unacceptable". If the radio bearer setup procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER SETUP FAILURE message.

When the transmission of the RADIO BEARER SETUP FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers, the UE shall clear the variable ORDERED\_CONFIG and the procedure ends.

#### 8.2.1.5 Physical channel failure

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

- Revert to the configuration prior to the reception of the RADIO BEARER SETUP message (old configuration) and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The procedure ends and the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers and resumes the normal operation as if no radio bearer establishment attempt had occurred.

If the radio bearer setup procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER SETUP FAILURE message.

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

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

#### 8.2.2.6 Unsupported configuration in the UE

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

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

When the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED\_CONFIG and the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. It shall resume the normal operation as if no radio bearer reconfiguration attempt had occurred and the procedure ends.

#### 8.2.2.7 Physical channel failure

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

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

- revert to the configuration prior to the reception of the RADIO BEARER RECONFIGURATION message (old configuration);
- transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC;
- set the cause value in IE "failure cause" to "physical channel failure";

- if the radio bearer reconfiguration procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message;

- when the transmission of the RADIO BEARER RECONFIGURATION FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends and the UE resumes the normal operation as if no radio bearer reconfiguration attempt had occurred.

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

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

#### 8.2.3.4 Unsupported configuration in the UE

If UTRAN instructs the UE to use a configuration that it does not support, the UE shall Transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "configuration unacceptable". If the radio bearer release procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RELEASE FAILURE message.

When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall clear the variable ORDERED\_CONFIG and the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends.

#### 8.2.3.5 Physical channel failure

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

- Revert to the configuration prior to the reception of the RADIO BEARER RELEASE message (old configuration) and transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC and set the value of the IE "failure cause" to "physical channel failure". When the transmission of the RADIO BEARER RELEASE FAILURE message has been confirmed by RLC, the UE shall resume data transmission on RB 2 and upwards if RLC-AM or RLC-UM is used on those radio bearers. The procedure ends and the UE resumes the normal operation as if no radio bearer release attempt had occurred;:-

- if the radio bearer release procedure affects several radio bearers, the UE may include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RELEASE FAILURE message.

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

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

### 10.2.25 RADIO BEARER RECONFIGURATION FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	
<b>RB information elements</b>				
<u>Radio bearers for which reconfiguration would have succeeded</u>	<u>OP</u>	<u>1..&lt;MaxRB Count&gt;</u>	<u>RB identity, 10.3.4.11</u>	

<u>Multi Bound</u>	<u>Explanation</u>
<u>MaxRBcount</u>	<u>Maximum number of RBs to be reconfigured</u>

### 10.2.28 RADIO BEARER RELEASE FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	
<b>RB information elements</b>				
<u>Radio bearers for which reconfiguration would have succeeded</u>	<u>OP</u>	<u>1..&lt;MaxRB Count&gt;</u>	<u>RB identity, 10.3.4.11</u>	

<u>Multi Bound</u>	<u>Explanation</u>
<u>MaxRBcount</u>	<u>Maximum number of RBs to be released</u>

### 10.2.31 RADIO BEARER SETUP FAILURE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Failure cause	MP		Failure cause and error information 10.3.3.12	
<b>RB information elements</b>				
<u>Radio bearers for which reconfiguration would have succeeded</u>	<u>OP</u>	<u>1..&lt;MaxRB Count&gt;</u>	<u>RB identity, 10.3.4.11</u>	

<u>Multi Bound</u>	<u>Explanation</u>
<u>MaxRBcount</u>	<u>Maximum number of RBs to be set up</u>

## 11.2 PDU definitions

IMPORTS

```

PredefinedConfigIdentity,
RAB-Info,
RAB-InformationSetupList,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2
    
```

FROM RadioBearer-IEs

```

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

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause FailureCauseWithProtErr,
  Radio bearer IES
  potentiallySuccessfulBearerList RB-IdentityList OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}
    
```

```

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

```
RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause FailureCauseWithProtErr,
    -- Radio bearer IEs
    potentiallySuccessfulBearerList RB-IdentityList OPTIONAL,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

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

```
RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause FailureCauseWithProtErr,
    -- Radio bearer IEs
    potentiallySuccessfulBearerList RB-IdentityList OPTIONAL,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}
```

### 11.3.4 Radio bearer information elements

```
RB-Identity ::= INTEGER (0..31)
RB-IdentityList ::= SEQUENCE (SIZE (1..maxRBcount)) OF RB-Identity
```

<h2 style="margin: 0;">CHANGE REQUEST</h2>			Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
<b>25.331</b>	<b>CR 275</b>	Current Version: <b>3.2.0</b>	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team		
For submission to: <b>TSG-RAN #8</b> <i>(list expected approval meeting # here)</i> ↑	For approval <input checked="" type="checkbox"/> For information <input type="checkbox"/>	Strategic <input type="checkbox"/> non-strategic <input type="checkbox"/>	(for SMG use only)

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

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

**Source:**    TSG-RAN WG2    **Date:**    2000-04-04

**Subject:**    Clarification of PDCP info

**Work item:**

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

(only one category shall be marked with an X)

**Reason for change:**

This CR proposes some editorial modification to the tabular presentations of the information elements. In the current specification the IE **EXPECT\_REORDERING** in PDCP Info IE is by default set to **TRUE**.

- One of the services expected from RLC by PDCP is In-Sequence delivery of PDCP PDUs and hence PDCP-PDUs won't be reordered during transmission on air link.
- PDCP does not perform buffering/retransmission of PDCP SDUs during data transfer using RLC UM/TM entities. Hence the algorithm need not reorder the PDCP SDUs.
- Further, during data transfer using RLC-AM entity buffering/retransmission of PDCP SDUs is not always performed.

From the above cases it is clear that the algorithm, in most cases does not perform reordering and hence the IE **EXPECT\_REORDERING** should be set to **FALSE**.

Hence in this CR we propose to set the default value of the optional IE **EXPECT\_REORDERING** should be defined as **FALSE**.

**Clauses affected:**    10.2.4.1

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



**Other  
comments:**



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

## 10.3.4.2 PDCP info

The purpose of the PDCP info IE is to indicate which algorithms shall be established and to configure the parameters of each of the algorithms.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	CV- <i>LosslessCriteria</i>		Boolean	TRUE means support
PDCP PDU header	MD		Enumerated (present, absent)	Whether a PDCP PDU header is existent or not. Default value is "present"
Header compression information	OP	1 to <Algorithm Count>		
>CHOICE <i>algorithm type</i>	MP			7 spare values needed, criticality: reject
>>RFC2507				Header compression according to IETF standard RFC2507
>>>F_MAX_PERIOD	MD		Integer (1..65535)	Largest number of compressed non-TCP headers that may be sent without sending a full header. Default value is 256.
>>>F_MAX_TIME	MD		Integer (1..255)	Compressed headers may not be sent more than F_MAX_TIME seconds after sending last full header. Default value is 5.
>>>MAX_HEADER	<del>OP</del> MD		Integer (60..65535)	The largest header size in octets that may be compressed. Default value is 168.
>>>TCP_SPACE	MD		Integer (3..255)	Maximum CID value for TCP connections. Default value is 15.
>>>NON_TCP_SPACE	MD		Integer (3..65535)	Maximum CID value for non-TCP connections. Default value is 15.
>>>EXPECT_REORDERING	MD		Enumerated (reordering not expected, reordering expected)	Whether the algorithm shall reorder PDCP SDUs or not. Default value is "reordering <u>not</u> expected".

**CHANGE REQUEST**

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

**25.331 CR 279**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** Editorial modification on Transport Ch capability

**Work item:**

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

**Reason for change:** Editorial mistakes are corrected.

**Clauses affected:** 10.3.3.39

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

**Other comments:**



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

### 10.3.3.39 Transport channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
<b>Downlink transport channel capability information elements</b>				
Max no of bits received	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length $T < 10$ ms  At least 3 spare values are needed.
Max convolutionally coded bits received	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length $T < 10$ ms  At least 3 spare values are needed
Max turbo coded bits received	CV <i>turbo_dec_sup</i>		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length $T < 10$ ms  At least 3 spare values are needed
Maximum number of simultaneous transport channels	MP		Enumerated(4, 8, 16, 32)	
Max no of received transport blocks	MP		Enumerated(4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks received within TTIs that end at within the same 10ms interval  At least 6 spare values needed
Maximum number of TFC in the TFCS	MP		Enumerated(16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 7 spare values needed
Maximum number of TF	MP		Enumerated(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo decoding	MP		Boolean	TRUE means supported
<b>Uplink transport channel capability information elements</b>				
Max no of bits transmitted	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920,	Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time  At least 3 spare values needed

			163840)	
Max convolutionally coded bits <del>received</del> <u>transmitted</u>	MP		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time  At least 3 spare values needed
Max turbo coded bits <u>transmitted</u> <del>received</del>	CV <i>turbo_enc_sup</i>		Enumerated(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time  At least 3 spare values needed
Maximum number of simultaneous transport channels	MP		Enumerated(2, 4, 8, 16, 32)	At least 3 spare values needed
Max no of transmitted transport blocks	MP		Enumerated(2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks transmitted within TTIs that start at the same time  At least 5 spare values needed
Maximum number of TFC in the TFCS	MP		Enumerated(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 5 spare values needed
Maximum number of TF	MP		Enumerated(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo encoding	MP		Boolean	TRUE means supported

Condition	Explanation
<i>turbo_dec_sup</i>	Presence is mandatory if IE Support of turbo decoding = True. Otherwise this field is not needed in the message.
<i>turbo_enc_sup</i>	Presence is mandatory if IE Support of turbo encoding = True. Otherwise this field is not needed in the message.

**CHANGE REQUEST**

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

**25.331 CR 280**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** Editorial modification on CN IE

**Work item:**

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

**Reason for change:** Need columns for some IEs are filled in.

**Clauses affected:** 10.3.1.5, 10.3.1.6, 10.3.1.11

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

**Other comments:**



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

## 10.3.1 CN Information elements

### 10.3.1.1 CN domain identity

Identifies the type of core network domain.

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

### 10.3.1.2 CN Domain System Information

Information element	Need	Multi	Type and reference	Semantics description
CN domain identity	MP		CN domain identity 10.3.1.1	
CHOICE CN Type	MP			
>GSM-MAP				
>>CN domain specific NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>ANSI-41				
>>CN domain specific NAS system information	MP		ANSI-41 NAS system information, 10.3.9.3	
CN domain specific DRX cycle length coefficient	MP		DRX cycle length coefficient, 10.3.3.9	

### 10.3.1.3 CN Information info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN identity	OP		PLMN identity 10.3.1.11	
CN common GSM-MAP NAS system information	OP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain related information	OP	1 to <MaxNoC Ndomains >		
>CN domain identity	MP		CN domain identity 10.3.1.1	
>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	

<b>Multi Bound</b>	<b>Explanation</b>
MaxNoCNdomains	Maximum number of CN domains=2

NOTE 1: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.

#### 10.3.1.4 Flow Identifier

This IE is allocated by UE for a particular session.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Flow Identifier	MP		Enumerated (0...15)	

#### 10.3.1.5 IMEI

This IE contains an International Mobile Equipment Identity. Setting specified in [TS 23.003]

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
IMEI	<u>MP</u>	15		
>IMEI digit	<u>MP</u>		INTEGER(0..9)	

#### 10.3.1.6 IMSI (GSM-MAP)

This IE contains an International Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN. Setting specified in [TS 23.003]

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
IMSI	<u>MP</u>	6 to 15		
>IMSI digit	<u>MP</u>		INTEGER(0..9)	

#### 10.3.1.7 Location Area Identification

Identifies uniquely a location area for a GSM-MAP type of PLMN. Setting specified in [TS24.008].

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
PLMN identity	MP		PLMN identity 10.3.1.11	
LAC	MP		Bit string(16)	

#### 10.3.1.8 NAS message

A non-access stratum message to be transferred transparently through UTRAN.



Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS message	MP		Octet string (1..4095)	

### 10.3.1.9 NAS system information (GSM-MAP)

This information element contains system information that belongs to the non-access stratum for a GSM-MAP type of PLMN. This information is transparent to RRC. It may contain either information specific to one CN domain (CS or PS) or information common for both CN domains.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
GSM-MAP NAS system information	MP		Octet string(1..8 )	

### 10.3.1.10 Paging record Type identifier

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging Record Type Identifier	MP		Enumerated (IMSI (GSM-MAP), TMSI (GSM-MAP)/ P-TMSI, IMSI (DS-41), TMSI (DS-41))	

### 10.3.1.11 PLMN identity

This information element identifies a Public Land Mobile Network for a GSM-MAP type of PLMN. Setting of digits is defined in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC	MP	3		
>MCC digit	MP		INTEGER(0..9)	
MNC	MP	2 to 3		
>MNC digit	MP		INTEGER(0..9)	

### 10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	At least 1 spare value needed Criticality: reject is needed

### 10.3.1.13 P-TMSI (GSM-MAP)

This IE contains a Packet Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P-TMSI	MP		Bit string (32)	Setting specified in [TS 23.003]

#### 10.3.1.14 RAB identity

This information element uniquely identifies a radio access bearer within a CN domain.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>RAB identity type</i>	MP			
>RAB identity (GSM-MAP)			Bit string (8)	Formatted according to [TS 24.008].
>RAB identity (ANSI-41)			Bit string (8)	

CHOICE <i>NAS binding info type</i>	Condition under which the given <i>RAB identity type</i> is chosen
RAB identity (GSM-MAP)	PLMN is of type GSM-MAP
RAB identity (ANSI-41)	PLMN is of type ANSI-41

#### 10.3.1.15 Routing Area Code

Identifies a routing area within a location area for a GSM-MAP type of PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Routing Area Code	MP		Bit string(8)	Setting specified in [TS 23.003]

#### 10.3.1.16 Routing Area Identification

Identifies uniquely a routing area for a GSM-MAP type of PLMN. Setting specified in [TS 23.003].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LAI	MP		Location area identification 10.3.1.7	
RAC	MP		Routing area code 10.3.1.15	

#### 10.3.1.17 Service Descriptor

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

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

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

### 10.3.1.18 TMSI (GSM-MAP)

This IE contains a Temporary Mobile Subscriber Identity, used towards a GSM-MAP type of PLMN.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
TMSI (GSM-MAP)	MP		Bit string (32)	Setting specified in [TS 23.003]

<b>CHANGE REQUEST</b>		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
<b>25.331</b>	<b>CR</b>	<b>281r3</b>	Current Version: <b>3.2.0</b>
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: <b>TSG-RAN #8</b> <i>list expected approval meeting # here ↑</i>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/>	<i>(for SMG use only)</i>
Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <a href="http://ftp.3gpp.org/Information/CR-Form-v2.doc">http://ftp.3gpp.org/Information/CR-Form-v2.doc</a>			

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

**Source:** TSG-RAN WG2 **Date:** 22<sup>nd</sup> May, 2000

**Subject:** Editorial modification on Physical CH IE

**Work item:**

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

**Reason for change:** Editorial mistakes are corrected.  
 (1) Need column and Type and reference column are filled.  
 (2) MaxFACHcount is changed to MaxFACHPCHcount.  
 (3) Need column of PICH info is changed from CV to OP since it is not possible to know which TFS is for PCH from the encoded data.  
 (4) Scrambling code for UL DPCH is corrected from Integer(0..777215 by step 16) to Integer(0..16777215) since there was an editorial mistake.  
 (5) Tabular description on number of DPDCH is corrected.

Changes made in rev.1: ASN.1 added  
 Changes made in rev.2: The changes proposed to the value range of UL scrambling code was not aligned between tabular description and ASN.1, so this is fixed. Also, the change regarding "Number of FBI bits" is removed.  
Changes made in rev. 3 : editorial modifications for the presentation of the encoding of the spreading factor.

**Clauses affected:** 10.3.6.1, 10.3.6.14, 10.3.6.15, 10.3.6.39, 10.3.6.52, 10.3.6.53, 10.3.6.54, 10.3.6.63, 10.3.6.65, 10.3.6.66

**Other specs Affected:**

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

**Other comments:**



help.doc

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

### 10.3.6 Physical CH Information elements

#### 10.3.6.1 AC-to-ASC mapping

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AC-to-ASC mapping table	MP	7		
> AC-to-ASC mapping	MP		Integer(0,..., 7)	Mapping of Access Classes to Access Service Classes (cf. Sec. 8.5.x1.)

#### 10.3.6.2 AICH Info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
STTD indicator	MP		STTD Indicator 10.3.6.58	
AICH transmission timing	MP		Enumerated (0, 1)	See parameter AICH_Transmission_Timing in TS 25.211

#### 10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This is the power per transmitted Acquisition Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AICH Power offset	MP		Enumerated(-10..+5)	Offset in dB, granularity of 1 dB

#### 10.3.6.4 Allocation period info

NOTE: Only for TDD.

Parameters used by UE to determine period of shared channel allocation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Allocation Activation Time	MP		Integer (1..256)	Frame number start of the allocation period.
Allocation Duration	MP		Integer (1..256)	Total number of frames for the allocation period.

### 10.3.6.5 ASC Info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ASC List	MP	1 to 8		List of Access Service classes
>Access service class	MP		Integer(1..8)	
>Repetition Period	MD		Enumerated Integer(1, 2, 4, 8)	Default value is continuous. Value 1 indicates continuous
>Offset	MP		Integer(0..Repetition Period - 1)	Note that this is empty if repetition period is set to 1

### 10.3.6.6 Block STTD indicator

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Block STTD indicator	MP		Boolean	TRUE indicates that block STTD is used

### 10.3.6.7 CCTrCH power control info

Parameters used by UE to set the SIR target value for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	TFCS Identity of this CCTrCH. Default value is 1.
Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.67	

### 10.3.6.8 Common timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
2 <sup>nd</sup> interleaving mode	MD		Enumerated( Frame, Timeslot)	Frame timeslot related interleaving. Default value is "Frame"
TFCI coding	MD		Enumerated( 4,8,16,32)	Describes the way the TFCI bits are coded. Defaults: 0 TFCI bits are not coded. 1 TFCI bit coded with 4 bits. 2 TFCI bits coded with 8 bits. 3 – 5 TFCI bits coded with 16 bits. 6 – 10 TFCI bits coded with 32 bits.
Puncturing limit	MP		Real(0.40..1.0 by step of 0.04)	
Repetition period	MD		Integer(1, 2,4,8,16,32,64)	Default is continuous allocation. Value 1 indicate continuous
Repetition length	MP		Integer(1.. Repetition period – 1 )	Note that this is empty if repetition period is set to 1

### 10.3.6.9 Constant value

This constant value is used by the UE to calculate the initial output power on PRACH according to the Open loop power control procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Constant value	MP		Integer (-10..10)	At least 11 spare values needed Criticality: reject is needed In dB and 1 dB granularity

### 10.3.6.10 CPCH persistence levels

NOTE: Only for FDD.

This IE is dynamic and is used by RNC for load balancing and congestion control. This is broadcast often in the system information message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer (1 .. <maxCPCHsetcount>)	Identifier for CPCH set info.
Dynamic persistence level	MP	1 to <maxmaxTFs>	Dynamic persistence level 10.3.6.23	Persistence level for transport format.

Multi Bound	Explanation
MaxTFss	Maximum number of TFs in a CPCH set
MaxCPCHsetcount	Maximum number of CPCH sets per Node B

### 10.3.6.11 CPCH set info

NOTE: Only for FDD.

This IE may be broadcast in the System Information message or assigned by SRNC. It is pseudo-static in a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		CPCH set ID 10.3.5.4	Indicates the ID number for a particular CPCH set allocated to a cell.
TFS	MP		Transport Format Set 10.3.5.20	Transport Format Set Information allocated to this CPCH set.
AP preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for AP in UL
AP-AICH scrambling code	MP		Integer (0..255)	Scrambling code for AP-AICH in DL
AP-AICH channelisation code	MP		Integer(0..255)	Channelisation code for AP-AICH in DL
CD preamble scrambling code	MP		Integer (0..255)	Preamble scrambling code for CD in UL
CD/CA-ICH scrambling code	MP		Integer (0..255)	Scrambling code for CD/CA-ICH in DL
CD/CA-ICH channelisation code	MP		Integer (0..255)	Channelisation code for CD/CA-ICH in DL
Available CD access slot subchannel	CV-CDSigPresent	1 to <maxSubChannelNum>		Lists the set of subchannels to be used for CD access preambles. Note: if not present, all subchannels are to be used without access delays.
>CD access slot subchannel	MP		Enumerated (0..11)	
Available CD signatures	OP	1 to <maxSignatureNum>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		Enumerated (0..15)	
Slot Format	MP			Indicates slot format of PCPCH for this CPCH set
> PC Preamble Slot Format	MP		Enumerated (0, 1)	Slot format for optional power control preamble in UL
> UL DPCCH Slot Format	MP		Enumerated (0,1,2,3,4,5)	Slot format for UL DPCCH
>DL DPCCH Slot Format	MP		Enumerated (0, 1)	Slot format for DL DPCCH
N_start_message	MP		Integer (1..8)	Number of Frames for start of message indication
Channel Assignment Active	OP		Boolean	When present, indicates that Node B send a CA message and mapping rule shall be used.
CPCH status indication mode	MP		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.	MP	1 to <maxPCPCHs>		



> UL scrambling code	MP		Integer (0..255)	For PCPCH message part
> DL channelisation code	MP		Integer (0..511)	For DPCCH in PCPCH message part
> DL scrambling code	OP		Integer (0..255)	If not present, the primary DL scrambling code is used
> PCP length	MP		Enumerated (0 access slots, 8 access slots)	Indicates length of power control preamble, 0 access slots (no preamble used) or 8 access slots
> UCSM Info	CV-NCAA			
>> Available Minimum Spreading Factor	MP	1 to <maxSFNum		The UE may use this CPCH at any equal to or greater than the indicated Spreading Factor for PCPCH message part. In UE channel selection mode, the Spreading Factor for initial access is the minimum Spreading Factor.
>>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>> NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM	OP	1 to <maxSigNum>		Required in UE channel selection mode.
>>> Available AP signature	MP	1 to <maxAPSignatureNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Enumerated (0..15)	
>>> Available AP access slot subchannel	OP	1 to <maxSubChannelNum>		Lists the set of subchannels to be used for AP access preambles in combination with the above AP signature. Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	MP		Enumerated (0..11)	
VCAM info	CV-CAA			
> Available Minimum Spreading Factor	MP	1 to <maxSFNum		
>> Minimum Spreading Factor	MP		Enumerated (4,8,16,32,64,128,256)	
>>NF_max	MP		Integer (1..64)	Maximum number of frames for PCPCH message part
>> Maximum available number of PCPCH	MP		Integer (1..64)	Maximum available number of PCPCH for the indicated Spreading Factor.
>> Available AP signatures	MP	1 to <maxAPSignatureNum>		Signatures for AP preamble in UL.
>>> AP signature			Enumerated (0..15)	
>> Available AP sub-channel	OP	1 to <maxAPsubCH		AP sub-channels for the given AP signature in UL. Note: if not present, all subchannels are to be used without access delays.
>>> AP sub-channel	MP		Enumerated (0..11)	

Condition	Explanation
<i>CDSigPresent</i>	This IE may be included if IE "Available CD signatures" is present.
<i>NCAA</i>	This IE is included if IE "Channel Assignment Active" is not present
<i>CAA</i>	This IE is included if IE ""Channel Assignment Active" is present.

Multi Bound	Explanation
<i>MaxSubChNum</i>	Maximum number of available sub channels (max = 12 subchannels)
<i>MaxCDSigNum</i>	Maximum number of available signatures for CD (max = 16 signatures)
<i>MaxSFNum</i>	Maximum number of available SFs. In case of single code, max=7.
<i>MaxPCPCHs</i>	Maximum number of PCPCH channels in a CPCH Set.
<i>MaxAPSigNum</i>	Maximum number of available signatures for AP (max = 16 signatures)
<i>MaxAPsubCH</i>	Maximum number of available sub channels for AP signature (max=12 sub channels)

NOTE: Criteria for DL power control needs to be defined.

### 10.3.6.12 CPCH Status Indication mode

CPCH Status Indication mode can take 2 values: PCPCH Availability (PA) mode and PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode. PAMASF mode is used when Channel Assignment is active. PA mode is used when Channel Assignment is not active (UE Channel Selection is active). These two separate modes are described independently in the subclause that follows. TS25.211 defines the Status Indicators (SIs) of the CSICH channel which convey the CPCH status information described here. A CSICH may contain from 1 upto a maximum of 60 Status Indicators.

#### 10.3.6.12.1 PCPCH Availability (PA) mode

In PA mode, CPCH Status Indication conveys the PCPCH Channel Availability value which is a 1 to 16 bit value which indicates the availability of each of the 1 to 16 defined PCPCHs in the CPCH set. There is one bit of the PCPCH Channel Availability (PCA) value for each defined PCPCH channel. If there are 2 PCPCHs defined in the CPCH set, then there are 2 bits in the PCA value. And likewise for other numbers of defined PCPCH channels up to 16 maximum CPCH channels per set when UE Channel Selection is active.

The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs	Number of SIs per frame
1, 2, 3	3
4,5	5
6,7,8,9,10,11,12,13,14,15	15
16	30

When the number of SIs per frame exceeds the number of defined PCPCHs, the SIs which exceed the number of PCPCHs shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA=1 indicates that the PCPCH is available, and PCA=0 indicates that the

PCPCH is not available. SI0 shall indicate the PCA of PCPCH1, SI1 shall indicate the PCA of PCPCH2, etc., for each defined PCPCH.

### 10.3.6.12.2 PCPCH Availability with Minimum Available Spreading Factor (PAMASF) mode

In PAMASF mode is similar to the PA mode with two differences:

1. The first three Status Indicators are used to convey the Minimum Available Spreading Factor (MASF) or maximum data rate which is available at that particular point in time.
2. The remaining SIs each convey a PCA value for one of the defined PCPCHs in the set, which may include upto 57 CPCHs when Channel Assignment is active.

MASF is a 3 bit number with bits MASF0 through MASF2 where MASF0 is the MSB of the MASF value and MASF2 is the LSB of the MASF value. MASF value bits map to Status Indicators (SIs) as follows:

MASF0 = SI0

MASF1 = SI1

MASF2 = SI2

The following table defines the SI indicator values to convey the Minimum Available Spreading Factor:

Minimum Available Spreading Factor (MASF)	SI0	SI1	SI2	Semantics description
N/A	0	0	0	No CPCH resources available.
256	0	0	1	Only 256 SF available.
128	0	1	0	Only 128 or greater SF available.
64	0	1	1	Only 64 or greater SF available.
32	1	0	0	Only 32 or greater SF available.
16	1	0	1	Only 16 or greater SF available.
08	1	1	0	Only 8 or greater SF available.
04	1	1	1	All SFs available.

The remaining SIs convey PCA values for the PCPCHs defined in the CPCH set, or they are unused and set to 0. The number of SIs (Status Indicators) per frame is a function of the number of defined PCPCH channels.

Number of defined PCPCHs	Number of SIs per frame
1, 2,	5
3,4,5,6,7,8,9,10,11,12	15
13,14,15,16,17,18,19,20,21,22,23,24,25,26,27	30
28....57	60

When the number of SIs > (# PCPCHs + 3), the SIs greater than or equal to (#PCPCHs + 3) shall be set to 0. Otherwise, the value of the SI shall indicate the PCA value for one of the defined PCPCHs, where PCA=1 indicates that the PCPCH is available, and PCA=0 indicates that the PCPCH is not available. SI3 shall indicate the PCA of PCPCH1, SI4 shall indicate the PCA of PCPCH2, etc., for each defined PCPCH.

### 10.3.6.13 Default DPCH Offset Value

NOTE: Only for FDD.

Indicates the default offset value within interleaving size at a resolution of 512chip (1/5 slot) to offset CFN in the UE. This is used to distribute discontinuous transmission periods in time and also to distribute NodeB-RNC transmission traffics in time. Even though the CFN is offset by DOFF, the start timing of the interleaving will be the timing that "CFN mod (interleaving size)"=0 (e.g. interleaving size: 2,4,8) in both UE and SRNC.

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

#### 10.3.6.14 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256, 512)	<del>Defined in CHOICE SF512- Andpilot with "number of its for pilot bits" in ASN.1</del>
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
<b>CHOICE SF</b>				
> SF = 256				
>> Number of bits for Pilot bits			Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits			Integer(4,8)	In bits
> Otherwise				(no data)

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

### 10.3.6.15 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.54	
>>DL channelisation code	MP	1 to <maxChan count>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>> <del>CHOICE Spreading factor</del>	<del>MP</del>		<del>Integer(4, 8, 16, 32, 64, 128, 256, 512)</del>	<del>Defined in CHOICE SF512-AndCodenum with "code number" in ASN.1</del>
>>>Code number	MP		Integer(0..maxCodeNumSpreading factor - 1)	
>>TPC combination index	MP		TPC combination index 10.3.6.62	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.56	
>>Closed loop timing adjustment mode	CH TxDiversity Mode		Enumerated(1 slot, 2 slot)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2".
>TDD				
>>DL CCTrCh List	CV HO list length	1..<maxCC TrCHcount >		
>>>TFCS Identity	CV HO Needed		<u>Transport Format Combination Set Identity</u> 10.3.5.18	Identity of this CCTrCh.
>>>Individual Timeslot info list		1 to < max Timeslot count>		The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.

>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	
>>>>Channelisation code list	MP	1 to <max Codes Count>		The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>>>Channelisation code	MP		Enumerated ( (16/1)...(16/16) )	

Condition	Explanation
<i>HO list length</i>	MaxCCTRCHcount is 8 in case of handover, otherwise it is equal to one.
<i>HO presence</i>	The element is only present in case of handover

Multi Bound	Explanation
<i>MaxChancount</i>	Maximum number of channelisation codes used for DL DPCH
<i>MaxCodeNum</i>	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for DPCHs = 14
<i>MaxCodesCount</i>	Maximum number of codes for one timeslots = 16
<i>MaxMidambleShift</i>	Maximum number of Midamble Shifts = 16

### 10.3.6.16 Downlink DPCH power control information

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

### 10.3.6.17 Downlink information common for all radio links

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.9.14	
CHOICE <i>mode</i>	MP			
>FDD				
>>Default DPCH Offset Value	MD		Default DPCH Offset Value, 10.3.6.13	Default value is 0
>>DPCH compressed mode info	MD		DPCH compressed mode info 10.3.6.22	Default value is the existing value of DPCH compressed mode information
>>TX Diversity Mode	MD		TX Diversity Mode 10.3.6.63	Default value is the existing value of TX Diversity mode
>>SSDT information	OP		SSDT information 10.3.6.57	
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	

### 10.3.6.18 Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info			Primary CPICH info 10.3.6.43	
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.32	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.29	
>TDD				
>>Primary CCPCH info			Primary CCPCH info 10.3.6.41	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.15	Note 1
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1

NOTE 1: This IE shall not be set in case of CELL UPDATE CONFIRM message.

Multi Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

### 10.3.6.19 Downlink information for each radio link short

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice mode	MP			
>FDD				
>>Primary CPICH info			Primary CPICH info 10.3.6.43	
Downlink DPCH info for each RL	OP		Downlink DPCH info for each RL 10.3.6.15	

Multi Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH



### 10.3.6.20 Downlink Outer Loop Control

This information element indicates whether the UE is allowed or not to increase its downlink SIR target value above the current value.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Outer loop control	MP		Enumerated( Increase allowed, Increase not allowed)	

### 10.3.6.21 Downlink PDSCH information

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.32	
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.29	

### 10.3.6.22 DPCH compressed mode info

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TGL	MP		Integer(1..15)	Transmission Gap length expressed in number of slots
CFN	MP		Integer(0..255)	Connection Frame Number when the first compressed frame starts
SN	MP		Integer(0..14)	Slot number when the transmission gap starts (within the CFN)
TGP1	MP		Integer(1..256)	The period of repetition of a set of consecutive frames containing up to 2 transmission gaps, for even gaps.
TGP2	MD		Integer(1..256)	For odd gaps. Default value is the value of TGP1
TGD	MP		Integer(0..35)	Transmission gap distance indicates the number of frames between two consecutive transmission gaps within a transmission gap period. If there is only one transmission gap in the transmission gap period, this parameter shall be set to zero.
PD	MP		Enumerated(1..35, Infinity)	The pattern duration is the total time of the compressed mode pattern (all consecutive TGPs) expressed in number of frames.
PCM	MP		Enumerated (mode 0, mode 1).	Power control mode during the frame after the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied
PRM	MP		Enumerated (mode 0, mode 1).	Power resume mode is the uplink power control algorithm to be used to compute the initial transmit power after the compressed mode gap.
UL/DL mode	MP		Enumerated (DL only, UL/DL)	Defines whether only DL or combined UL/DL compressed mode is used.
Compressed mode method	MP		Enumerated (puncturing, SF/2, upper layer scheduling, none)	Method for generating compressed mode gap None means that compressed mode pattern is stopped
Scrambling code change	CV SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
Downlink frame type	MP		Enumerated (A, B)	

DeltaSIR	MP		Real(0..7.5 by step of 0.5)	Delta in DL SIR target value to be set in the UE during the compressed frames
DeltaSIRafter	MP		Real(0..7.5 by step of 0.5)	Delta in DL SIR target value to be set in the UE one frame after the compressed frames.

Condition	Explanation
SF/2	The information element is mandatory if the value of the "Compressed mode method" IE is "SF/2", otherwise the IE is not needed.

### 10.3.6.23 Dynamic persistence level

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Dynamic persistence level	MP		Integer(1..8)	Level shall be mapped to a dynamic persistence value in the range 0 .. 1.

### 10.3.6.24 Frequency info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>UARFCN uplink (Nu)	MP		Integer(0..16383)	[25.101]
>>UARFCN downlink (Nd)	OP		Integer(0 .. 16383)	[25.101] If IE not present, default duplex distance of 190 MHz shall be used.
>TDD				
>>UARFCN (Nt)	MP		Integer(0 .. 16383)	[25.102]

### 10.3.6.25 Individual timeslot info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Integer(0..14)	Timeslot within a frame
TFCI existence	CH		Boolean	TRUE indicates that the TFCI exists. It shall be coded in the first physical channel of this timeslot.
Burst Type	MD		Enumerated(Type1, Type2)	Short or long midamble for this timeslot. Default value is "Type1".
Midamble Shift	MD		Integer(0..15)	Default value is the midamble shift selected by layer 1.

### 10.3.6.26 Individual Timeslot interference

Parameters used by the UE for uplink open loop power control in TDD.

Information element	Need	Multi	Type and reference	Semantics description
Timeslot number	MP		Integer(0..14)	
UL Timeslot Interference	MP		ULInterference 10.3.6.64	

### 10.3.6.27 Maximum allowed UL TX power

This information element indicates the maximum allowed uplink transmit power.

Information Element	Need	Multi	Type and reference	Semantics description
Maximum allowed UL TX power	MP		Integer(-50..33)	In dBm At least 44 spare values are needed Criticality: reject is needed

### 10.3.6.28 Midamble configuration

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Midamble burst type 1	MD		Enumerated(4, 8,16)	Maximum number of midamble shifts for bursttype 1. Default value is 8.
Midamble burst type 2	MD		Enumerated(3, 6)	Maximum number of midamble shifts for bursttype 2. Default value is 3.

Default value is all the subfields set to their default value.

### 10.3.6.29 PDSCH code mapping

NOTE: Only for FDD.

This IE indicates the association between each possible value of TFCI(field 2) and the corresponding PDSCH channelisation code(s). There are three fundamentally different ways that the UTRAN must choose between in order to signal the mapping information, these are described below. The signalling capacity consumed by the different methods will vary depending on the way in which the UTRAN configures usage of the DSCH. A fourth option is also provided which allows the UTRAN to replace individual entries in the TFCI(field 2) to PDSCH code mapping table with new PDSCH code values.

There are four different signalling methods defined. The signalling method shall be selected by the UTRAN.

Method #1 - Using code range

The mapping is described in terms of a number of groups, each group associated with a given spreading factor. The UE maps TFCI(field2) values to PDSCH codes in the following way. The PDSCH code used for TFCI(field 2) = 0, is given by the SF and code number = 'PDSCH code start' of Group = 1. The PDSCH code used for TFCI( field 2) = 1, is given by the SF and code number = 'PDSCH code start' + 1. This continues, with unit increments in the value of TFCI(field 2) mapping to unit increments in code number up until the point that code number = 'PDSCH code stop'. The process continues in the same way for the next group with the TFCI(field 2) value used by the UE when constructing its mapping table starting at the largest value reached in the previous group plus one. In the event that 'PDSCH code start' = 'PDSCH code stop' (as may occur when mapping the PDSCH root code to a TFCI (field 2) value) then this is to be interpreted as

defining the mapping between the channelisation code and a single TFCI (i.e., TFCI(field 2) should not be incremented twice).

Note that each value of TFCI (field 2) is associated with a given 'code number' and when the 'multi-code info' parameter is greater than 1, then each value of TFCI (field 2) actually maps to a set of PDSCH codes. In this case contiguous codes are assigned, starting at the channelisation code denoted by the 'code number' parameter and including all codes with code numbers up to and including 'code number' - 1 + the value given in the parameter 'multi-code info'.

#### Method #2 - Using TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given PDSCH channelisation code. The PDSCH code specified in the first group applies for all values of TFCI(field 2) between 0 and the specified 'Max TFCI(field2)'. The PDSCH code specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2)' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value starting at the largest value reached in the previous group plus one.

#### Method #3 - Explicit

The mapping between TFCI(field 2) value and PDSCH channelisation code is spelt out explicitly for each value of TFCI (field2)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Scrambling Code	MD		Secondary scrambling code 10.3.6.55	Scrambling code on which PDSCH is transmitted. Default is the same scrambling code as for the Primary CPICH
Choice <i>signalling method</i>	MP			
>code range				
>>PDSCH code mapping	MP	1 to <MaxNoCodeGroups>		
>>>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>multi-code info	MP		Integer(1..16)	This parameter indicates the number of PDSCH transmitted to the UE. The PDSCH codes all have the same SF as denoted by the 'Spreading factor' parameter. Contiguous codes are assigned, starting at the channelisation code denoted by the spreading factor and code number parameter and including all codes, with code numbers up to and including 'code number' - 1 + 'multi-code info'. Note that 'code number'-1+'multi-code info' will not be allowed to exceed 'maxCodeNumComp'
>>Code number (for PDSCH code start)	MP		Integer(0..maxCodeNumComp-1)	
>>Code number (for PDSCH code stop)	MP		Integer(0..maxCodeNumComp-1)	
>TFCI range				
>>DSCH mapping	MP	1 to <MaxNoTFCIGroups>		

>>>Max TFCI(field2) value	MP		Integer(1..1023)	This is the maximum value in the range of TFCI(field 2) values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNumComp-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Explicit				
>>PDSCH code info	MP	1 to <MaxTFCI_2_Combs>		The first instance of the parameter <i>PDSCH code</i> corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1 and so on.
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNumComp-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above
>Replace				This choice is made if the PDSCH code(s) associated with a given value of TFCI(field 2) is to be replaced.
>>Replaced PDSCH code	MP	1 to <MaxReplaceCount>		Identity of the PDSCH code(s) to be used for the specified value of TFCI(field 2). These code identity(s) replace any that had been specified before
>>>TFCI (field 2)	MP		Integer (0..1023)	Value of TFCI(field 2) for which PDSCH code mapping will be changed
>>>Spreading factor (for PDSCH code)	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	
>>>Code number (for PDSCH code)	MP		Integer(0..maxCodeNumComp-1)	
>>>multi-code info	MP		Integer(1..16)	Semantics as described for this parameter above

Multi Bound	Explanation
<i>MaxCodeNumComp</i>	Maximum number of codes at the defined spreading factor, within the complete code tree.
<i>MaxTFCI_2_Combs</i>	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI field 2)
<i>MaxNoTFCIGroups</i>	Maximum number of groups, each group described in terms of a range of TFCI(field 2) values for which a single PDSCH code applies.
<i>MaxNoCodeGroups</i>	Maximum number of groups, each group described in terms of a range of PDSCH channelisation code values for which a single spreading factor applies.
<i>MaxReplaceCount</i>	Maximum number of entries in the TFCI(field 2) to PDSCH code mapping table to be replaced

### 10.3.6.30 PDSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS Identity	MD		Transport format combination set Identity 10.3.5.18	TFCS to be used. Default value is 1.
Time info	MP		Time info 10.3.6.61	
Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
Timeslot List	CH	1 to <maxTime slotCount>		Timeslot List is needed if Timeslot List needs to be updated.
>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>Channelisation Code	MP		Enumerated( (16/1)..(16/1 6))	

Multi Bound	Explanation
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for PDSCHs = 14

### 10.3.6.31 PDSCH system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PDSCH information	MP	1 .. <maxPDS CHcount>		
>PDSCH info	MP		PDSCH info 10.3.6.30	
>DSCH TFS	OP		Transport format set 10.3.5.20	

Multi Bound	Explanation
<i>MaxPDSCHcount</i>	Maximum number of PDSCHs

### 10.3.6.32 PDSCH with SHO DCH Info

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DSCH radio link identifier	MP		Integer(0..511)	This parameter indicates on which radio link the user will be allocated resource on the DSCH. The CPICH scrambling code will be used for this purpose.
TFCI Combining set	OP			This is used to indicate which of the downlink TFCI(field 2) transmissions made on the DPCCHs within the active set should be soft combined on the physical layer. This parameter may only be sent if there is a 'hard' split of the TFCI field and in this case the sending of the parameter is optional.
Radio link identifier	OP	1 to <MaxCombineSet>		
>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	The CPICH scrambling code is used for this purpose

Multi Bound	Explanation
MaxCombineSet	Maximum number of radio links in the DCH active set transmitted from BS's under the CRNC from which the DSCH is being scheduled

### 10.3.6.33 Persistence scaling factors

This IE defines scaling factors associated with ASC 2 – ASC 7 (multiplicity corresponds to the number of PRACH partitions minus 2) to be applied to the dynamic persistence value. This IE shall not be present in system information if only ASC 0 and ASC 1 are defined. If it is not present for ASC >1, default persistence scaling factor 1 shall be used (see Sec. 8.5.x2).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service Class		1 to 6		
> Persistence scaling factor	MP		Enumerated(0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2)	Scaling factors in the range 0,...,1



### 10.3.6.34 PICH Info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>Channelisation code	MP		Integer(0..255)	SF is fixed and equal to 256
>>Number of PI per frame	MP		Enumerated (18, 36 72 144)	
>>STTD indicator	MP		STTD Indicator 10.3.6.58	
>TDD				
>>Channelisation code	MD		Enumerated ( (16/1)...(16/16) )	Default value is the channelisation code used by the SCCPCH carrying the associated PCH.
>>Timeslot	MD		Integer(0..14)	Default value is the timeslot used by the SCCPCH carrying the associated PCH.
>>Burst type	MP		Enumerated (Typ1,Typ2)	
>>Midamble shift	MD		Integer (0...maxMidambleShift – 1)	Default value is the midamble shift used by the SCCPCH carrying the associated PCH.
>>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 (2, 4, 8)	Indicates the length of one paging indicator in symbols.. Default value is 2.
>>NGAP	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.
>>NPCH	MD		Integer(1 .. 8)	Number of paging groups. Default value is 2.

### 10.3.6.35 PICH Power offset

NOTE: Only for FDD.

This is the power transmitted on the PICH minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PICH Power offset	MP		Enumerated(-10 .. +5)	Offset in dB, granularity 1 dB

### 10.3.6.36 PRACH info (for RACH)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Available Signature	MP	1 to <maxSigNum>		
>>>Signature	MP		Enumerated (0,1,2.....15)	
>>Available SF	MP		Enumerated (32,64,128,256)	In chips per symbol Defines the smallest permitted SF (i.e. the maximum rate)
>>Scrambling code number	MP		Integer (0 .. 15)	Identification of scrambling code see TS 25.213
>>Puncturing Limit	MP		Real(0.40..1.00 by step of 0.04)	
>>Available Sub Channel number	MP	1 to <maxSubChNum >		
>>>Sub Channel number	MP		Enumerated (0..11)	
>TDD				
>>Timeslot	MP		Integer (0...14)	
>>Channelisation code	MP		Enumerated ((8/1)...(8/8), (16/1)...(16/16))	1:1 mapping between spreading code and midamble shift
>>PRACH Midamble	OP		Enumerated (Direct, Direct/Inverted)	Direct or inverted midamble

Multi Bound	Explanation
<i>MaxSubChNum</i>	Maximum number of available sub channels = 12
<i>MaxSigNum</i>	Maximum number of available signatures = 16

### 10.3.6.37 PRACH partitioning

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Access Service class	MP	1 to 8		
>Available signature Start Index	MP		Integer(0..15)	
>Available signature End Index	MP		Integer(0..15)	
>Available sub-channel Start Index	MP		Integer(0..11)	
>Available sub-channel End Index	MP		Integer(0..11)	

The list of available signatures is renumbered from signature index 0 to signature index N-1, where N is the number of available signatures, starting with the lowest available signature number and continuing in sequence, in the order of increasing signature numbers.

- List of available signatures : 16 or less signatures are available.

- Ex : only signatures 0, 5, 10 and 15 are available, then :
- Signature 0 is : available signature index 0
- Signature 5 is : available signature index 1
- Signature 10 is : available signature index 2
- Signature 15 is : available signature index 3

The list of available access-slot sub-channels is renumbered from access-slot sub-channel index 0 to access-slot sub-channel index M-1, where M is the number of available access-slot sub-channels, starting with the lowest available access-slot sub-channel number and continuing in sequence, in the order of increasing access-slot sub-channel numbers.

- List of available Access Slot channels : 12 or less sub-channels are available.
- Ex : only sub-channels 0,1; 4,5; 8,9 are present, then :
- Sub-channel 0 is : available sub-channel index 0
- Sub-channel 1 is : available sub-channel index 1
- Sub-channel 4 is : available sub-channel index 2
- Sub-channel 5 is : available sub-channel index 3
- Sub-channel 8 is : available sub-channel index 4
- Sub-channel 9 is : available sub-channel index 5

One ASC has access to all the access-slot sub-channels between the Available sub-channel Start Index and the Available sub-channel End Index, and to all the signatures between the Available signature Start Index and the Available signature End Index.

NOTE: The above text may eventually be moved to a more appropriate location.

### 10.3.6.38 PRACH power offset

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Power offset P0	MP		Enumerated (1..8)	Power step when no acquisition indicator is received in dB
Preamble Retrans Max	MP		Integer (1..64)	Maximum number of preambles in one preamble ramping cycle

### 10.3.6.39 PRACH system information

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRA CHcount>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.36	
>RACH TFS	MP		Transport format set 10.3.5.20	
>RACH TFCS	MP		Transport Format Combination Set 10.3.5.17	
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>PRACH partitioning	MP		PRACH partitioning 10.3.3.37	
>>>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.33	
>>>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5
>>>Primary CPICH TX power	MP		Primary CPICH TX power 10.3.6.4244	
>>>Constant value	MP		Constant value 10.3.6.9	
>>>PRACH power offset	MP		PRACH power offset 10.3.6.38	
>>>RACH transmission parameters	MP		RACH transmission parameters 10.3.6.49	
>>>AICH info	MP		AICH info 10.3.6.2	
>>TDD				
>>>ASC info	OP		ASC info 10.3.6.5	

Multi bound	Explanation
<i>MaxPRACHcount</i>	Maximum number of PRACHs

### 10.3.6.40 Predefined PhyCH configuration

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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Uplink radio resources				
Uplink DPCH info	MP		Uplink DPCH info 10.3.6.65	
>Uplink DPCH power control info	MP		Uplink DPCH power control info 10.3.6.67	
>>CHOICE mode	MP			
>>>FDD				
>>>>Maximum allowed UL DPCH TX power	CV		Maximum allowed UL DPCH TX power 10.3.6.27	
>>>>PC Preamble	CV		Enumerated(0,8)	
>>>>TFCI existence	MP		Boolean	TRUE means existence
>>>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
Downlink radio resources				
Downlink information common for all radio links				
>Downlink DPCH info common for all RL	OP		Downlink DPCH info common for all RL 10.3.6.14	
>Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.16	
>Spreading factor			Enumerated(4, 8, 16, 32, 64, 128, 256)	
>Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
>TFCI existence	MP		Boolean	TRUE means existence
>Number of bits for Pilot bits	OP		Enumerated (2,4,8)	In bits
>CHOICE mode	MP			
>>FDD				
>>>Default DPCH Offset Value	OP		Default DPCH Offset Value 10.3.6.13	

### 10.3.6.41 Primary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>TX Diversity indicator	MD		Boolean	Default value is "TRUE"
>TDD				
>>Timeslot	CV		Integer (0...7)	PCCPCH timeslot Timeslot is needed if Message Type is System Information otherwise it is absent
>>Cell parameters ID	CV		Integer (0...127)	For the cell parameter table Cell parameters ID is absent in SIB5 and SIB6
>>Sync case	CV		Enumerated (1, 2)	Case 1,2 Sync case is absent in SIB5 and SIB6
>>Repetition period	MD		Integer (1, 2, 4, 8, 16, 32, 64)	Repetition period of the PCCPCH. Value 1 indicates continuous allocation. Default value is 1
>>Repetition length	MP		Integer (1...Repetition period - 1)	Length of the allocation for each repetition. Note that this is empty is Repetition Period is set to 1
>>Offset	MP		Integer (0... Repetition period-1)	SFN modulo Repetition period = offset. Note that this is empty is Repetition Period is set to 1
>>Block STTD indicator	MD		Block STTD indicator 10.3.6.6	Default value is "TRUE"

### 10.3.6.42 Primary CCPCH TX Power

NOTE: Only for TDD.

Information Element/group name	Need	Multi	Type and reference	Semantics description
Primary CCPCH Tx Power	MP		Enumerated(6..43)	In dBm and 1 dB granularity

### 10.3.6.43 Primary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary scrambling code	MP		Enumerated(0..511)	

### 10.3.6.44 Primary CPICH Tx power

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH Tx Power	MP		Enumerated(-10..50)	In dBm and 1 dB granularity At least 3 spare values are needed for future extensions with criticality reject

### 10.3.6.45 Primary CPICH usage for channel estimation

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH usage for channel estimation	MP		Enumerated(Primary CPICH may be used, Primary CPICH shall not be used)	

### 10.3.6.46 PUSCH info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE PUSCH allocation	MP			
>PUSCH allocation pending			Null	
>PUSCH allocation assignment				
>>PUSCH power control info	OP		PUSCH power control info 10.3.6.47	
>>Time info	MP		Time info 10.3.6.61	
>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>Timeslot List	CH	1 to <maxTime slotCount>		Timeslot List is needed if Timeslot List needs to be updated.
>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.
>>>Channelisation Code	MP		Enumerated((1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	

Multi Bound	Explanation
<i>MaxTimeslotcount</i>	Maximum number of timeslots used for PUSCHs = 14

### 10.3.6.47 PUSCH power control info

NOTE: Only for TDD.

Interference level measured for a frequency at the UTRAN access point used by UE to set PUSCH output power.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL target SIR	MP		Real (-11 .. 20 by step of 0,5)	in dB

### 10.3.6.48 PUSCH system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PUSCH information	MP	1 .. <maxPUSCHcount>		
>PUSCH info	MP		PUSCH info 10.3.6.46	
>USCH TFS	OP		Transport format set 10.3.5.20	

Multi Bound	Explanation
<i>MaxPUSCHcount</i>	Maximum number of PUSCHs

### 10.3.6.49 RACH transmission parameters

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mmax	MP		Integer(1..32)	Maximum number of preamble cycles
NB01min	MP			Sets lower bound for random back-off
NB01max	MP			Sets upper bound for random back-off



### 10.3.6.50 Radio link addition information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.15	
TFCI combining indicator	OP		TFCI combining indicator 10.3.6.60	
Secondary CCPCH info	OP		Secondary CCPCH info 10.3.6.52	Note 1
References to system information blocks	OP	1 to <MaxSysInfoBlockFACHCount>		Note 1
>Scheduling information	MP		Scheduling information 10.3.8.11	Note 1

NOTE 1: The Secondary CCPCH info and the references to SIB are present when the UE needs to listen to system information on FACH.

Multi Bound	Explanation
MaxSysInfoBlockFACHCount	Maximum number of references to system information blocks on the FACH

### 10.3.6.51 Radio link removal information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	

### 10.3.6.52 Secondary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Selection Indicator	CV- <u>BCH</u>		Enumerated (On, Off)	Needed if send on BCH.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.54	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>STTD indicator	MD		STTD Indicator 10.3.6.58	Default value is "TRUE"
>>Spreading factor	MP		Enumerated integer(4, 8, 16, 32, 64, 128, 256)	<del>Defined in CHOICE SF256-AndCodenum with "code number" in ASN.1</del>
>>Code number	MP		Integer(0..maxCodeNum spreading factor - 1)	
>>Pilot symbol existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>TFCl existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>Fixed or Flexible Position	MD		Enumerated (Fixed, Flexible)	Default value is "Flexible"
>>Timing Offset	MD		Enumerated(0..38144 by step of 256)	Chip Delay of the Secondary CCPCH relative to the Primary CCPCH. Default value is 0.
>TDD				
>>Offset	MD		Integer (0..Repetition Period -1)	SFN modulo Repetition period = offset. Repetition period is the one indicated in the accompanying Common timeslot info IE
>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	
>>Channelisation Code	MP		Enumerated( (16/1)..(16/16) )	

### 10.3.6.53 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCCPCHcount >		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.52	Note 1
>TFCS	MP		Transport format set 10.3.5.20	For FACHs and PCH
>FACH/PCH information	MP	1 to <maxFACHPCHcount >		
>>TFS	MP		Transport format set 10.3.5.20	For each FACHs and PCH Note 2
>>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	<u>OPTIONAL</u>		PICH info 10.3.6.34	PICH info is present only when PCH is multiplexed on Secondary CCPCH

NOTE 1: The secondary CCPCH carrying the PCH shall be the first Secondary CCPCH information in the list.

NOTE 2: TFS for PCH shall be the first FACH/PCH information in the list if PCH exists.

Multi bound	Explanation
<i>MaxSCCPCHcount</i>	Maximum number of secondary CCPCHs
<i>MaxFACHPCHcount</i>	Maximum number of FACHs and PCHs mapped onto secondary CCPCHs

### 10.3.6.54 Secondary CPICH info

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
Channelisation code	MP		Enumerated(0..255)	<u>SF=256</u>

### 10.3.6.55 Secondary scrambling code

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Secondary scrambling code	MP		Enumerated(1..15)	At least 1 spare value needed Criticality: reject is needed

### 10.3.6.56 SSST cell identity

NOTE: Only for FDD.

This IE is used to associate a cell identity with a given radio link.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SSDT cell id	MP		Enumerated (a, b, c, d, e, f, g, h)	

### 10.3.6.57 SSDT information

NOTE: Only for FDD.

This information element indicates the status (e.g. initiated/terminated) of the Site Selection.

Diversity Transmit power control (SSDT). It is used to change the SSDT status. The parameter 'code word set' indicates how cell identities are coded (using many bits or few, values are long, medium, or short).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
S field	MP		Enumerated (1, 2)	in bits
Code Word Set	MP		Enumerated (long, medium, short, SSDT off)	

NOTE: These parameters shall be set optionally associated with DL DPCH info but not for each RL.

### 10.3.6.58 STTD indicator

Indicates whether STTD is used or not.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
STTD Indicator	MP		Boolean	TRUE means that STTD is used

### 10.3.6.59 TFC Control duration

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC Control duration	MP		Enumerated (1, 16, 24, 32, 48, 64, 128, 192, 256, 512)	Defines the period in multiples of 10 ms frames for which the defined TFC sub-set is to be applied. At least 8 spare values for future extensions with criticality reject are needed.

### 10.3.6.60 TFCI Combining Indicator

NOTE: Only for FDD.

This IE indicates whether the TFCI (field 2) which will be transmitted on the DPCCCH of a newly added radio link should be soft combined with the others in the TFCI (field 2) combining set. This IE can only be sent when the UE is in CELL\_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCl combining indicator	MP		Boolean	TRUE means that TFCl is combined

#### 10.3.6.61 Time info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MD		Activation time 10.3.3.1	Frame number start of the physical channel existence. Default value is "Now"
Duration	MD		Integer(1..4096)	Total number of frames the physical channel will exist. Default value is "infinite".

#### 10.3.6.62 TPC combination index

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC combination index	MP		Enumerated(0..5)	Radio links with the same index have TPC bits, which for the UE are known to be the same.

#### 10.3.6.63 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TX diversity Mode	MP		Enumerated (none, STTD, closed loop mode1, closed loop mode2)	

#### 10.3.6.64 UL interference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL interference	MP		Enumerated (-110..-70)	In dBm and 1 dB step At least 23 spare values with criticality reject are needed

NOTE: In TDD, this IE is a timeslot specific value.

### 10.3.6.65 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.67	
CHOICE <i>mode</i>	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	<u>MP</u>		<u>Integer(0..777215 by step of 16)</u> <u>Integer(0..16777215)</u>	
>>Number of DPDCH	<u>CV-Single</u>	1 to <maxDPDCHcount>		MaxDPDCH is 1 in <u>HANDOVER TO UTRAN COMMAND</u>
>>Number of DPDCH	<u>MD</u>		<u>Integer(2..maxDPDCH)</u>	Default value is 1. Number of DPDCH is 1 in <u>HANDOVER TO UTRAN COMMAND</u>
>>>spreading factorDPDCH channelisation code	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSdT or FB Mode Transmit Signalling is supported.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>UL CCTrCH List	CH	1 to <maxULCCTrCHcount>		MaxULCCTrCHcount is 1 if not in TDD – TDD handover procedure.
>>>TFCS Identity	MD		<u>Transport Format Combination Set Identity 10.3.5.18</u>	Default value is 1.
>>>Time info	MP		Time info 10.3.6.61	
>>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>>Timeslot List	CH	1 to < max Timeslot count>		Timeslot List is needed if Timeslot List needs to be updated.
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	The first instance of the parameter Individual Timeslot Info corresponds to the timeslot that shall be used first by the physical layer, the second to the timeslot that shall be used second and so on.

>>>>Channelisation Code	MP		Enumerated( (1/1),(2/1),(2/2),(4/1)..(4/4),(8/1)..(8/8),(16/1)..(16/16))	
-------------------------	----	--	--	--

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

Multi Bound	Explanation
MaxDPDCHcount	Maximum number of DPDCHs
MaxTimeslotcount	Maximum number of timeslots used for DPCHs
MaxULCCTrCHcount	Maximum number of CCTrCHs configured by the message = 8

### 10.3.6.66 Uplink DPCH info Short

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	MP		Uplink DPCH power control info Short 10.3.6.68	
CHOICE mode	MP			
>FDD				
>>Scrambling code type	MP		Enumerated( short, long)	
>>>Reduced scrambling code number	MP		Integer(0..8191)	Sub-range of values for initial use upon handover to UTRAN.
>> spreading factorDPDCH channelisation code	MP		Enumerated( 4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part There is only one DPDCH for this case
>>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSdT or FB Mode Transmit Signalling is supported.
>TDD				(no data)

Multi Bound	Explanation
MaxDPDCHcount	Maximum number of DPDCHs

### 10.3.6.67 Uplink DPCH power control info

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and parameters for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Enumerated(-164,...-6 by step of 2)	In dB
>>PC Preamble	CV		Enumerated (0, 8)	PC Preamble is absent in HANDOVER TO UTRAN COMMAND. Otherwise it is present. Number of power control preamble slots
>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV algo		Enumerated (1, 2)	In dB
>TDD				
>>Maximum allowed UL DPCH TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is according to power class (25.102).
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>Individual timeslot interference info	CH HO case	1 to...<TS Count>		
>>> Individual timeslot interference	MP		Individual timeslot interference 10.3.6.26	
>>DPCH Constant Value	CH HO case		Constant Value 10.3.6.9	Quality Margin

Condition	Explanation
<i>algo</i>	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed
<i>HO case</i>	This IE shall be present in the case of handover

Multi Bound	Explanation
<i>TS Count</i>	Number of uplink timeslots used for this dedicated CCTrCH

### 10.3.6.68 Uplink DPCH power control info Short

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



Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Enumerated(-164..-6 by step of 2)	In dB
>>PC Preamble	CV		Enumerated(0, 8)	PC Preamble is absent in HANDOVER TO UTRAN COMMAND. Otherwise it is present. Number of power control preamble slots
>>Power Control Algorithm	MP		Enumerated(algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>TPC step size	CV algo		Enumerated(1dB, 2dB)	
>TDD				(no data)

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

### 10.3.6.69 Uplink Timing Advance

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Timing Advance	MP		Integer(0..63)	Absolute timing advance value to be used to avoid large delay spread at the NodeB

## 11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

maxAddRLcount,
maxAP-SigNum,
maxAP-SubCH,
maxChanCount,
maxCodeCount,
maxCodeNum,
maxCodeNumComp-1,
maxCombineSet,
maxCPCH-SetCount,
maxDelRLcount,
maxDPDCHcount,
maxFACHPCH-Count,
maxMidambleShift-1,
maxNoCodeGroups,
maxNoTFCI-Groups,
maxPCPCHs,
maxPDSCHcount,
maxPRACHcount,
maxPUSCHcount,
maxReplaceCount,
maxRLcount,
maxSCCPCHcount,
maxSigNum,
maxSF-Num,
maxSubChNum,
maxTFCI-2-Combs,
maxTFs,
maxTimeslotCount,

```

```

    maxTScout,
    maxUL-CCTrCHcount
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    FACH-PCH-InformationList,
    TFCS,
    TFCS-Identity,
    TransportFormatSet
FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

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

AC-To-ASC-MappingTable ::=           SEQUENCE (SIZE (7)) OF
                                      AC-To-ASC-Mapping

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

AccessServiceClassIndex ::=          INTEGER (1..8)

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

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

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

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

AP-AICH-ChannelisationCode ::=       INTEGER (0..255)

AP-AICH-ScramblingCode ::=           INTEGER (0..255)

AP-PreambleScramblingCode ::=        INTEGER (0..255)

AP-Signature ::=                     INTEGER (0..15)

AP-Subchannel ::=                    INTEGER (0..11)

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

ASC-Info ::=                         SEQUENCE {
    asc-List                          ASC-List
}

ASC-List ::=                         SEQUENCE (SIZE (1..8)) OF
                                      ASC

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

AvailableAP-SignatureList ::=         SEQUENCE (SIZE (1..maxAP-SigNum)) OF
                                      AP-Signature

AvailableAP-SubchannelList ::=        SEQUENCE (SIZE (1..maxAP-SubCH)) OF
                                      AP-Subchannel

```

AvailableMinimumSF-VCAM ::=	SEQUENCE {	
minimumSpreadingFactor	MinimumSpreadingFactor,	
nf-Max	NF-Max,	
maxAvailablePCPCH-Number	MaxAvailablePCPCH-Number,	
availableAP-SignatureList	AvailableAP-SignatureList,	
availableAP-SubchannelList	AvailableAP-SubchannelList	OPTIONAL
}		
AvailableMinimumSF-ListUCSM ::=	SEQUENCE (SIZE (1..maxSF-Num)) OF	
	MinimumSpreadingFactor	
AvailableMinimumSF-ListVCAM ::=	SEQUENCE (SIZE (1..maxSF-Num)) OF	
	AvailableMinimumSF-VCAM	
AvailableSignatureList ::=	SEQUENCE (SIZE (1..maxSigNum)) OF	
	Signature	
AvailableSubChannelNumber ::=	INTEGER (0..11)	
AvailableSubChannelNumberList ::=	SEQUENCE (SIZE (1..maxSubChNum)) OF	
	AvailableSubChannelNumber	
BlockSTTD-Indicator ::=	BOOLEAN	
BurstType ::=	ENUMERATED {	
	short1, long2 }	
BurstType1 ::=	ENUMERATED { ms4, ms8, ms16 }	
BurstType2 ::=	ENUMERATED { ms3, ms6 }	
CCTrCH-PowerControlInfo ::=	SEQUENCE {	
tfcs-Identity	TFCS-Identity	OPTIONAL,
ul-DPCH-PowerControlInfo	UL-DPCH-PowerControlInfo	
}		
CD-AccessSlotSubchannel ::=	INTEGER (0..11)	
CD-AccessSlotSubchannelList ::=	SEQUENCE (SIZE (1..maxSubChNum)) OF	
	CD-AccessSlotSubchannel	
CD-CA-ICH-ChannelisationCode ::=	INTEGER (0..255)	
CD-CA-ICH-ScramblingCode ::=	INTEGER (0..255)	
CD-PreambleScramblingCode ::=	INTEGER (0..255)	
CD-SignatureCode ::=	INTEGER (0..15)	
CD-SignatureCodeList ::=	SEQUENCE (SIZE (1..maxSigNum)) OF	
	CD-SignatureCode	
CellParametersID ::=	INTEGER (0..127)	
CFN ::=	INTEGER (0..255)	
ChannelAssignmentActive ::=	CHOICE {	
notActive	NULL,	
isActive	VCAM-Info	
}		
ChannelisationCode256 ::=	INTEGER (0..255)	
ChannelReqParamsForUCSM ::=	SEQUENCE {	
availableAP-SignatureList	AvailableAP-SignatureList,	
availableAP-SubchannelList	AvailableAP-SubchannelList	
}		
ChannelReqParamsForUCSM-List ::=	SEQUENCE (SIZE (1..maxSigNum)) OF	
	ChannelReqParamsForUCSM	
ClosedLoopTimingAdjMode ::=	ENUMERATED {	
	slot1, slot2 }	
<del>CodeNumber ::=</del>	<del>INTEGER (0..maxCodeNum)</del>	
CodeNumberDSCH ::=	INTEGER (0..maxCodeNumComp-1)	
CodeRange ::=	SEQUENCE {	
pdsch-CodeMapList	PDSCH-CodeMapList,	
codeNumberStart	CodeNumberDSCH,	
codeNumberStop	CodeNumberDSCH	

```

}

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

CommonTimeslotInfo ::=                       SEQUENCE {
    secondInterleavingMode                   SecondInterleavingMode           OPTIONAL,
    tfci-Coding                              TFCI-Coding                     OPTIONAL,
    puncturingLimit                          PuncturingLimit,
    repetitionPeriodAndLength                RepetitionPeriodAndLength       OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=                 SEQUENCE {
    secondInterleavingMode                   SecondInterleavingMode           OPTIONAL,
    tfci-Coding                              TFCI-Coding                     OPTIONAL,
    puncturingLimit                          PuncturingLimit,
    repetitionPeriodLengthAndOffset          RepetitionPeriodLengthAndOffset OPTIONAL
}

CompressedModeMethod ::=                     CHOICE {
    puncturing                               NULL,
    sf-2                                     ScramblingCodeChange,
    upperLayerScheduling                     NULL,
    noCompressing                            NULL
}

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

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

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

CPCH-SetInfo ::=                            SEQUENCE {
    cpch-SetID                               CPCH-SetID,
    transportFormatSet                       TransportFormatSet,
    ap-PreambleScramblingCode                AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode                   AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode               AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode                 CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode                 CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode             CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList              CD-AccessSlotSubchannelList     OPTIONAL,
    cd-SignatureCodeList                     CD-SignatureCodeList            OPTIONAL,
    slotFormat                               SlotFormat,
    n-StartMessage                           N-StartMessage,
    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..maxCPCH-SetCount)) OF
                                             CPCH-SetInfo

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

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

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

DL-CCTrCh ::=                              SEQUENCE {
    individualTS-InfoDL-CCTrCHList          IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=                           SEQUENCE {
    tfcs-Identity                            TFCS-Identity,
    individualTS-InfoDL-CCTrCHList          IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=                          CHOICE {

```

```

    single
    handover
    }
    DL-CCTrCh,
    SEQUENCE (SIZE (1..8)) OF
    DL-CCTrCh-HO
}

DL-ChannelisationCode ::=
    secondaryScramblingCode
    codeNumberSF-AndCodeNumber
    }
    SEQUENCE {
    SecondaryScramblingCode
    CodeNumberSF512-AndCodeNumber
    }

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

DL-CommonInformation ::=
    dl-DPCH-InfoCommon
    modeSpecificInfo
    fdd
    defaultDPCH-OffsetValue
    dpch-CompressedModeInfo
    tx-DiversityMode
    ssdt-Information
    },
    tdd
    ul-TimingAdvance
    }
    }
    SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
    SEQUENCE {
    DefaultDPCH-OffsetValue
    DPCH-CompressedModeInfo
    TX-DiversityMode
    SSDT-Information
    },
    SEQUENCE {
    UL-TimingAdvance
    }
    }
    }
    }
    SEQUENCE {
    DL-DPCH-InfoCommon
    CHOICE {
    SEQUENCE {
    DefaultDPCH-OffsetValue
    }
    },
    tdd
    NULL
    }
    }
    }
    ENUMERATED {
    slf0, slf1 }

DL-DPCH-InfoCommon ::=
    dl-DPCH-PowerControlInfo
    spreadingFactorAndPilot
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible
    tfci-Existence
    }
    SEQUENCE {
    DL-DPCH-PowerControlInfo,
    SF512-AndPilotSF-DL-DPCH,
    PositionFixedOrFlexible,
    BOOLEAN
    }

DL-DPCH-InfoPerRL ::=
    fdd
    pCPICH-UsageForChannelEst
    secondaryCPICH-Info
    dl-ChannelisationCodeList
    tpc-CombinationIndex
    ssdt-CellIdentity
    closedLoopTimingAdjMode
    },
    tdd
    dl-CCTrChList
    }
    CHOICE {
    SEQUENCE {
    PCPICH-UsageForChannelEst
    SecondaryCPICH-Info
    DL-ChannelisationCodeList,
    TPC-CombinationIndex,
    SSDT-CellIdentity
    ClosedLoopTimingAdjMode
    },
    SEQUENCE {
    DL-CCTrChList
    }
    }
    }
    SEQUENCE {
    modeSpecificInfo
    fdd
    dpc-Mode
    },
    tdd
    NULL
    }
    }
    }
    ENUMERATED {
    dl-FrameTypeA, dl-FrameTypeB }

DL-InfoPerRL ::=
    dl-InformationPerRL
    dl-DPCH-InfoPerRL
    }
    SEQUENCE {
    DL-InformationPerRL-Short,
    DL-DPCH-InfoPerRL
    }

DL-InfoPerRL-List ::=
    SEQUENCE (SIZE (1..maxRLcount)) OF
    DL-InfoPerRL

```

```

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

SEQUENCE {
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info,
            PDSCH-SHO-DCH-Info
            PDSCH-CodeMapping
        }
        SEQUENCE {
            PrimaryCCPCH-Info
        }
    }
    DL-DPCH-InfoPerRL
    SecondaryCCPCH-Info
    SIB-ReferenceListFACH
}
OPTIONAL,
OPTIONAL
OPTIONAL

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

DL-InformationPerRL-Short ::=
modeSpecificInfo
    fdd
        primaryCPICH-Info
    },
    tdd
        NULL
},
dl-DPCH-InfoPerRL
}
DL-DPCH-InfoPerRL
OPTIONAL

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

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

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

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

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

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

DPCH-CompressedModeInfo ::=
SEQUENCE {
    tgl
        TGL,
    cfn
        CFN,
    sn
        Timeslot,
    tgp1
        TGP,
    tgp2
        TGP
    },
    tgd
        TGD,
    pd
        PD,
    pcm
        PCM,
    prn
        PRM,
    ul-DL-Mode
        UL-DL-Mode,
    compressedModeMethod
        CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType
        DL-FrameType,
    deltaSIR
        DeltaSIR,
    deltaSIRAfter
        DeltaSIR
}
OPTIONAL,

DPDCH-ChannelisationCode ::=
ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::=
SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

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

```

```

}
DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
                      DSCH-Mapping
DSCH-RadioLinkIdentifier ::= INTEGER (0..511)
DurationTimeInfo ::= INTEGER (1..4096)
DynamicPersistenceLevel ::= INTEGER (1..8)
DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
                                 DynamicPersistenceLevel
DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTFs)) OF
                                   DynamicPersistenceLevel
FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet TransportFormatSet,
    ctch-Indicator      BOOLEAN
}
| FACH-PCH-InformationList ::= SEQUENCE (SIZE(1..maxFACHPCH-Count)) OF
                               FACH-PCH-Information
FBI-BitNumber ::= INTEGER (1..2)
FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd,
        },
        tdd SEQUENCE {
            uarfcn-Nt UARFCN-Nt
        }
    }
}
IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber Timeslot,
    tfci-Existence BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType      BurstType,
    midambleShift  MidambleShift
}
IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}
IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                   IndividualTS-InfoDL-CCTrCH
IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}
IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                 IndividualTS-InfoPDSCH
IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}
IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                 IndividualTS-InfoPUSCH
IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}
IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTimeslotCount)) OF
                                   IndividualTS-InfoUL-CCTrCH
IndividualTS-Interference ::= SEQUENCE {
    timeslot Timeslot,
    ul-TimeslotInterference UL-Interference
}

```

```

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

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

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

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

MidambleConfiguration ::= SEQUENCE {
    burstType1
        BurstType1,
    burstType2
        BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

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

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

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

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

-- **TODO**, not defined yet
NB01Max ::= SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::= SEQUENCE {
}

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

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

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

PC-Preamble ::= ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::= ENUMERATED {
    slf0, slf1 }

PCM ::= ENUMERATED {
    pc-mode0, pc-mode1 }

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

PCPCH-ChannelInfo ::= SEQUENCE {
    pcpch-UL-ScramblingCode
        INTEGER (0..255),
    pcpch-DL-ChannelisationCode
        INTEGER (0..511),
    pcpch-DL-ScramblingCode
        INTEGER (0..255),
    pcp-Length
        PCP-Length,
    ucsM-Info
        UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::= INTEGER (0..35)

PDSCH-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 }

PDSCH-CodeInfo ::= SEQUENCE {

```



```

    spreadingFactor          SF-PDSCH,
    codeNumber               CodeNumberDSCH,
    multiCodeInfo           MultiCodeInfo
}

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

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

PDSCH-CodeMapList ::=      SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
                             PDSCH-CodeMap

PDSCH-CodeMapping ::=      SEQUENCE {
    dl-ScramblingCode       SecondaryScramblingCode,
    signallingMethod        CHOICE {
        codeRange           CodeRange,
        tfci-Range         DSCH-MappingList,
        explicit            PDSCH-CodeInfoList,
        replace             ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Info ::=             SEQUENCE {
    tfcs-Identity            TFCS-Identity                OPTIONAL,
    timeInfo                TimeInfo,
    commonTimeslotInfo      CommonTimeslotInfo            OPTIONAL,
    individualTimeslotInfoList IndividualTS-InfoPDSCH-List  OPTIONAL
}

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

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

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

PersistenceScalingFactor ::= ENUMERATED {
    psf0-9, psf0-8, psf0-7, psf0-6,
    psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::= SEQUENCE (SIZE (1..6)) OF
    PersistenceScalingFactor

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

PICH-Info ::=             CHOICE {
    fdd                     SEQUENCE {
        secondaryScramblingCode SecondaryScramblingCode    OPTIONAL,
        channelisationCode256   ChannelisationCode256,
        pi-CountPerFrame        PI-CountPerFrame,
        sttd-Indicator          STTD-Indicator
    },
    tdd                     SEQUENCE {
        channelisationCode       TDD-PICH-CCode                OPTIONAL,
        timeslot                 Timeslot                      OPTIONAL,
        burstType                BurstType,
        midambleShift            MidambleShift                OPTIONAL,
        repetitionPeriodLengthOffset RepPerLengthOffset-PICH  OPTIONAL,
        pagingIndicatorLength    PagingIndicatorLength        OPTIONAL,
        n-GAP                    N-GAP                        OPTIONAL,
        n-PCH                    N-PCH                        OPTIONAL
    }
}

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

PilotBits128 ::=          ENUMERATED {
    pb4, pb8 }

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

```

```

PositionFixedOrFlexible ::=          ENUMERATED {
                                        fixed,
                                        flexible }

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

PowerOffsetP0 ::=                    INTEGER (1..8)

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

PRACH-Partitioning ::=                SEQUENCE (SIZE (1..8)) OF
                                        AccessServiceClass

PRACH-PowerOffset ::=                SEQUENCE {
    powerOffsetP0
    preambleRetransMax
}
                                        PowerOffsetP0,
                                        PreambleRetransMax

PRACH-RACH-Info ::=                  SEQUENCE {
    modeSpecificInfo
        fdd
            availableSignatureList
            availableSF
            scramblingCodeWordNumber
            puncturingLimit
            availableSubChannelNumberList
        },
        tdd
            timeslot
            channelisationCode
            prach-Midamble
    }
}
                                        CHOICE {
                                        SEQUENCE {
                                            AvailableSignatureList,
                                            SF-PRACH,
                                            ScramblingCodeWordNumber,
                                            PuncturingLimit,
                                            AvailableSubChannelNumberList
                                        },
                                        SEQUENCE {
                                            Timeslot,
                                            TDD-PRACH-CCode,
                                            PRACH-Midamble
                                        }
                                        }
                                        OPTIONAL

PRACH-SystemInformation ::=          SEQUENCE {
    prach-RACH-Info
    rach-TransportFormatSet
    rach-TFCS
    modeSpecificInfo
        fdd
            prach-Partitioning
            persistenceScalingFactorList
            ac-To-ASC-MappingTable
            primaryCPICH-TX-Power
            constantValue
            prach-PowerOffset
            rach-TransmissionParameters
            aich-Info
        },
        tdd
            asc-Info
    }
}
                                        PRACH-RACH-Info,
                                        TransportFormatSet,
                                        TFCS,
                                        CHOICE {
                                            SEQUENCE {
                                                PRACH-Partitioning,
                                                PersistenceScalingFactorList
                                            },
                                            SEQUENCE {
                                                AC-To-ASC-MappingTable
                                                PrimaryCPICH-TX-Power,
                                                ConstantValue,
                                                PRACH-PowerOffset,
                                                RACH-TransmissionParameters,
                                                AICH-Info
                                            }
                                        }
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL

PRACH-SystemInformationList ::=      SEQUENCE (SIZE (1..maxPRACHcount)) OF
                                        PRACH-SystemInformation

PreambleRetransMax ::=                INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::=         SEQUENCE {
    ul-DPCH-InfoPredef
    dl-CommonInformationPredef
}
                                        UL-DPCH-InfoPredef,
                                        DL-CommonInformationPredef

PrimaryCCPCH-Info ::=                CHOICE {
    fdd
        tx-DiversityIndicator
    },
    tdd
        timeslot
        cellParametersID
        syncCase
        repetitionPeriodLengthAndOffset
}
                                        SEQUENCE {
                                        BOOLEAN
                                        }
                                        SEQUENCE {
                                        Timeslot
                                        CellParametersID
                                        SyncCase
                                        RepetitionPeriodLengthAndOffset
                                        }
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL,
                                        OPTIONAL

```

```

    OPTIONAL,
        blockSTTD-Indicator                BlockSTTD-Indicator                OPTIONAL
    }
}

PrimaryCCPCH-InfoSI ::=                    CHOICE {
    fdd                                     SEQUENCE {
        tx-DiversityIndicator              BOOLEAN
    },
    tdd                                     SEQUENCE {
        repetitionPeriodLengthAndOffset    RepetitionPeriodLengthAndOffset OPTIONAL,
        blockSTTD-Indicator                BlockSTTD-Indicator                OPTIONAL
    }
}

PrimaryCCPCH-TX-Power ::=                  INTEGER (6..43)

PrimaryCPICH-Info ::=                     SEQUENCE {
    primaryScramblingCode                  PrimaryScramblingCode
}

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

PrimaryScramblingCode ::=                  INTEGER (0..511)

PRM ::=                                   ENUMERATED {
    pr-mode0, pr-model }

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-AllocationAssignment ::=            SEQUENCE {
    pusch-PowerControlInfo                 PUSCH-PowerControlInfo                OPTIONAL,
    timeInfo                               TimeInfo,
    commonTimeslotInfo                     CommonTimeslotInfo                     OPTIONAL,
    timeslotInfoList                       IndividualTS-InfoPUSCH-List             OPTIONAL
}

PUSCH-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 }

PUSCH-Info ::=                            SEQUENCE {
    pusch-Allocation                       CHOICE {
        pusch-AllocationPending           NULL,
        pusch-AllocationAssignment        PUSCH-AllocationAssignment
    }
}

PUSCH-PowerControlInfo ::=                SEQUENCE {
    ul-TargetSIR                           UL-TargetSIR
}

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

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

RACH-TransmissionParameters ::=            SEQUENCE {
    mmax                                    INTEGER (1..32),
    nb01Min                                NB01Min,
    nb01Max                                NB01Max
}

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..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

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

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info          PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL         DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator    BOOLEAN,
    secondaryCCPCH-Info        SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceListFACH      SIB-ReferenceListFACH OPTIONAL
}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::= SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info          PrimaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation

S-Field ::= ENUMERATED {
    e1bit, e2bits }

SCCPCH-ChannelisationCode ::= ENUMERATED {
    ccl6-1, ccl6-2, ccl6-3, ccl6-4,
    ccl6-5, ccl6-6, ccl6-7, ccl6-8,
}

```

```

cc16-9, cc16-10, cc16-11, cc16-12,
cc16-13, cc16-14, cc16-15, cc16-16 }

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

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

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

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

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

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

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

SelectionIndicator ::= ENUMERATED {
    on, off }

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-AndCodeNumber encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot-DL-DPCH ::= CHOICE {
    sfd4          NULL,
    sfd8          NULL,
    sfd16         NULL,
    sfd32         NULL,
    sfd64         NULL,
    sfd128        PilotBits128,
    sfd256        PilotBits256,
    sfd512        NULL
}

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

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

Signature ::= INTEGER (0..15)

SlotFormat ::= SEQUENCE {
    pc-PreambleSlotFormat PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat DL-DPCCH-SlotFormat
}

SpreadingFactor ::= ENUMERATED {
    s4, s8, s16, s32,
    s64, s128, s256 }

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
}

STTD-Indicator ::= BOOLEAN

SyncCase ::= ENUMERATED {
    sc1, sc2 }

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-CCode ::= ENUMERATED {
    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 }

TFC-ControlDuration ::= ENUMERATED {
    tfc-cd1, 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 }

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

TGD ::= INTEGER (0..35)

TGL ::= INTEGER (1..15)

TGP ::= INTEGER (1..256)

TimeInfo ::= SEQUENCE {
    activationTime ActivationTime OPTIONAL,
    duration DurationTimeInfo OPTIONAL
}

```

```

}

Timeslot ::=
    INTEGER (0..14)

TimeslotList ::=
    SEQUENCE (SIZE (1..14)) OF
        Timeslot

-- Actual value = IE value * 256
TimingOffset ::=
    INTEGER (0..149)

TPC-CombinationIndex ::=
    INTEGER (0..5)

TPC-StepSize ::=
    ENUMERATED {
        dB1, dB2 }

TX-DiversityMode ::=
    ENUMERATED {
        noDiversity,
        sttd,
        closedLoopModel1,
        closedLoopMode2 }

UARFCN-Nd ::=
    INTEGER (0..16383)

UARFCN-Nt ::=
    INTEGER (0..16383)

UARFCN-Nu ::=
    INTEGER (0..16383)

UCSM-Info ::=
    availableMinimumSF-ListUCSM
    nf-Max
    channelReqParamsForUCSM-List
    SEQUENCE {
        AvailableMinimumSF-ListUCSM,
        NF-Max,
        ChannelReqParamsForUCSM-List
    } OPTIONAL

UL-CCTrCH ::=
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    timeslotInfoList
    SEQUENCE {
        TFCS-Identity
        TimeInfo,
        CommonTimeslotInfo
        IndividualTS-InfoUL-CCTrCH-List
    } OPTIONAL,
    OPTIONAL,
    OPTIONAL

UL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
        UL-CCTrCH

UL-ChannelRequirement ::=
    ul-DPCH-Info
    prach-RACH-Info
    spare
    CHOICE {
        UL-DPCH-Info,
        PRACH-RACH-Info,
        NULL
    }

UL-DL-Mode ::=
    ENUMERATED {
        dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::=
    ENUMERATED {
        slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
    scramblingCodeType
    scramblingCode
    numberOfDPDCH
    dpdch-ChannelisationCodeList
    spreadingFactor
    tfci-Existence
    fbi-BitNumber
    puncturingLimit
    SEQUENCE {
        UL-DPCH-PowerControlInfo
        CHOICE {
            SEQUENCE {
                ScramblingCodeType,
                UL-ScramblingCode,
                INTEGER(1..maxDPDCH)
            }
            DPDCH-ChannelisationCodeList,
            SpreadingFactor,
            BOOLEAN,
            FBI-BitNumber
        }
        OPTIONALDEFAULT 0,
        PuncturingLimit
    }
    },
    tdd
    ul-CCTrCHList
    SEQUENCE {
        UL-CCTrCHList
    }
}

UL-DPCH-InfoHO ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
    scramblingCodeType
    scramblingCode
    dpdch-ChannelisationCodeList
    spreadingFactor
    tfci-Existence
    SEQUENCE {
        UL-DPCH-PowerControlInfoHO
        CHOICE {
            SEQUENCE {
                ScramblingCodeType,
                UL-ScramblingCode,
                DPDCH-ChannelisationCodeList,
                SpreadingFactor,
                BOOLEAN,
            }
        }
    }

```

```

        fbi-BitNumber          FBI-BitNumber          OPTIONALDEFAULT 0,
        puncturingLimit        PuncturingLimit
    },
    tdd          SEQUENCE {
        ul-CCTrCHList        UL-CCTrCHList
    }
}

UL-DPCH-InfoPredef ::=          SEQUENCE {
    ul-DPCH-PowerControlInfo    UL-DPCH-PowerControlInfo,
    modeSpecificInfo            CHOICE {
        fdd          SEQUENCE {
            maxAllowedUL-TX-Power    MaxAllowedUL-TX-Power    OPTIONAL,
            pc-Preamble                PC-Preamble                OPTIONAL,
            tfci-Existence            BOOLEAN,
            puncturingLimit            PuncturingLimit
        },
        tdd          NULL
    }
}

UL-DPCH-InfoShort ::=          SEQUENCE {
    ul-DPCH-PowerControlInfo    UL-DPCH-PowerControlInfoShort,
    modeSpecificInfo            CHOICE {
        fdd          SEQUENCE {
            scramblingCodeType        ScramblingCodeType,
            reducedScramblingCodeNumber    ReducedScramblingCodeNumber,
            dpdch-ChannelisationCode    DPDCH-ChannelisationCode,
            spreadingFactor            SpreadingFactor,

            numberOfFBI-Bits          NumberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd          NULL
    }
}

UL-DPCH-PowerControlInfo ::=    CHOICE {
    fdd          SEQUENCE {
        dpch-PowerOffset            DPCCH-PowerOffset,
        pc-Preamble                PC-Preamble,
        powerControlAlgorithm        PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd          SEQUENCE {
        maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power    OPTIONAL,
        ul-TargetSIR                UL-TargetSIR,
        handoverGroup                SEQUENCE {
            individualTS-InterferenceList    IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoHO ::=    CHOICE {
    fdd          SEQUENCE {
        dpch-PowerOffset            DPCCH-PowerOffset,
        powerControlAlgorithm        PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd          SEQUENCE {
        maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power    OPTIONAL,
        ul-TargetSIR                UL-TargetSIR,
        handoverGroup                SEQUENCE {
            individualTS-InterferenceList    IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
    modeSpecificInfo            CHOICE {
        fdd          SEQUENCE {
            dpch-PowerOffset            DPCCH-PowerOffset,
            powerControlAlgorithm        PowerControlAlgorithm
        },
        tdd          NULL
    }
}

```

-- Value range -110 .. -70 used for Release 99



```

UL-Interference ::=                INTEGER (-110..-47)

-- ***TODO** specification possibly wrong. 777215 mod 16 <-> 0...
UL-ScramblingCode ::=              INTEGER (0..48575) (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::=                   INTEGER (0..62)

UL-TimingAdvance ::=                INTEGER (0..63)

UL-TS-ChannelisationCode ::=        ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::=                       SEQUENCE {
    availableMinimumSF-List          AvailableMinimumSF-ListVCAM
}

END

```

## 11.4 Constant definitions

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

```

BEGIN

-- ***TODO**
algorithmCount                      INTEGER ::= 8

-- ***TODO**
ansi41MaxLength                     INTEGER ::= 64

-- ***TODO**
maxAddTFC-Count                     INTEGER ::= 8

-- ***TODO**
maxAdditionalMeas                    INTEGER ::= 8

-- ***TODO**
maxAddRLcount                       INTEGER ::= 8

-- ***TODO**
maxAlgoTypeCount                    INTEGER ::= 8

-- ***TODO**
maxAP-SigNum                        INTEGER ::= 8

-- ***TODO**
maxAP-SubCH                         INTEGER ::= 8

-- ***TODO**
maxBLER                             INTEGER ::= 8

-- ***TODO**
maxCCTrCH-Count                     INTEGER ::= 8

-- ***TODO**
maxCCTrCHcount                      INTEGER ::= 8

-- ***TODO**
maxCellCount                        INTEGER ::= 8

-- ***TODO**
maxCellsForbidden                    INTEGER ::= 8

-- ***TODO**
maxChanCount                         INTEGER ::= 8

-- ***TODO**
maxCNdomains                        INTEGER ::= 8

-- ***TODO**
maxCodeCount                        INTEGER ::= 8

```

```

-- **TODO**
maxCodeNum                INTEGER ::= 8

-- **TODO**
maxCodeNumComp-1         INTEGER ::= 8

maxCombineSet             INTEGER ::= 8

-- **TODO**
maxCPCH-SetCount         INTEGER ::= 8

-- **TODO**
maxCPCHsetcount          INTEGER ::= 8

-- **TODO**
maxCTFC                   INTEGER ::= 8

-- **TODO**
maxCTFC-DCH              INTEGER ::= 8

-- **TODO**
maxCTFC-DSCH             INTEGER ::= 8

-- **TODO**
maxDataLength            INTEGER ::= 8

-- **TODO**
maxDelRLcount            INTEGER ::= 8

-- **TODO**
maxDelTFC-Count          INTEGER ::= 8

-- **TODO**
maxDelTrCHcount          INTEGER ::= 8

-- **TODO**
maxDL-CCTrCHcount        INTEGER ::= 8

-- **TODO**
maxDPDCHcount            INTEGER ::= 8

-- **TODO**
maxDRAC-Classes           INTEGER ::= 8

-- **TODO**
maxDRACReconAddTrCHcount INTEGER ::= 8

-- **TODO**
maxEventCount             INTEGER ::= 8

-- **TODO**
maxFACHPCH-Count         INTEGER ::= 8

-- **TODO**
maxFACHcount              INTEGER ::= 8

-- **TODO**
maxFlowID                 INTEGER ::= 8

-- **TODO**
maxFreqCount              INTEGER ::= 8

-- **TODO**
maxFrequencyBandsCount   INTEGER ::= 8

-- **TODO**
maxInterCells             INTEGER ::= 8

-- **TODO**
maxInterRAT               INTEGER ::= 8

-- **TODO**
maxInterSys               INTEGER ::= 8

-- **TODO**
maxInterSysCells         INTEGER ::= 8

-- **TODO**
maxInterSysMessages       INTEGER ::= 8

-- **TODO**
maxIntervals              INTEGER ::= 8

```

```

-- **TODO**
maxIntraCells          INTEGER ::= 8

-- **TODO**
maxMeasurementTypeCount  INTEGER ::= 8

-- **TODO**
maxMidambleShift-1     INTEGER ::= 8

-- **TODO**
maxMuxOptionsCount      INTEGER ::= 8

-- **TODO**
maxN-BadSAT             INTEGER ::= 8

-- **TODO**
maxN-SAT                INTEGER ::= 8

-- **TODO**
maxNoCells              INTEGER ::= 8

-- **TODO**
maxNoCNDomains          INTEGER ::= 8

-- **TODO**
maxNoCodeGroups         INTEGER ::= 8

-- **TODO**
maxNonUsedFrequency     INTEGER ::= 8

-- **TODO**
maxNoOfErrors           INTEGER ::= 8

-- **TODO**
maxNoSystemCapability   INTEGER ::= 8

-- **TODO**
maxNoTFCI-Groups        INTEGER ::= 8

-- **TODO**
maxNumFreq              INTEGER ::= 8

-- **TODO**
maxOtherRBcount         INTEGER ::= 8

-- **TODO**
maxPCPCHs               INTEGER ::= 8

-- **TODO**
maxPDSCHcount           INTEGER ::= 8

-- **TODO**
maxPRACHcount           INTEGER ::= 8

-- **TODO**
maxPredefConfigCount    INTEGER ::= 8

-- **TODO**
maxPUSCHcount           INTEGER ::= 8

-- **TODO**
maxRABcount              INTEGER ::= 8

maxRAT                  INTEGER ::= 4

-- **TODO**
maxRAT-Count            INTEGER ::= 8

-- **TODO**
maxRB-WithPDCPcount     INTEGER ::= 8

-- **TODO**
maxRBcount              INTEGER ::= 8

-- **TODO**
maxReconAddTrCHcount    INTEGER ::= 8

-- **TODO**
maxReconRBcount         INTEGER ::= 8

-- **TODO**
maxReconRBs             INTEGER ::= 8

```

```
-- **TODO**
maxRelRBcount          INTEGER ::= 8

-- **TODO**
maxReplaceCount       INTEGER ::= 8

-- **TODO**
maxRLcount            INTEGER ::= 8

maxRM                  INTEGER ::= 256

-- **TODO**
maxRstTrCH-Count     INTEGER ::= 8

-- **TODO**
maxSCCPCHcount       INTEGER ::= 8

-- **TODO**
maxSetupRBcount      INTEGER ::= 8

-- **TODO**
maxSF-Num             INTEGER ::= 8

-- **TODO**
maxSigNum             INTEGER ::= 8

-- **TODO**
maxSRBcount           INTEGER ::= 8

-- **TODO**
maxSubChNum           INTEGER ::= 8

-- **TODO**
maxSysInfoBlockCount INTEGER ::= 8

-- **TODO**
maxSysInfoBlockFACHcount INTEGER ::= 8

-- **TODO**
maxTF-Count           INTEGER ::= 8

-- **TODO**
maxTF-Value           INTEGER ::= 8

-- **TODO**
maxTFC-Count          INTEGER ::= 8

-- **TODO**
maxTFC-Value          INTEGER ::= 8

-- **TODO**
maxTFC-Value-1        INTEGER ::= 8

-- **TODO**
maxTFCI-1-Combs       INTEGER ::= 8

-- **TODO**
maxTFCI-2-Combs       INTEGER ::= 8

-- **TODO**
maxTFCI-Value         INTEGER ::= 8

-- **TODO**
maxTFcount            INTEGER ::= 8

-- **TODO**
maxTFs                INTEGER ::= 8

-- **TODO**
maxTimeslotCount     INTEGER ::= 8

-- **TODO**
maxTraF               INTEGER ::= 8

-- **TODO**
maxTrCH               INTEGER ::= 8

-- **TODO**
maxTrChCount          INTEGER ::= 8

-- **TODO**
maxTrCHcount          INTEGER ::= 8
```

```
-- **TODO**
maxTrChValue          INTEGER ::= 8

-- **TODO**
maxTScount            INTEGER ::= 14

-- **TODO**
maxTSperCCTrCHcount  INTEGER ::= 8

-- **TODO**
maxTStoMeasureCount  INTEGER ::= 8

-- **TODO**
maxUL-CCTrCHcount    INTEGER ::= 8

-- **TODO**
maxURAcunt            INTEGER ::= 8

-- **TODO**
maxUsedUplTScunt     INTEGER ::= 8

-- **TODO**
maxUsedRLcount       INTEGER ::= 8

-- **TODO**
pageCount             INTEGER ::= 8

END
```

**3GPP-RAN-WG2 Meeting #13**  
**Oahu, Hawaii, USA, 22-26 May 2000**

**Document R2-001043**

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

<b>CHANGE REQUEST</b>		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
<b>25.331</b>	<b>CR 282r1</b>	Current Version: <b>3.2.0</b>
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team	
For submission to: <b>TSG-RAN #8</b> <small>list expected approval meeting # here ↑</small>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <small>(for SMG use only)</small>

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

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

**Source:** TSG-RAN WG2 **Date:** 22<sup>nd</sup> May, 2000

**Subject:** Editorial modification on ASN.1 description

**Work item:**

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

(only one category Shall be marked With an X)

**Reason for change:** There are few locations in ASN.1 description where the tabular description is not correctly reflected to ASN.1 description. There also are few syntax errors present in the description as well. This contribution proposes to fix them correctly.

Revision 1: default value for filter coefficient is changed from fc1 to fc0, since the definition of filtering function is changed by CR325. Also, "spare 12" is removed from SIB Type, since that would have costed 1 extra bit when encoded.

**Clauses affected:** 11.1, 11.2, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.8

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

**Other comments:**



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

## 11.1 General message structure

Class-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    ActiveSetUpdate,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    CellUpdate,
    CellUpdateConfirm,
    DownlinkDirectTransfer,
    DownlinkOuterLoopControl,
    HandoverToUTRANCommand,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    InterSystemHandoverCommand,
    InterSystemHandoverFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RNTIReallocation,
    RNTIReallocationComplete,
    RNTIReallocationFailure,
    RRCConnectionReEstablishment,
    RRCConnectionReEstablishment-CCCH,
    RRCConnectionReEstablishmentComplete,
    RRCConnectionReEstablishmentRequest,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionReleaseComplete,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH
FROM PDU-definitions

    IntegrityCheckInfo
FROM UserEquipment-IEs;
```

```

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

```

```

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

```

```

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                ActiveSetUpdate,
    cellUpdateConfirm             CellUpdateConfirm,
    downlinkDirectTransfer        DownlinkDirectTransfer,
    downlinkOuterLoopControl      DownlinkOuterLoopControl,
    interSystemHandoverCommand    InterSystemHandoverCommand,
    measurementControl            MeasurementControl,
    pagingType2                   PagingType2,
    physicalChannelReconfiguration PhysicalChannelReconfiguration,
    radioBearerReconfiguration    RadioBearerReconfiguration,
    radioBearerRelease            RadioBearerRelease,
    radioBearerSetup              RadioBearerSetup,
    rntiReallocation              RNTIReallocation,
    rrcConnectionReEstablishment  RRCConnectionReEstablishment,
    rrcConnectionRelease          RRCConnectionRelease,
    securityModeCommand           SecurityModeCommand,
    signallingConnectionRelease    SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
    transportFormatCombinationControl TransportFormatCombinationControl,
    ueCapabilityEnquiry           UECapabilityEnquiry,
    ueCapabilityInformationConfirm UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl  UplinkPhysicalChannelControl,
    uraUpdateConfirm              URAUpdateConfirm,
    extension                      NULL
}

```

```

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

```

```

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

```

```

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete        ActiveSetUpdateComplete,
    activeSetUpdateFailure         ActiveSetUpdateFailure,
    handoverToUTRANComplete        HandoverToUTRANComplete,
    initialDirectTransfer          InitialDirectTransfer,
    interSystemHandoverFailure     InterSystemHandoverFailure,
    measurementControlFailure      MeasurementControlFailure,
    measurementReport              MeasurementReport,
    physicalChannelReconfigurationComplete PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete     RadioBearerReleaseComplete,
    radioBearerReleaseFailure      RadioBearerReleaseFailure,
    radioBearerSetupComplete       RadioBearerSetupComplete,
    radioBearerSetupFailure        RadioBearerSetupFailure,
    rntiReallocationComplete       RNTIReallocationComplete,
    rntiReallocationFailure        RNTIReallocationFailure,
    rrcConnectionReEstablishmentComplete RRCConnectionReEstablishmentComplete,
    rrcConnectionReleaseComplete   RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete     RRCConnectionSetupComplete,
    rrcStatus                       RRCStatus,
    securityModeComplete           SecurityModeComplete,
    securityModeFailure            SecurityModeFailure,
    transportChannelReconfigurationComplete TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure TransportFormatCombinationControlFailure
}

```



```

        ueCapabilityInformation      TransportFormatCombinationControlFailure,
        uplinkDirectTransfer        UECapabilityInformation,
        extension                    UplinkDirectTransfer,
    }
    NULL

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

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

DL-CCCH-MessageType ::= CHOICE {
    rrcConnectionReEstablishment      RRCConnectionReEstablishment-CCCH,
    rrcConnectionReject                RRCConnectionReject,
    rrcConnectionSetup                 RRCConnectionSetup,
    uraUpdateConfirm                   URAUpdateConfirm-CCCH,
    extension                           NULL
}

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

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

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

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

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

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

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

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

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

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

```

```

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

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

--*****
--
-- Handover to UTRAN command
--
--*****

HO-ToUTRAN-CommandMessage ::= SEQUENCE {
    message                  HandoverToUTRANCommand
}

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

BCCH-FACH-Message ::= SEQUENCE {
    message                  BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation        SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    extension               NULL
}

--*****
--
-- BCCH messages sent on BCH
--
--*****

BCCH-BCH-Message ::= SEQUENCE {
    message                  SystemInformation-BCH
}

END

```

## 11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

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

```

```

URA-Identity
FROM UTRANMobility-IEs

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

  PredefinedConfigIdentity,
  RAB-Info,
  RAB-InformationSetupList,
  RB-ActivationTimeInfo,
  RB-ActivationTimeInfoList,
  RB-InformationAffectedList,
  RB-InformationReconfigList,
  RB-InformationReleaseList,
  RB-InformationSetupList,
  RB-WithPDCP-InfoList,
  SRB-InformationSetupList,
  SRB-InformationSetupList2
FROM RadioBearer-IEs

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

  AllocationPeriodInfo,
  CTrCH-PowerControlInfo,
  ConstantValue,
  CPCH-SetInfo,
  DL-CommonInformation,
  DL-InfoPerRL-List,
  DL-InformationPerRL,
  DL-InformationPerRL-List,
  DL-DPCH-InfoCommon,
  DL-DPCH-PowerControlInfo,
  DL-OuterLoopControl,
  DL-PDSCH-Information,
  FrequencyInfo,
  IndividualTS-InterferenceList,
  MaxAllowedUL-TX-Power,
  PDSCH-Info,
  PRACH-RACH-Info,
  PrimaryCCPCH-TX-Power,
  PUSCH-Info,
  RL-AdditionInformationList,

```

```

RL-RemovalInformationList,
UL-DPCH-InfoShort,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-DPCH-Info,
UL-DPCH-InfoHO,
UL-Interference,
UL-TimingAdvance
FROM PhysicalChannel-IEs

```

```

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

```

```

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

```

```

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

```

```

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  newU-RNTI                      U-RNTI                        OPTIONAL,
  -- Core network IES
  cn-InformationInfo             CN-InformationInfo            OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power         OPTIONAL,
  rl-AdditionInformationList     RL-AdditionInformationList    OPTIONAL,
  rl-RemovalInformationList      RL-RemovalInformationList     OPTIONAL,
  tx-DiversityMode               TX-DiversityMode              OPTIONAL,
  ssdt-Information               SSDT-Information              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```

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

```

```

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo     IntegrityProtActivationInfo    OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo         OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```

-- *****

```

```

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

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

CellUpdate ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                U-RNTI,
  am-RLC-ErrorIndication BOOLEAN,
  cellUpdateCause       CellUpdateCause,
  protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IES
  measuredResultsOnRACH MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo IntegrityProtectionModeInfo          OPTIONAL,
  cipheringModeInfo          CipheringModeInfo          OPTIONAL,
  new-U-RNTI                 U-RNTI                   OPTIONAL,
  new-C-RNTI                 C-RNTI                   OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient          OPTIONAL,
  rlc-ReconfIndicatorC-Plane RLC-ReconfigurationIndicator,
  rlc-ReconfIndicatorU-Plane RLC-ReconfigurationIndicator,
  -- CN information elements
  cn-InformationInfo         CN-InformationInfo          OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity               URA-Identity              OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList      RB-WithPDCP-InfoList          OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power     MaxAllowedUL-TX-Power          OPTIONAL,
  prach-RACH-Info           PRACH-RACH-Info            OPTIONAL,
  dl-InformationPerRL       DL-InformationPerRL          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IES
  cn-DomainIdentity         CN-DomainIdentity,
  nas-Message               NAS-Message,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

```

```

DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IEs
  dl-OuterLoopControl          DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo     DL-DPCH-PowerControlInfo          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                OPTIONAL
}

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

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                   U-RNTI-Short,
  activationTime                ActivationTime          OPTIONAL,
  cipheringAlgorithm           CipheringAlgorithm      OPTIONAL,
  -- Radio bearer IEs
  rab-Info                     RAB-Info,
  -- Specification mode information
  specificationMode            CHOICE {
    complete                   SEQUENCE {
      srb-InformationSetupList SRB-InformationSetupList,
      rb-InformationSetupList  RB-InformationSetupList,
      ul-CommonTransChInfo    UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo    DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info            UL-DPCH-InfoHO,
      dl-CommonInformation    DL-CommonInformation,
      dl-PDSCH-Information    DL-PDSCH-Information          OPTIONAL,
      modeSpecificInfo       CHOICE {
        fdd                   SEQUENCE {
          cpch-SetInfo       CPCH-SetInfo          OPTIONAL
        },
        tdd                   NULL
      },
      dl-InformationPerRL-List DL-InformationPerRL-List
    },
    preconfiguration          SEQUENCE {
      predefinedConfigIdentity PredefinedConfigIdentity,
      ul-DPCH-Info            UL-DPCH-InfoShort,
      dl-DPCH-InfoCommon     DL-DPCH-InfoCommon,
      dl-InfoPerRL-List      DL-InfoPerRL-List
    }
  },
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power,
  modeSpecificPhysChInfo     CHOICE {
    fdd                       NULL,
    tdd                       SEQUENCE {
      primaryCCPCH-TX-Power  PrimaryCCPCH-TX-Power,
      constantValue          ConstantValue,
      ul-Interference        UL-Interference,
      cellParametersID       INTEGER (0..127)
    }
  },
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                OPTIONAL
}

-- *****
--
-- HANOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionHFN      HyperFrameNumber,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                OPTIONAL
}

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

```

```

--
-- *****
InitialDirectTransfer ::= SEQUENCE {
  -- Core network IES
  serviceDescriptor          ServiceDescriptor,
  flowIdentifier             FlowIdentifier,
  cn-DomainIdentity         CN-DomainIdentity,
  nas-Message                NAS-Message,
  -- Measurement IES
  measuredResultsOnRACH     MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IES
  activationTime            ActivationTime                OPTIONAL,
  -- Radio bearer IES
  remainingRAB-Info        RAB-Info                      OPTIONAL,
  -- Other IES
  interSystemMessage       InterSystemMessage,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IES
  interSystemHO-Failure    InterSystemHO-Failure        OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
  -- Measurement IES
  measurementIdentityNumber MeasurementIdentityNumber,
  measurementCommand        MeasurementCommand,
  -- TABULAR: The measurement type is included in MeasurementCommand.
  measurementReportingMode  MeasurementReportingMode     OPTIONAL,
  additionalMeasurementList AdditionalMeasurementID-List  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause              FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- MEASUREMENT REPORT
--
-- *****

```

```

MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber      MeasurementIdentityNumber,
  measuredResults                 MeasuredResults                 OPTIONAL,
  additionalMeasuredResults       MeasuredResultsList         OPTIONAL,
  eventResults                   EventResults                 OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                 OPTIONAL
}

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

PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList               PagingRecordList         OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo         BCCH-ModificationInfo   OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                 OPTIONAL
}

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

PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause                    PagingCause,
  -- Core network IEs
  cn-DomainIdentity             CN-DomainIdentity,
  pagingRecordTypeID            PagingRecordTypeID,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                 OPTIONAL
}

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

PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo              CipheringModeInfo          OPTIONAL,
  activationTime                 ActivationTime              OPTIONAL,
  new-U-RNTI                     U-RNTI                    OPTIONAL,
  new-C-RNTI                     C-RNTI                    OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient OPTIONAL,
  re-EstablishmentTimer          Re-EstablishmentTimer     OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo        OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList     OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                 FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power    OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement    OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation           DL-CommonInformation      OPTIONAL,
  dl-PDSCH-Information           DL-PDSCH-Information      OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      cpch-SetInfo              CPCH-SetInfo              OPTIONAL
    },
    tdd                          NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                 OPTIONAL
}

-- *****

```



```

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

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance            OPTIONAL
    }
  },
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE { }                    OPTIONAL
}

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE { }                    OPTIONAL
}

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

PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IES
  c-RNTI                          C-RNTI,
  -- Physical channel IES
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  allocationPeriodInfo            AllocationPeriodInfo            OPTIONAL,
  pusch-Info                      PUSCH-Info                      OPTIONAL,
  pdsch-Info                      PDSCH-Info                      OPTIONAL,
  timeslotList                   TimeslotList                    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE { }                    OPTIONAL
}

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

PUSCHCapacityRequest ::= SEQUENCE {
  -- User equipment IES
  c-RNTI                          C-RNTI,
  -- Measurement IES
  trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP           TimeslotListWithISCP           OPTIONAL,
  primaryCCPCH-RSCP              PrimaryCCPCH-RSCP              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE { }                    OPTIONAL
}

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

RadioBearerReconfiguration ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,

```

```

activationTime          ActivationTime          OPTIONAL,
new-U-RNTI              U-RNTI              OPTIONAL,
new-C-RNTI              C-RNTI              OPTIONAL,
drx-Indicator           DRX-Indicator,
utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient OPTIONAL,
re-EstablishmentTimer  Re-EstablishmentTimer OPTIONAL,
-- Core network IES
  cn-InformationInfo    CN-InformationInfo  OPTIONAL,
-- Radio bearer IES
  rb-InformationReconfigList RB-InformationReconfigList,
  rb-InformationAffectedList RB-InformationAffectedList OPTIONAL,
-- Transport channel IES
  ul-CommonTransChInfo  UL-CommonTransChInfo OPTIONAL,
  ul-deletedTransChInfoList UL-DeletedTransChInfoList OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificTransChInfo CHOICE {
    fdd                      SEQUENCE {
      cpch-SetID             CPCH-SetID             OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                      NULL
  }
  dl-CommonTransChInfo  DL-CommonTransChInfo OPTIONAL,
  dl-DeletedTransChInfoList DL-DeletedTransChInfoList OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List OPTIONAL,
-- Physical channel IES
  frequencyInfo         FrequencyInfo         OPTIONAL,
  maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power OPTIONAL,
  ul-ChannelRequirement  UL-ChannelRequirement OPTIONAL,
  dl-CommonInformation   DL-CommonInformation OPTIONAL,
  dl-PDSCH-Information   DL-PDSCH-Information OPTIONAL,
  modeSpecificPhysChInfo CHOICE {
    fdd                      SEQUENCE {
      cpch-SetInfo           CPCH-SetInfo           OPTIONAL
    },
    tdd                      NULL
  },
  dl-InformationPerRL-List DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RadioBearerReconfigurationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance       UL-TimingAdvance       OPTIONAL
    }
  },
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RadioBearerReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause              FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

```

```

RadioBearerRelease ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo CipheringModeInfo OPTIONAL,
  activationTime ActivationTime OPTIONAL,
  new-U-RNTI U-RNTI OPTIONAL,
  new-C-RNTI C-RNTI OPTIONAL,
  drx-Indicator DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient OPTIONAL,
  re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
  -- Core network IES
  cn-InformationInfo CN-InformationInfo OPTIONAL,
  -- Radio bearer IES
  rb-InformationReleaseList RB-InformationReleaseList,
  rb-InformationAffectedList RB-InformationAffectedList OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo UL-CommonTransChInfo OPTIONAL,
  ul-deletedTransChInfoList UL-DeletedTransChInfoList OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificTransChInfo CHOICE {
    fdd SEQUENCE {
      cpch-SetID CPCH-SetID OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd NULL OPTIONAL,
  }
  dl-CommonTransChInfo DL-CommonTransChInfo OPTIONAL,
  dl-DeletedTransChInfoList DL-DeletedTransChInfoList OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List OPTIONAL,
  -- Physical channel IES
  frequencyInfo FrequencyInfo OPTIONAL,
  maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
  ul-ChannelRequirement UL-ChannelRequirement OPTIONAL,
  dl-CommonInformation DL-CommonInformation OPTIONAL,
  dl-PDSCH-Information DL-PDSCH-Information OPTIONAL,
  modeSpecificPhysChInfo CHOICE {
    fdd SEQUENCE {
      cpch-SetInfo CPCH-SetInfo OPTIONAL
    },
    tdd NULL
  },
  dl-InformationPerRL-List DL-InformationPerRL-List OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd NULL,
    tdd SEQUENCE {
      ul-TimingAdvance UL-TimingAdvance OPTIONAL
    }
  },
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo OPTIONAL,
  rb-WithPDCP-InfoList RB-WithPDCP-InfoList OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

```

```

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

RadioBearerSetup ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff      DRX-CycleLengthCoefficient      OPTIONAL,
  re-EstablishmentTimer           Re-EstablishmentTimer           OPTIONAL,
  -- Core network IES
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- Radio bearer IES
  srb-InformationSetupList        SRB-InformationSetupList        OPTIONAL,
  rab-InformationSetupList        RAB-InformationSetupList,
  rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo           UL-CommonTransChInfo           OPTIONAL,
  ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
  modeSpecificTransChInfo         CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                  CPCH-SetID                      OPTIONAL,
      addReconfTransChDRAC-Info   DRAC-StaticInformationList      OPTIONAL
    },
    tdd                            NULL
  },
  dl-CommonTransChInfo           DL-CommonTransChInfo           OPTIONAL,
  dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
  dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList     OPTIONAL,
  -- Physical channel IES
  frequencyInfo                  FrequencyInfo                    OPTIONAL,
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
  ul-ChannelRequirement           UL-ChannelRequirement           OPTIONAL,
  dl-CommonInformation            DL-CommonInformation            OPTIONAL,
  dl-PDSCH-Information            DL-PDSCH-Information            OPTIONAL,
  modeSpecificPhysChInfo         CHOICE {
    fdd                            SEQUENCE {
      cpch-SetInfo                CPCH-SetInfo                    OPTIONAL
    },
    tdd                            NULL
  },
  dl-InformationPerRL-List        DL-InformationPerRL-List        OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  modeSpecificInfo                CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance            UL-TimingAdvance                OPTIONAL
    }
  },
  hyperFrameNumber               HyperFrameNumber,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

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

```

```

RadioBearerSetupFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RNTIReallocation ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo             OPTIONAL,
  new-U-RNTI                 U-RNTI                       OPTIONAL,
  new-C-RNTI                 C-RNTI                       OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient    OPTIONAL,
  -- CN information elements
  cn-InformationInfo         CN-InformationInfo             OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList      RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RNTIReallocationComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo    OPTIONAL,
  rb-WithPDCP-InfoList        RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}          OPTIONAL
}

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

RRCConnectionReEstablishment ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo             OPTIONAL,
  activationTime             ActivationTime                 OPTIONAL,
  new-U-RNTI                 U-RNTI                       OPTIONAL,
  new-C-RNTI                 C-RNTI                       OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer      Re-EstablishmentTimer        OPTIONAL,
  -- Core network IES
  cn-InformationInfo         CN-InformationInfo             OPTIONAL,
  -- Radio bearer IES
  srb-InformationSetupList   SRB-InformationSetupList      OPTIONAL,
  rab-InformationSetupList    RAB-InformationSetupList      OPTIONAL,
  rb-InformationReleaseList   RB-InformationReleaseList     OPTIONAL,
}

```

```

    rb-InformationReconfigList      RB-InformationReconfigList      OPTIONAL,
    rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo           UL-CommonTransChInfo           OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList      OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList    OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                        SEQUENCE {
            cpch-SetID             CPCH-SetID                     OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList    OPTIONAL
        },
        tdd                        NULL
    },
    dl-CommonTransChInfo           DL-CommonTransChInfo           OPTIONAL,
    dl-DeletedTransChInfoList      DL-DeletedTransChInfoList      OPTIONAL,
    dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList    OPTIONAL,
-- Physical channel IEs
    frequencyInfo                  FrequencyInfo                    OPTIONAL,
    maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
    ul-ChannelRequirement          UL-ChannelRequirement          OPTIONAL,
    dl-CommonInformation           DL-CommonInformation           OPTIONAL,
    dl-PDSCH-Information           DL-PDSCH-Information           OPTIONAL,
    modeSpecificPhysChInfo        CHOICE {
        fdd                        SEQUENCE {
            cpch-SetInfo           CPCH-SetInfo                   OPTIONAL
        },
        tdd                        NULL
    },
    dl-InformationPerRL-List       DL-InformationPerRL-List       OPTIONAL,
-- Extension mechanism
    non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

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

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

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo     OPTIONAL,
    modeSpecificInfo                CHOICE {
        fdd                        NULL,
        tdd                        SEQUENCE {
            ul-TimingAdvance        UL-TimingAdvance               OPTIONAL
        }
    },
-- TABULAR: The choice above is optional in the tabular definitions,
-- but this does not seem to make much sense. Either the choice should
-- be optional and UL-TimingAdvance mandatory inside the TDD choice,
-- but not both.
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList           OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

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

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                          U-RNTI,

```

```

        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
        -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
        -- optional wastes one bit (using PER) and produces no additional
        -- information.
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {                     OPTIONAL
    }

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

RRCConnectionReject ::= SEQUENCE {
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rejectionCause                  RejectionCause,
        waitTime                        WaitTime,
        redirectionInfo                 RedirectionInfo             OPTIONAL,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {                     OPTIONAL
    }

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

RRCConnectionRelease ::= SEQUENCE {
    -- User equipment IEs
        rrc-MessageTX-Count             RRC-MessageTX-Count         OPTIONAL,
        -- The IE above is conditional on the UE state.
        releaseCause                    ReleaseCause,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {                     OPTIONAL
    }

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {                     OPTIONAL
    }

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

RRCConnectionRequest ::= SEQUENCE {
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        initialUE-Capability            InitialUE-Capability,
        establishmentCause              EstablishmentCause,
        protocolErrorIndicator          ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH       OPTIONAL,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {                     OPTIONAL
    }

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

RRCConnectionSetup ::= SEQUENCE {
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        activationTime                  ActivationTime                OPTIONAL,
        new-U-RNTI                      U-RNTI,

```

```

    new-c-RNTI                C-RNTI                OPTIONAL,
    utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient,
    re-EstablishmentTimer     Re-EstablishmentTimer  OPTIONAL,
    capabilityUpdateRequirement CapabilityUpdateRequirement OPTIONAL,
-- Radio bearer IES
    srb-InformationSetupList   SRB-InformationSetupList2,
-- Transport channel IES
    ul-CommonTransChInfo      UL-CommonTransChInfo   OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo      DL-CommonTransChInfo   OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
-- Physical channel IES
    frequencyInfo             FrequencyInfo            OPTIONAL,
    maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power  OPTIONAL,
    ul-ChannelRequirement      UL-ChannelRequirement  OPTIONAL,
    dl-CommonInformation       DL-CommonInformation   OPTIONAL,
    dl-InformationPerRL-List    DL-InformationPerRL-List OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {}            OPTIONAL
}

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

RRCConnectionSetupComplete ::= SEQUENCE {
-- User equipment IES
    hyperFrameNumber          HyperFrameNumber,
    ue-RadioAccessCapability   UE-RadioAccessCapability,
    ue-SystemSpecificCapability InterSystemMessage      OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {}            OPTIONAL
}

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

RRCStatus ::= SEQUENCE {
-- Other IES
    protocolErrorInformation   ProtocolErrorInformation,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {}            OPTIONAL
}

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

SecurityModeCommand ::= SEQUENCE {
-- User equipment IES
    cipheringAlgorithm         CipheringAlgorithm,
    cipheringModeInfo          CipheringModeInfo      OPTIONAL,
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
-- Core network IES
    cn-DomainIdentity          CN-DomainIdentity,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {}            OPTIONAL
}

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

SecurityModeComplete ::= SEQUENCE {
-- User equipment IES
    hyperFrameNumber           HyperFrameNumber      OPTIONAL,
    ul-IntegProtActivationInfo  IntegrityProtActivationInfo OPTIONAL,
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfoList OPTIONAL,
-- Extension mechanism
    non-Release99-Information  SEQUENCE {}            OPTIONAL
}

```



```

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

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {
  }
}

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

SignallingConnectionRelease ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList      SignallingFlowInfoList,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {
  }
}

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

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo          CHOICE {
    fdd                      SFN-Prime,
    tdd                      NULL
  },
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment        SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete          SEQUENCE {
      completeSIB-List       CompleteSIB-List,
      lastSegment            SubsequentOrLastSegment
    },
    completeSIB-List         CompleteSIB-List,
    spare                    NULL
  }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment        SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete          SEQUENCE {
      completeSIB-List       CompleteSIB-List,
      lastSegment            SubsequentOrLastSegment
    },
    completeSIB-List         CompleteSIB-List,
    spare                    NULL
  }
}

-- *****
--
-- First segment
--
-- *****

FirstSegment ::= SEQUENCE {
  -- Other information elements

```

```

        sib-Type                SIB-Type,
        seg-Count              SegCount,
        sib-Data                SIB-Data
    }

-- *****
--
-- Subsequent or last segment
--
-- *****

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

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

CompleteSIB-List ::=                SEQUENCE (SIZE(1..16)) OF
                                     CompleteSIB

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

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

SystemInformationChangeIndication ::= SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo    BCCH-ModificationInfo,
    -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
    }

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

TransportChannelReconfiguration ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
        cipheringModeInfo          CipheringModeInfo             OPTIONAL,
        activationTime              ActivationTime                OPTIONAL,
        new-U-RNTI                  U-RNTI                       OPTIONAL,
        new-C-RNTI                  C-RNTI                       OPTIONAL,
        drx-Indicator               DRX-Indicator,
        utran-DRX-CycleLengthCoeff  DRX-CycleLengthCoefficient OPTIONAL,
        re-EstablishmentTimer       Re-EstablishmentTimer       OPTIONAL,
    -- Core network IEs
        cn-InformationInfo          CN-InformationInfo           OPTIONAL,
    -- Radio bearer IEs
        rb-WithPDCP-InfoList        RB-WithPDCP-InfoList        OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo        UL-CommonTransChInfo        OPTIONAL,
        ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
        modeSpecificTransChInfo     CHOICE {
            fdd                     SEQUENCE {
                cpch-SetID           CPCH-SetID                 OPTIONAL,
                addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
            },
            tdd                       NULL
        } OPTIONAL,
        dl-CommonTransChInfo        DL-CommonTransChInfo        OPTIONAL,
        dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
    -- Physical channel IEs
        frequencyInfo               FrequencyInfo              OPTIONAL,
        maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power    OPTIONAL,

```

```

        ul-ChannelRequirement          UL-ChannelRequirement          OPTIONAL,
        dl-CommonInformation            DL-CommonInformation          OPTIONAL,
        dl-PDSCH-Information            DL-PDSCH-Information          OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                        SEQUENCE {
                cpch-SetInfo            CPCH-SetInfo                OPTIONAL
            },
            tdd                        NULL
        },
        dl-InformationPerRL-List        DL-InformationPerRL-List      OPTIONAL,
-- Extension mechanism
        non-Release99-Information        SEQUENCE {}                  OPTIONAL
    }

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

TransportChannelReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                        NULL,
            tdd                        SEQUENCE {
                ul-TimingAdvance        UL-TimingAdvance              OPTIONAL
            }
        },
-- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
        non-Release99-Information        SEQUENCE {}                  OPTIONAL
    }

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

TransportChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
        non-Release99-Information        SEQUENCE {}                  OPTIONAL
    }

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

TransportFormatCombinationControl ::= SEQUENCE {
        channelRequirement              CHOICE {
            dpch-TFCS-InUplink          TFC-Subset,
            tfc-ControlDuration          TFC-ControlDuration
        },
-- Extension mechanism
        non-Release99-Information        SEQUENCE {}                  OPTIONAL
    }

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
-- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
        non-Release99-Information        SEQUENCE {}                  OPTIONAL
    }

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

```

```

-- *****
UECapabilityEnquiry ::= SEQUENCE {
  -- User equipment IES
  capabilityUpdateRequirement      CapabilityUpdateRequirement,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
  -- User equipment IES
  ue-RadioAccessCapability         UE-RadioAccessCapability      OPTIONAL,
  -- Other IES
  ue-SystemSpecificCapability      InterSystemMessage          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
  -- Core network IES
  flowIdentifier                   FlowIdentifier,
  nas-Message                       NAS-Message,
  -- Measurement IES
  measuredResultsOnRACH            MeasuredResultsOnRACH      OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
  -- Physical channel IES
  ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo      OPTIONAL,
  timingAdvance                    UL-TimingAdvance            OPTIONAL,
  individualTS-InterferenceList    IndividualTS-InterferenceList OPTIONAL,
  rach-ConstantValue               ConstantValue                OPTIONAL,
  dpch-ConstantValue               ConstantValue                OPTIONAL,
  usch-ConstantValue               ConstantValue                OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                           U-RNTI,
  ura-UpdateCause                   URA-UpdateCause,
  protocolErrorIndicatorWithInfo    ProtocolErrorIndicatorWithInfo,
  -- Extension mechanism

```

```

        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }
-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
    -- User equipment IES
    integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo                 CipheringModeInfo                 OPTIONAL,
    new-U-RNTI                        U-RNTI                          OPTIONAL,
    new-C-RNTI                        C-RNTI                          OPTIONAL,
    drx-Indicator                     DRX-Indicator,
    utran-DRX-CycleLengthCoeff        DRX-CycleLengthCoefficient,
    -- CN information elements
    cn-InformationInfo                CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IES
    ura-Identity                      URA-Identity                    OPTIONAL,
    -- Radio bearer IES
    rb-WithPDCP-InfoList              RB-WithPDCP-InfoList           OPTIONAL,
    -- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}
-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

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

```

## 11.3 Information element definitions

### 11.3.1 Core network information elements

CoreNetwork-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

DRX-CycleLengthCoefficient  
FROM UserEquipment-IEs

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

maxCNdomains,  
maxFlowID,  
maxNoCNdomains  
FROM Constant-definitions;

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

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

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

```

CN-DomainInformation
CN-DomainSysInfo ::=
  cn-DomainIdentity
  cn-Type
    gsm-MAP
    ansi-41
  },
  cn-DRX-CycleLengthCoeff
}

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

CN-InformationInfo ::=
  plmn-Identity
  cn-CommonGSM-MAP-NAS-SysInfo
  cn-DomainInformationList
}

Digit ::=
INTEGER (0..9)

FlowIdentifier ::=
INTEGER (0..15)

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

IMSI-GSM-MAP ::=
SEQUENCE (SIZE (6..15)) OF
  Digit

LAI ::=
  plmn-Identity
  lac
}

MCC ::=
SEQUENCE (SIZE (3)) OF
  Digit

MNC ::=
SEQUENCE (SIZE (2..3)) OF
  Digit

NAS-Message ::=
OCTET STRING (SIZE (1..4095))

NAS-SystemInformationGSM-MAP ::=
OCTET STRING (SIZE (1..8))

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

PagingRecordTypeID ::=
ENUMERATED {
  imsi-GSM-MAP,
  tmsi-GSM-MAP-P-TMSI,
  imsi-DS-41,
  tmsi-DS-41 }

PLMN-Identity ::=
  mcc
  mnc
}

PLMN-Type ::=
  gsm-MAP
  plmn-Identity
  },
  ansi-41
  p-REV
  min-P-REV
  sid
  nid
  },
  gsm-MAP-and-ANSI-41
  plmn-Identity
  p-REV
  min-P-REV
  sid
  nid
  },
  spare
}

RAB-Identity ::=
  gsm-MAP-RAB-Identity
  ansi-41-RAB-Identity
}

```

```

}

RAI ::=
    lai
    rac
}

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

ServiceDescriptor ::=
    gsm-MAP
    ansi-41
}

SignallingFlowInfo ::=
    flowIdentifier
}

SignallingFlowInfoList ::=
    SEQUENCE (SIZE (1..maxFlowID)) OF
        SignallingFlowInfo

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

END

```

## 11.3.2 UTRAN mobility information elements

```

UTRANMobility-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    maxIntervals,
    maxRAT,
    maxURAccount
FROM Constant-definitions;

AccessClassBarred ::=
    ENUMERATED {
        barred, notBarred }

AccessClassBarredList ::=
    SEQUENCE (SIZE (16)) OF
        AccessClassBarred

CellAccessRestriction ::=
    cellBarred
    accessClassBarredList
    cellReservedForOperatorUse
    cellReservedForSOLSA
}

CellBarred ::=
    barred
    notBarred
}

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

CellSelectQualityMeasure ::=
    ENUMERATED {
        cpich-Ec-N0, cpich-SIR }

CellSelectReselectInfo ::=
    mappingInfo
    modeSpecificInfo
    fdd
        cellSelectQualityMeasure
        s-Intrasearch
        s-Intersearch
        s-SearchHCS
        rat-List
    },
    tdd
        s-Intrasearch
        s-Intersearch
        s-SearchHCS
        rat-List
    },
    q-Hyst-S
    t-Reselection-S
    hcs-ServingCellInformation
}

SEQUENCE {
    MappingInfo,
    CHOICE {
        SEQUENCE {
            CellSelectQualityMeasure,
            S-SearchFDD
            OPTIONAL,
            S-SearchFDD
            OPTIONAL,
            S-SearchFDD
            OPTIONAL,
            RAT-FDD-InfoList
            OPTIONAL
        }
        SEQUENCE {
            S-SearchTDD
            OPTIONAL,
            S-SearchTDD
            OPTIONAL,
            S-SearchTDD
            OPTIONAL,
            RAT-TDD-InfoList
            OPTIONAL
        }
    }
}

Q-Hyst-S,
T-Reselection-S,
HCS-ServingCellInformation
OPTIONAL,

```

```

    cellSelectReselectParams          CellSelectReselectParams          OPTIONAL
}

CellSelectReselectParams ::=          SEQUENCE {
    decodingRange                     DecodingRange                     OPTIONAL,
    q-Offset                           Q-Offset                           OPTIONAL
}

-- **TODO**, not defined
DecodingRange ::=                     SEQUENCE {

-- **TODO**, not defined yet
HCS-ServingCellInformation ::=        SEQUENCE {
    hcs-PRIO                           HCS-PRIO                           DEFAULT 0,
    q-HCS                               Q-HCS                               DEFAULT 0,
    t-Crmax                             T-Crmax                             OPTIONAL
-- this IE has a default value "not used"
}

MapParameter1 ::=                     INTEGER (0..15)

MapParameter2 ::=                     INTEGER (0..15)

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

MappingFunctionParameter ::=          SEQUENCE {
    functionType                       MappingFunctionType,
    mapParameter1                      MapParameter1,
    mapParameter2                      MapParameter2,
    upperLimit                          UpperLimit OPTIONAL
--This parameter is conditional on the number of repetition
}

MappingFunctionParameterList ::=      SEQUENCE (SIZE (1..maxIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::=               ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::=                       SEQUENCE {
    mappingList                         MappingList
}

MappingList ::=                       SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

-- **TODO**, not defined
OffsetExp ::=                         SEQUENCE {

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

Q-Offset ::=                          SEQUENCE {
    q-Offset-S                          Q-Offset-S,
    offsetExp                            OffsetExp
}

-- **TODO**, not defined
Q-Offset-S ::=                       SEQUENCE {}

RAT ::=                               ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::=                     SEQUENCE {
    rat-Identifier                      RAT-Identifier,
    s-SearchRAT                        S-SearchFDD,
    s-HCS-RAT                          S-SearchFDD
}

RAT-FDD-InfoList ::=                 SEQUENCE (SIZE (1..maxRAT)) OF

```



```

RAT-FDD-Info

RAT-Identifier ::=          ENUMERATED {
                              gsm, cdma2000 }

RAT-TDD-Info ::=          SEQUENCE {
    rat-Identifier          RAT-Identifier,
    s-SearchRAT             S-SearchTDD             OPTIONAL,
    s-HCS-RAT              S-SearchTDD             OPTIONAL
}

RAT-TDD-InfoList ::=      SEQUENCE (SIZE (1..maxRAT)) OF
                              RAT-TDD-Info

ReservedIndicator ::=     ENUMERATED {
                              reserved,
                              notReserved }

-- Actual value = IE value * 2
S-SearchFDD ::=          INTEGER (-16..10)

-- Actual value = IE value * 5
S-SearchTDD ::=          INTEGER (-24..18)

T-Barred ::=              INTEGER (0..63)

T-Crmax ::=                CHOICE{
    not used                NULL,
    t30                     UE SpeedDetector,
    t60                     UE SpeedDetector,
    t120                    UE SpeedDetector,
    t180                    UE SpeedDetector,
    t240                    UE SpeedDetector,
}

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

T-Reselection-S ::=      INTEGER (0..31)

UE-SpeedDetector ::=     SEQUENCE{
    n-CR                    INTEGER(0..16)  DEFAULT 8,
    t-CrmaxHyst             T-CrmaxHyst     DEFAULT notUsed
}

UpperLimit ::=           INTEGER (0..15)

URA-Identity ::=        BIT STRING (SIZE (16))

URA-IdentityList ::=    SEQUENCE (SIZE (1..maxURAccount)) OF
                              URA-Identity

```

END

### 11.3.3 User equipment information elements

UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

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

    RB-ActivationTimeInfoList
FROM RadioBearer-IEs

    FrequencyInfo
FROM PhysicalChannel-IEs

    InterSystemInfo
FROM Measurement-IEs

    ProtocolErrorInformation
FROM Other-IEs

```

```

maxAlgoTypeCount,
maxDRAC-Classes,
maxFrequencyBandsCount,
maxNoSystemCapability,
maxRAT-Count,
pageCount
FROM Constant-definitions;

ActivationTime ::=                INTEGER (0..255)

BackoffControlParams ::=         SEQUENCE {
    n-AP-RetransMax                N-AP-RetransMax,
    n-AccessFails                  N-AccessFails,
    nf-BO-NoAICH                   NF-BO-NoAICH,
    ns-BO-Busy                      NS-BO-Busy,
    nf-BO-AllBusy                  NF-BO-AllBusy,
    nf-BO-Mismatch                 NF-BO-Mismatch,
    t-CPCH                         T-CPCH
}

C-RNTI ::=                       BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=  SEQUENCE {
    ue-RadioCapabilityUpdateRequirement BOOLEAN,
    systemSpecificCapUpdateReqList  SystemSpecificCapUpdateReqList  OPTIONAL
}

CellUpdateCause ::=             ENUMERATED {
    cellReselection,
    periodicCellUpdate,
    ul-DataTransmission,
    pagingResponse,
    rb-ControlResponse,
    spare1, spare2, spare3 }

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

CipheringAlgorithm ::=           ENUMERATED {
    standardUEA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

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-PagedUE-Identity ::=        CHOICE {
    imsi-GSM-MAP                    IMSI-GSM-MAP,
    tmsi-GSM-MAP                    TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                  P-TMSI-GSM-MAP,
    imsi-DS-41                      IMSI-DS-41,
    tmsi-DS-41                      TMSI-DS-41,
    spare1                           NULL,
    spare2                           NULL,
    spare3                           NULL
}

CompressedModeMeasCapability ::= SEQUENCE {
    fdd-Measurements                BOOLEAN,
    tdd-Measurements                BOOLEAN,
    gsm-Measurements                GSM-Measurements,
    multiCarrierMeasurements        BOOLEAN
}

ConformanceTestCompliance ::=  ENUMERATED {
    r99,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

```

```

CPCH-Parameters ::=
    initialPriorityDelayList
    backoffControlParams
}

SEQUENCE {
    InitialPriorityDelayList
    BackoffControlParams
} OPTIONAL,

DL-PhysChCapabilityFDD ::=
    maxSimultaneousCCTrCH-Count
    maxNoDPCH-PDSCH-Codes
    maxNoPhysChBitsReceived
    supportForSF-512
    supportOfPDSCH
    simultaneousSCCPCH-DPCH-Reception
}

SEQUENCE {
    MaxSimultaneousCCTrCH-Count,
    INTEGER (1..8),
    MaxNoPhysChBitsReceived,
    BOOLEAN,
    BOOLEAN,
    SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityTDD ::=
    maxSimultaneousCCTrCH-Count
    maxTS-PerFrame
    maxPhysChPerFrame
    minimumSF
    supportOfPDSCH
}

SEQUENCE {
    MaxSimultaneousCCTrCH-Count,
    MaxTS-PerFrame,
    MaxPhysChPerFrame,
    MinimumSF-DL,
    BOOLEAN
}

DL-TransChCapability ::=
    maxNoBitsReceived
    maxConvCodeBitsReceived
    turboDecodingSupport
    maxSimultaneousTransChs
    maxReceivedTransportBlocks
    maxNumberOfTFC-InTFCS
    maxNumberOfTF
}

SEQUENCE {
    MaxNoBits,
    MaxNoBits,
    TurboSupport,
    MaxSimultaneousTransChsDL,
    MaxTransportBlocksDL,
    MaxNumberOfTFC-InTFCS-DL,
    MaxNumberOfTF
}

DRAC-SysInfo ::=
    transmissionProbability
    maximumBitRate
}

SEQUENCE {
    TransmissionProbability,
    MaximumBitRate
}

DRAC-SysInfoList ::=
    SEQUENCE (SIZE(1..maxDRAC-Classes)) OF
    DRAC-SysInfo

DRX-CycleLengthCoefficient ::=
    INTEGER (2..12)

DRX-Indicator ::=
    ENUMERATED {
        noDRX,
        drxWithCellUpdating,
        drxWithURA-Updating,
        spare1
    }

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

EstablishmentCause ::=
    ENUMERATED {
        originatingSpeechCall,
        originatingCS-DataCall,
        originatingPS-DataCall,
        terminatingSpeechCall,
        terminatingCS-DataCall,
        terminatingPS-DataCall,
        emergencyCall,
        interSystemCellReselection,
        locationUpdate,
        imsi-Detach,
        sms,
        callRe-establishment,
        unspecified,
        spare1, spare2, spare3
    }

FailureCauseWithProtErr ::=
    CHOICE {
        configurationUnacceptable
        physicalChannelFailure
        incompatibleSimultaneousReconfiguration
        protocolError
        spare1
        spare2
        spare3
    }

    NULL,
    NULL,
    NULL,
    ProtocolErrorInformation,
    NULL,
    NULL,
    NULL

}

GSM-Measurements ::=
    gsm900
    dcs1800
}

SEQUENCE {
    BOOLEAN,
    BOOLEAN,
}

```

```

    gsm1900                                BOOLEAN
}

HyperFrameNumber ::=                      BIT STRING (SIZE (20))

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 (8)) OF
    NS-IP

InitialUE-Capability ::=                  SEQUENCE {
    maximumAM-EntityNumber                 MaximumAM-EntityNumber
}

InitialUE-Identity ::=                   CHOICE {
    imsi                                    IMSI-GSM-MAP,
    tmsi-and-LAI                           TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI                         P-TMSI-and-RAI-GSM-MAP,
    imei                                    IMEI,
    esn-DS-41                              ESN-DS-41,
    imsi-DS-41                              IMSI-DS-41,
    imsi-and-ESN-DS-41                    IMSI-and-ESN-DS-41,
    tmsi-DS-41                             TMSI-DS-41,
    spare1                                  NULL,
    spare2                                  NULL,
    spare3                                  NULL,
    spare4                                  NULL,
    spare5                                  NULL,
    spare6                                  NULL,
    spare7                                  NULL,
    spare8                                  NULL
}

IntegrityCheckInfo ::=                   SEQUENCE {
    messageAuthenticationCode              MessageAuthenticationCode,
    rrc-MessageSequenceNumber              RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::=           SEQUENCE {
    rrc-MessageSequenceNumberList          RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::=          ENUMERATED {
    standardUIA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

IntegrityProtectionModeCommand ::=        CHOICE {
    startIntegrityProtection               SEQUENCE {
        integrityProtInitNumber            IntegrityProtInitNumber
    },
    modify                                  SEQUENCE {
        dl-IntegrityProtActivationInfo     IntegrityProtActivationInfo
    },
    spare                                    NULL
}

IntegrityProtectionModeInfo ::=           SEQUENCE {
    integrityProtectionModeCommand          IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm            IntegrityProtectionAlgorithm    OPTIONAL
}

IntegrityProtInitNumber ::=               BIT STRING (SIZE (32))

LCS-Capability ::=                       SEQUENCE {
    standaloneLocMethodsSupported          BOOLEAN,
    ue-BasedOTDOA-Supported                BOOLEAN,
    networkAssistedGPS-Supported           NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable                BOOLEAN,
    supportForIDL                           BOOLEAN
}

```

```

MaximumAM-EntityNumber ::=          ENUMERATED {
                                        am-2to3,
                                        am-4to8,
                                        am-16to32,
                                        spare1 }

MaximumAM-EntityNumberRLC-Cap ::=    ENUMERATED {
                                        am2, am3, am4, am8, am16, am32,
                                        spare1, spare2 }

-- Actual value = IE value * 16
MaximumBitRate ::=                  INTEGER (0..32)

MaxNoDPDCH-BitsTransmitted ::=      ENUMERATED {
                                        b150, b300, b600, b1200, b2400,
                                        b4800, b9600, b19200, b28800, b38400,
                                        b48000, b57600,
                                        spare1, spare2, spare3, spare4 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840,
                                        spare1, spare2, spare3 }

MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b300, b600, b1200, b2400, b4800,
                                        b9600, b19200, b28800, b38400,
                                        b48000, b57600, b67200,
                                        spare1, spare2, spare3, spare4 }

MaxNoSCCPCH-RL ::=                 ENUMERATED {
                                        r11, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=       ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=       ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }

-- TABULAR: Used range in Release99 is 1..224
MaxPhysChPerFrame ::=               INTEGER (1..224)

MaxPhysChPerTimeslot ::=            ENUMERATED {
                                        ts1, ts2 }

MaxSimultaneousCCTrCH-Count ::=     INTEGER (1..8)

MaxSimultaneousTransChsDL ::=       ENUMERATED {
                                        e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::=       ENUMERATED {
                                        e2, e4, e8, e16, e32,
                                        spare1, spare2, spare3 }

MaxTransportBlocksDL ::=            ENUMERATED {
                                        tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5, spare6 }

MaxTransportBlocksUL ::=            ENUMERATED {
                                        tb2, tb4, tb8, tb16, tb32, tb48,
                                        tb64, tb96, tb128, tb256, tb512,
                                        spare1, spare2, spare3,
                                        spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=                  INTEGER (1..16)

```

```

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
    downlinkCompressedMode      CompressedModeMeasCapability,
    uplinkCompressedMode        CompressedModeMeasCapability
}

MessageAuthenticationCode ::= BIT STRING (SIZE (32))

MinimumSF-DL ::= ENUMERATED {
    sf1, sf16 }

MinimumSF-UL ::= ENUMERATED {
    sf1, sf2, sf4, sf8, sf16,
    spare1, spare2, spare3 }

MultiModeCapability ::= ENUMERATED {
    tdd, fdd, fdd-tdd }

MultiRAT-Capability ::= ENUMERATED {
    gsm, multicarrier,
    spare1, spare2 }

MultiRAT-CapabilityList ::= SEQUENCE (SIZE (1..maxRAT-Count)) OF
    MultiRAT-Capability

N-300 ::= INTEGER (1..8)

N-302 ::= INTEGER (1..8)

N-303 ::= INTEGER (1..8)

N-304 ::= INTEGER (1..8)

N-310 ::= INTEGER (1..8)

N-312 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }

N-313 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }

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 {
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    sms,
    unspecified,
    spare1, spare2, spare3 }

```

```

PagingRecord ::=
  cn-Page
    pagingCause
    cn-DomainIdentity
    cn-pagedUE-Identity
  },
  utran-Page
    u-RNTI
}

PagingRecordList ::=
  SEQUENCE (SIZE (1..pageCount)) OF
    PagingRecord

PDCP-Capability ::=
  losslessSRNS-RelocationSupport
  supportedHC-AlgoTypeList
}

PhysicalChannelCapability ::=
  modeSpecificInfo
    fdd
      downlinkPhysChCapability
      uplinkPhysChCapability
    },
    tdd
      downlinkPhysChCapability
      uplinkPhysChCapability
  }
}

ProtocolErrorCause ::=
  ENUMERATED {
    transferSyntaxError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    messageExtensionNotComprehended,
    spare1, spare2, spare3 }

ProtocolErrorIndicator ::=
  ENUMERATED {
    noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
  noError
  errorOccurred
  ProtocolErrorInformation
}

RadioFrequencyBand ::=
  ENUMERATED {
    a, b, c,
    spare1 }

RadioFrequencyBandList ::=
  SEQUENCE (SIZE (1..maxFrequencyBandsCount)) OF
    RadioFrequencyBand

Re-EstablishmentTimer ::=
  t-314
  t-315
}

RedirectionInfo ::=
  frequencyInfo
  interSystemInfo
  spare
}

RejectionCause ::=
  ENUMERATED {
    congestion,
    unspecified,
    spare1, spare2 }

ReleaseCause ::=
  ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    spare1, spare2, spare3 }

RF-Capability ::=
  SEQUENCE {

```

```

modeSpecificInfo          CHOICE {
  fdd                     SEQUENCE {
    ue-PowerClass          UE-PowerClass,
    txRxFrequencySeparation TxRxFrequencySeparation
  },
  tdd                     SEQUENCE {
    ue-PowerClass          UE-PowerClass,
    radioFrequencyBandList RadioFrequencyBandList,
    chipRateCapability     ChipRateCapability
  }
}

RFC2507 ::= SEQUENCE {
  maximumMaxHeader        INTEGER (60..65535)           DEFAULT 65535,
  maximumTCP-Space        INTEGER (3..255)           DEFAULT 255,
  maximumNonTCP-Space     INTEGER (3..65535)        DEFAULT 65535
}

RLC-Capability ::= SEQUENCE {
  totalRLC-AM-BufferSize  TotalRLC-AM-BufferSize,
  maximumAM-EntityNumber  MaximumAM-EntityNumberRLC-Cap
}

RLC-ReconfigurationIndicator ::= BOOLEAN

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (2..3)) OF
  RRC-MessageSequenceNumber

RRC-MessageSequenceNumber ::= INTEGER (0..15)

RRC-MessageTX-Count ::= INTEGER (1..8)

S-RNTI ::= BIT STRING (SIZE (20))

S-RNTI-2 ::= INTEGER (0..1023)

SecurityCapability ::= SEQUENCE {
  cipheringAlgorithm      CipheringAlgorithm,
  integrityProtectionAlgorithm IntegrityProtectionAlgorithm
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
  notSupported            NULL,
  supported               MaxNoSCCPCH-RL
}

SRNC-Identity ::= BIT STRING (SIZE (12))

SupportedHC-AlgoType ::= CHOICE {
  rfc2507                 RFC2507,
  spare                   NULL
}

SupportedHC-AlgoTypeList ::= SEQUENCE (SIZE (1..maxAlgoTypeCount)) OF
  SupportedHC-AlgoType

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

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxNoSystemCapability)) OF
  SystemSpecificCapUpdateReq

T-300 ::= INTEGER (1..8)

T-301 ::= INTEGER (1..8)

T-302 ::= INTEGER (1..8)

T-303 ::= INTEGER (1..8)

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

T-305 ::= ENUMERATED {
  noUpdate, m5, m10, m30,

```



```

        m60, m120, m360, m720 }

T-306 ::=
    ENUMERATED {
        noUpdate, m5, m10, m30,
        m60, m120, m360, m720 }

T-307 ::=
    ENUMERATED {
        s5, s10, s15, s20,
        s30, s40, s50, spare1 }

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

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

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

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

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

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

T-314 ::=
    ENUMERATED {
        s0, s10, s20, s30, s60,
        s180, s600, s1200, s1800 }

T-315 ::=
    ENUMERATED {
        s0, s50, s100, s200, s400s10, s30, s60, s180,
        s600, s800, s1000, s1200, s1800}

T-CPCH ::=
    ENUMERATED {
        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=
    tmsi
    lai
    }

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

TotalRLC-AM-BufferSize ::=
    ENUMERATED {
        kb2, kb10, kb50, kb100,
        kb150, kb500, kb1000,
        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=
    INTEGER (1..8)

TransportChannelCapability ::=
    dl-TransChCapability
    ul-TransChCapability
    }

TurboSupport ::=
    notSupported
    supported
    }

TxRxFrequencySeparation ::=
    ENUMERATED {
        mhz190, mhz174-8-205-2,
        mhz134-8-245-2, spare1 }

U-RNTI ::=
    srnc-Identity
    s-RNTI
    }

U-RNTI-Short ::=
    srnc-Identity
    s-RNTI-2
    }

UE-ConnTimersAndConstants ::=
    t-301
    t-302
    n-302
    T-301,
    T-302,
    N-302,

```

```

t-303          T-303,
n-303          N-303,
t-304          T-304,
n-304          N-304,
t-305          T-305,
t-306          T-306,
t-307          T-307,
t-308          T-308,
t-309          T-309,
t-310          T-310,
n-310          N-310,
t-311          T-311,
t-312          T-312,
n-312          N-312,
t-313          T-313,
n-313          N-313,
t-314          T-314,
t-315          T-315,
n-315          N-315
}

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-CapabilityList OPTIONAL,
    multiModeCapability     MultiModeCapability
}

UE-PowerClass ::= INTEGER (1..4)

UE-RadioAccessCapability ::= SEQUENCE {
    conformanceTestCompliance ConformanceTestCompliance,
    pdcp-Capability            PDCP-Capability,
    rlc-Capability             RLC-Capability,
    transportChannelCapability TransportChannelCapability,
    rf-Capability              RF-Capability,
    physicalChannelCapability  PhysicalChannelCapability,
    ue-MultiModeRAT-Capability UE-MultiModeRAT-Capability,
    securityCapability         SecurityCapability,
    lcs-Capability             LCS-Capability,
    modeSpecificInfo          CHOICE {
        fdd          SEQUENCE {
            measurementCapability MeasurementCapability
        },
        tdd          NULL
    }
}

UL-PhysChCapabilityFDD ::= SEQUENCE {
    maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH             BOOLEAN
}

UL-PhysChCapabilityTDD ::= SEQUENCE {
    maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame              MaxTS-PerFrame,
    maxPhysChPerTimeslot        MaxPhysChPerTimeslot,
    minimumSF                   MinimumSF-UL,
    supportOfPUSCH              BOOLEAN
}

UL-TransChCapability ::= SEQUENCE {
    maxNoBitsTransmitted        MaxNoBits,
    maxConvCodeBitsTransmitted MaxNoBits,
    turboDecodingSupport        TurboSupport,
    maxSimultaneousTransChs     MaxSimultaneousTransChsUL,
    maxTransmittedBlocks        MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS       MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF                MaxNumberOfTF
}

URA-UpdateCause ::= ENUMERATED {
    changeOfURA,
    periodicURAUpdate,
    re-enteredServiceArea,
    spare1, spare2, spare3,
}

```

```

        spare4, spare5 }

WaitTime ::=
    INTEGER (0..15)

```

```

END

```

## 11.3.4 Radio bearer information elements

```

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

```

```

BEGIN

```

```

IMPORTS

```

```

    CN-DomainIdentity,
    RAB-Identity
FROM CoreNetwork-IEs

```

```

    TransportChannelIdentity
FROM TransportChannel-IEs

```

```

    algorithmCount,
    maxMuxOptionsCount,
    maxOtherRBcount,
    maxPredefConfigCount,
    maxRABcount,
    maxRB-WithPDCPcount,
    maxRBcount,
    maxReconRBcount,
    maxReconRBs,
    maxRelRBcount,
    maxSetupRBcount,
    maxSRBcount
FROM Constant-definitions;

```

```

AlgorithmSpecificInfo ::=
    CHOICE {
        rfc2507-Info      RFC2507-Info,
        spare             NULL
    }

```

```

DL-AM-RLC-Mode ::=
    SEQUENCE {
        inSequenceDelivery      BOOLEAN,
        receptionRLC-DiscardTimer ReceptionRLC-DiscardTimer OPTIONAL,
        TABULAR: The CV in the specification is unclear which IE does
        it refer to?
        receivingWindowSize      ReceivingWindowSize,
        dl-RLC-StatusInfo        DL-RLC-StatusInfo OPTIONAL
    }

```

```

DL-LogicalChannelMapping ::=
    SEQUENCE {
        dl-TransportChannelType  DL-TransportChannelType,
        transportChannelIdentity TransportChannelIdentity      OPTIONAL,
        logicalChannelIdentity   LogicalChannelIdentity        OPTIONAL
    }

```

```

DL-LogicalChannelMappingList ::=
    SEQUENCE (SIZE (1..2)) OF
        DL-LogicalChannelMapping

```

```

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

```

```

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

```

```

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

```

```

DL-TransportChannelType ::=
    ENUMERATED {
        dch, fach, dsch }

```

```

DL-UM-RLC-Mode ::=
    SEQUENCE {
        inSequenceDelivery    BOOLEAN
    }

```

```

}

ExplicitDiscard ::=
    timerMRW
    timerDiscard
    maxMRW
}

ExpectReordering ::=
    ENUMERATED {
        reorderingNotExpected,
        reorderingExpected }

HeaderCompressionInfo ::=
    reconfigurationReset
    -- TABULAR: Optional boolean values are not very efficient...
    algorithmSpecificInfo
}

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

LogicalChannelIdentity ::=
    INTEGER (1..16)

MAC-LogicalChannelPriority ::=
    INTEGER (1..8)

MaxDAT ::=
    ENUMERATED {
        dat1, dat2, dat3, dat4, dat5, dat6,
        dat7, dat8, dat9, dat10, dat15, dat20,
        dat25, dat30, dat35, dat40 }

MaxMRW ::=
    ENUMERATED {
        mm1, mm4, mm6, mm8, mm12, mm16,
        mm24, mm32, spare1, spare2, spare3,
        spare4, spare5, spare6, spare7, spare8 }

MaxRST ::=
    ENUMERATED {
        rst1, rst4, rst6, rst8, rst12,
        rst16, rst24, rst32,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

NoExplicitDiscard ::=
    ENUMERATED {
        dt0-1, dt0-25, dt0-5, dt0-75, dt1,
        dt1-25, dt1-5, dt1-75, dt2, dt2-5,
        dt3, dt3-5, dt4, dt4-5, dt5, dt7-5 }

PDCP-Info ::=
    losslessSRNS-RelocSupport
    pdcp-PDU-Header
    headerCompressionInfoList
}

PDCP-InfoReconfig ::=
    pdcp-Info
    pdcp-SN-Info
}

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

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

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

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

PollingInfo ::=
    timerPollProhibit
    timerPoll
    poll-PU
    poll-SDU
    lastTransmissionPU-Poll
    lastRetransmissionPU-Poll
    pollWindow
    timerPollPeriodic
}

```

```

}

PollWindow ::=
    ENUMERATED {
        pw50, pw60, pw70, pw80, pw85,
        pw90, pw95, pw100,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

PreDefRadioConfiguration ::=
    SEQUENCE {
        predefinedConfigIdentity
            PredefinedConfigIdentity,
        predefinedConfigValueTag
            PredefinedConfigValueTag,
        predefinedRB-Configuration
            PredefinedRB-Configuration
    }

PreDefRadioConfigurationList ::=
    SEQUENCE (SIZE (1..maxPredefConfigCount)) OF
        PreDefRadioConfiguration

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

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

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

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

RB-ActivationTimeInfo ::=
    SEQUENCE {
        rb-Identity
            RB-Identity,
        rlc-SequenceNumber
            RLC-SequenceNumber
    }

RB-ActivationTimeInfoList ::=
    SEQUENCE (SIZE (1..maxReconRBs)) OF
        RB-ActivationTimeInfo

RB-Identity ::=
    INTEGER (0..31)

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

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

RB-InformationList ::=
    SEQUENCE (SIZE (1..maxRBcount)) OF
        RB-InformationSetup

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

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

RB-InformationRelease ::=
    SEQUENCE {
        rb-Identity
            RB-Identity
    }

RB-InformationReleaseList ::=
    SEQUENCE (SIZE (1..maxRelRBcount)) OF
        RB-InformationRelease

RB-InformationSetup ::=
    SEQUENCE {
        rb-Identity
            RB-Identity,
    }

```

```

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

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

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

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

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

RB-WithPDCP-Info ::= SEQUENCE {
    rb-Identity,
    pdcp-SN-Info
}

RB-WithPDCP-InfoList ::= SEQUENCE (SIZE (1..maxRB-WithPDCPcount)) OF
    RB-WithPDCP-Info

ReceivingWindowSize ::= ENUMERATED {
    rw1, rw8, rw16, rw32, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2048,
    rw2560, rw3072, rw3584, rw4096 }

ReceptionRLC-DiscardTimer ::= ENUMERATED {
    dt100, dt250, dt500, dt750, dt1000,
    dt1250, dt1500, dt1750, dt2000, dt2500,
    dt3000, dt3500, dt4000, dt4500,
    dt5000, dt7500 }

RFC2507-Info ::= SEQUENCE {
    f-MAX-PERIOD          INTEGER (1..655355)          OPTIONAL,
    f-MAX-TIME            INTEGER (1..255)          OPTIONAL,
    max-HEADER            INTEGER (60..65535)       OPTIONAL,
    tcp-SPACE              INTEGER (3..255)         OPTIONAL,
    non-TCP-SPACE         INTEGER (3..65535)        OPTIONAL,
    expectReordering      ExpectReordering
    -- TABULAR: The IE above has only two possible values, so using Optional
    -- would be wasteful
}

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

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

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

SRB-InformationList ::= SEQUENCE (SIZE (1..maxSRBcount)) OF
    SRB-InformationSetup

SRB-InformationSetup ::= SEQUENCE {
    rb-Identity           RB-Identity              OPTIONAL,
    -- this IE has a default value: smallest value not used yet.
    rlc-InfoChoice        RLC-InfoChoice,
    rb-MappingInfo        RB-MappingInfo
}

SRB-InformationSetupList2 ::= SEQUENCE (SIZE (3..4)) OF
    SRB-InformationSetup

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

TimerEPC ::= ENUMERATED {
    te50, te100, te150, te200, te250,
    te300, te350, te400, te450, te500,
    te550, te600, te700, te800,
}

```

```

te900, te1000 }

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 }

TimerMRW ::=
ENUMERATED {
tm50, tm100, tm150, tm200, tm250,
tm300, tm350, tm400, tm450, tm500,
tm550, tm600, tm700, tm800, tm900, tm1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerPoll ::=
ENUMERATED {
tp50, tp100, tp150, tp200, tp250,
tp300, tp350, tp400, tp450, tp500,
tp550, tp600, tp700, tp800,
tp900, tp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

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

TimerPollProhibit ::=
ENUMERATED {
tpp50, tpp100, tpp150, tpp200, tpp250,
tpp300, tpp350, tpp400, tpp450, tpp500,
tpp550, tpp600, tpp700, tpp800,
tpp900, tpp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerRST ::=
ENUMERATED {
tr50, tr100, tr150, tr200, tr250, tr300,
tr350, tr400, tr450, tr500, tr550,
tr600, tr700, tr800, tr900, tr1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

TimerStatusPeriodic ::=
ENUMERATED {
tsp50, tsp100, tsp150, tsp200, tsp250,
tsp300, tsp350, tsp400, tsp450, tsp500,
tsp550, tsp600, tsp700, tsp800, tsp750,
tsp900, tsp1000, tsp2000
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }
}

TimerStatusProhibit ::=
ENUMERATED {
tsp160, tsp320, tsp640, tsp1280
tsp50, tsp100, tsp150, tsp200, tsp250,
tsp300, tsp350, tsp400, tsp450, tsp500,
tsp550, tsp600, tsp700, tsp800,
tsp900, tsp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }
}

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

```

```

TransmissionWindowSize ::=
    ENUMERATED {
        tw1, tw8, tw16, tw32, tw128, tw256,
        tw512, tw768, tw1024, tw1536, tw2048,
        tw2560, tw3072, tw3584, tw4096, spare }

UL-AM-RLC-Mode ::=
    SEQUENCE {
        transmissionRLC-Discard OPTIONAL,
        transmissionWindowSize,
        timerRST,
        MaxRST,
        pollingInfo OPTIONAL
    }

UL-LogicalChannelMapping ::=
    SEQUENCE {
        UL-TransportChannelType,
        transportChannelIdentity OPTIONAL,
        logicalChannelIdentity OPTIONAL,
        mac-LogicalChannelPriority OPTIONAL
    }

UL-LogicalChannelMappingList ::=
    SEQUENCE (SIZE (1..2)) OF
        UL-LogicalChannelMapping

UL-RLC-Mode ::=
    CHOICE {
        UL-AM-RLC-Mode,
        UL-UM-RLC-Mode,
        NULL,
        NULL
    }

UL-TransportChannelType ::=
    ENUMERATED {
        dch, rach, cpch, usch }

UL-UM-RLC-Mode ::=
    SEQUENCE {
        transmissionRLC-Discard OPTIONAL
    }

END

```

### 11.3.5 Transport channel information elements

TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxAddTFC-Count,
    maxCPCHsetcount,
    maxCTFC,
    maxCTFC-DCH,
    maxCTFC-DSCH,
    maxDelTFC-Count,
    maxDelTrCHcount,
    maxDL-CCTrCHcount,
    maxDRAC-Classes,
    maxDRACReconAddTrCHcount,
    maxFACHcount,
    maxNoTFCI-Groups,
    maxReconAddTrCHcount,
    maxRM,
    maxRstTrCH-Count,
    maxTF-Count,
    maxTF-Value,
    maxTFC-Count,
    maxTFC-Value,
    maxTFC-Value-1,
    maxTFCI-1-Combs,
    maxTFCI-2-Combs,
    maxTFCI-Value,
    maxTFcount,
    maxTrCH,
    maxTrChCount,
    maxTrChValue,
    maxUL-CCTrCHcount
FROM Constant-definitions;

```

```

AddCTFC-List ::=
    SEQUENCE (SIZE (1..maxAddTFC-Count)) OF
        CTFC

```



```

Addition ::=
    ctfc
    gainFactorInformation
    powerOffsetPp-m
}
SEQUENCE {
    CTFC,
    GainFactorInformation,
    PowerOffsetPp-m
}

AdditionList ::=
SEQUENCE (SIZE (1..maxAddTFC-Count)) OF
    Addition

AllowedTFI-List ::=
SEQUENCE (SIZE (1..maxTF-Count)) OF
    INTEGER (0..maxTF-Value)

AllowedTFC-List ::=
SEQUENCE (SIZE (1..maxTFC-Count)) OF
    TFC-Value

BitModeRLC-SizeInfo ::=
    sizeType1
    sizeType2
        part1
        part2
        -- Actual size = (part1 * 8) + 128 + part2
    },
    sizeType3
        part1
        part2
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4
        part1
        part2
        -- Actual size = (part1 * 64) + 1024 + part2
    }
CHOICE {
    INTEGER (1..127),
    SEQUENCE {
        INTEGER (0..15),
        INTEGER (1..7)
    } OPTIONAL
    SEQUENCE {
        INTEGER (0..47),
        INTEGER (1..15)
    } OPTIONAL
    SEQUENCE {
        INTEGER (0..62),
        INTEGER (1..63)
    } OPTIONAL
}

BLER-QualityValue ::=
INTEGER (0..63)

ChannelCodingType ::=
    noCoding
    convolutional
    turbo
CHOICE {
    NULL,
    CodingRate,
    NULL
}

CodingRate ::=
ENUMERATED {
    half,
    third
}

CommonDynamicTF-Info ::=
    numberOfTransportBlocks
    modeSpecificInfo
    fdd
        |
        octetModeRLC-SizeInfoType2
        },
        tdd
        commonTDD-Choice
            bitModeRLC-SizeInfo
            octetModeRLC-SizeInfoType1
        }
    }
SEQUENCE {
    NumberOfTransportBlocks,
    CHOICE {
        SEQUENCE {
            OctetModeRLC-SizeInfoType2 OPTIONAL
        }
        SEQUENCE {
            CHOICE {
                BitModeRLC-SizeInfo,
                OctetModeRLC-SizeInfoType1
            } OPTIONAL
        }
    }
}

CommonDynamicTF-InfoList ::=
SEQUENCE (SIZE (1..maxTFcount)) OF
    CommonDynamicTF-Info

CommonTransChTFS ::=
    dynamicTF-InformationList
    semistaticTF-Information
SEQUENCE {
    CommonDynamicTF-InfoList,
    SemistaticTF-Information
}

CompleteReconf ::=
    ctfc
    gainFactorInformation
    powerOffsetPp-m
}
SEQUENCE {
    CTFC,
    GainFactorInformation,
    PowerOffsetPp-m
}

CompleteReconfList ::=
SEQUENCE (SIZE (1..maxTFC-Count)) OF
    CompleteReconf

ComputedGainFactors ::=
    referenceTFC-Number
}
SEQUENCE {
    ReferenceTFC-Number
}

```

```

ControlledTrChList ::= SEQUENCE (SIZE (1..maxTrChCount)) OF
                        TransportChannelIdentity

CPCH-SetID ::= INTEGER (1..maxCPCHsetcount)

CRC-Size ::= ENUMERATED {
                crc0, crc8, crc12, crc16, crc24 }

CTFC-DCH ::= INTEGER (0..maxCTFC-DCH)

CTFC-DSCH ::= INTEGER (0..maxCTFC-DSCH)

CTFC ::= INTEGER (0..maxCTFC)

DedicatedDynamicTF-Info ::= SEQUENCE {
    numberOfTransportBlocks      NumberOfTransportBlocks,
    rlcMode                       CHOICE {
        bitMode                   BitModeRLC-SizeInfo,
        octetModeType1            OctetModeRLC-SizeInfoType1
    }
} OPTIONAL

DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTFcount)) OF
                                DedicatedDynamicTF-Info

DedicatedTransChTFS ::= SEQUENCE {
    dynamicTF-InformationList    DedicatedDynamicTF-InfoList,
    semistaticTF-Information     SemistaticTF-Information
}

DeletedUL-TransChInformation ::= SEQUENCE {
    transportChannelIdentity     TransportChannelIdentity
}

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

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

DL-AddReconfTransChInformation ::= SEQUENCE {
    trasportChannelIdentity      TransportChannelIdentity,
    transportFormatSet           TransportFormatSet,
    modeSpecificInfo             CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
            dl-DCH-TFCS-Identity   TFCS-Identity
        }
    } OPTIONAL,
    dch-QualityTarget            QualityTarget OPTIONAL,
    tm-SignallingInfo            TM-SignallingInfo OPTIONAL
}

DL-AddReconfTransChInformation2 ::= SEQUENCE {
    trasportChannelIdentity      TransportChannelIdentity,
    transportFormatSet           TransportFormatSet,
    qualityTarget                QualityTarget
}

DL-CommonTransChInfo ::= SEQUENCE {
    sccpch-TFCS                  TFCS OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            dl-DCH-TFCS            TFCS OPTIONAL
        },
        tdd                       SEQUENCE {
            individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList OPTIONAL
        }
    }
}

DL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxDelTrCHcount)) OF
                                DL-DeletedTransChInformation

DL-DeletedTransChInformation ::= SEQUENCE {
    transportChannelIdentity      TransportChannelIdentity,
    modeSpecificInfo             CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {

```

```

    dl-DCH-TFCS-Identity          TFCS-Identity          OPTIONAL
  }
}
}
}
OPTIONAL

DL-PreDefTrChInfoList ::=      SEQUENCE (SIZE (1..maxTrCH)) OF
                                DL-PreDefTrChInformation

DL-PreDefTrChInformation ::=    SEQUENCE {
  transportChannelIdentity      TransportChannelIdentity,
  transportFormatSet            TransportFormatSet,
  qualityTarget                 QualityTarget              OPTIONAL,
  tm-SignallingInfo            TM-SignallingInfo          OPTIONAL
}

DRAC-ClassIdentity ::=         INTEGER (1..maxDRAC-Classes)

DRAC-StaticInformation ::=      SEQUENCE {
  transmissionTimeValidity      TransmissionTimeValidity,
  timeDurationBeforeRetry       TimeDurationBeforeRetry,
  drac-ClassIdentity            DRAC-ClassIdentity
}

DRAC-StaticInformationList ::=  SEQUENCE (SIZE (1..maxDRACReconAddTrCHcount)) OF
                                DRAC-StaticInformation

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

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

GainFactor ::=                 INTEGER (0..15)

GainFactorInformation ::=      CHOICE {
  signalledGainFactors          SignalledGainFactors,
  computedGainFactors           ComputedGainFactors
}

IndividualDL-CCTrCH-Info ::=   SEQUENCE {
  dl-DCH-TFCS-Identity          TFCS-Identity,
  dl-DCH-TFCS                   TFCS
}

IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
                                IndividualUL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::=   SEQUENCE {
  ul-DCH-TFCS-Identity          TFCS-Identity,
  ul-DCH-TFCS                   TFCS
}

IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxDL-CCTrCHcount)) OF
                                IndividualDL-CCTrCH-Info

-- **TODO**, extensibility?
MessType ::=                   ENUMERATED {
  transportFormatCombinationControl }

Non-allowedTFC-List ::=        SEQUENCE (SIZE (1..maxTFC-Count)) OF
                                INTEGER (0..maxTFC-Value)

NumberOfTransportBlocks ::=    INTEGER (0..4095)

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 ::= SEQUENCE-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
}

PowerOffsetPp-m ::=          INTEGER (-5..10)

PreDefTransChConfiguration ::= SEQUENCE {
    ul-TFCS                   TFCS                               OPTIONAL,
    ul-AddReconfTrChInfoList UL-PreDefTrChInfoList            OPTIONAL,
    dl-TFCS                   TFCS                               OPTIONAL,
    dl-TrChInfoList           DL-PreDefTrChInfoList            OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                   NULL,
        tdd                   SEQUENCE {
            ul-DCH-TFCS-Identity    TFCS-Identity,
            dl-DCH-TFCS-Identity    TFCS-Identity
        }
    }
    -- TABULAR: The two separate choices in tabular have been
    -- combined here.
}

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

RateMatchingAttribute ::=   INTEGER (1..maxRM)

ReferenceTFC-Number ::=     INTEGER (0..15)

Removal ::=                 SEQUENCE {
    tfci                      TFCI
}

RemovalList ::=            SEQUENCE (SIZE (1..maxDelTFC-Count)) OF
    Removal

RestrictedTrChIdentity ::=  INTEGER (0..maxTrChValue)

RestrictedTrChInfo ::=      SEQUENCE {
    restrictedTrChIdentity     RestrictedTrChIdentity,
    allowedTFI-List           AllowedTFI-List                               OPTIONAL
}

RestrictedTrChInfoList ::=  SEQUENCE (SIZE (1..maxRstTrCH-Count)) OF
    RestrictedTrChInfo

SemistaticTF-Information ::= SEQUENCE {
    transmissionTimeInterval   TransmissionTimeInterval,
    channelCodingType          ChannelCodingType,
    rateMatchingAttribute      RateMatchingAttribute,
    crc-Size                   CRC-Size
}

SignalledGainFactors ::=   SEQUENCE {
    gainFactorBetaC            GainFactor,
    gainFactorBetaD            GainFactor,
    referenceTFC-Number        ReferenceTFC-Number
}

TFC-DCH-List ::=           SEQUENCE (SIZE (1..maxTFCI-1-Combs)) OF
    CTFC-DCH

TFC-DSCH-List ::=         SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    CTFC-DSCH

TFC-MappingOnDSCH ::=     SEQUENCE {
    maxTFCI-Field2Value       INTEGER (1..512),
    ctfc-DSCH                  CTFC-DSCH
}

TFC-MappingOnDSCH-List ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    TFC-MappingOnDSCH

TFC-Subset ::=            CHOICE {
    minimumAllowedTFC-Number   TFC-Value,
}

```

```

allowedTFC-List           AllowedTFC-List,
non-allowedTFC-List       Non-allowedTFC-List,
restrictedTrChInfoList    RestrictedTrChInfoList
}

TFC-Value ::=             INTEGER (0..maxTFC-Value-1)

TFCI ::=                  INTEGER (0..maxTFCI-Value)

TFCI2-Length ::=         INTEGER (1..9)

TFCs ::=                  CHOICE {
  fddWithoutAccessOrTDD   SEQUENCE {
    tfcsRepresentation    CHOICE {
      completeReconfList  CompleteReconfList,
      removalList         RemovalList,
      additionList        AdditionList
    }
  },
  fddWithAccess           SEQUENCE {
    tfci2-Length          TFCI2-Length,
    tfc-DCH-List         TFC-DCH-List,
    signallingMethod      CHOICE {
      tfci-Range          SEQUENCE {
        tfc-MappingOnDSCH-List  TFC-MappingOnDSCH-List
      },
      explicit            SEQUENCE {
        tfc-DSCH-List      TFC-DSCH-List
      }
    }
  }
}

TFCs-Identity ::=        SEQUENCE {
  tfcs-ID                 INTEGER (1..8),
  sharedChannelIndicator  BOOLEAN
}

TimeDurationBeforeRetry ::= INTEGER (1..256)

TM-SignallingInfo ::=    SEQUENCE {
  transportChannelIdentity TransportChannelIdentity,
  tm-SignallingMode        CHOICE {
    model                  SEQUENCE {
      messType             MessType
    },
    mode2                  SEQUENCE {
      controlledTrChList  ControlledTrChList
    }
  }
}

TransmissionTimeInterval ::= ENUMERATED {
  tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::= INTEGER (1..256)

TransportChannelIdentity ::= INTEGER (1..64)

TransportFormatSet ::=   CHOICE {
  dedicatedTransChTFS     DedicatedTransChTFS,
  commonTransChTFS        CommonTransChTFS
}

UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxReconAddTrCHcount)) OF
  UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {
  transportChannelIdentity TransportChannelIdentity,
  transportFormatSet       TransportFormatSet,
  modeSpecificInfo         CHOICE {
    fdd                     NULL,
    tdd                     SEQUENCE {
      ul-DCH-TFCS-Identity  TFCS-Identity
    }
  }
}

UL-CommonTransChInfo ::= SEQUENCE {
  tfc-Subset               TFC-Subset
  modeSpecificInfo         CHOICE {

```

```

        fdd                SEQUENCE {
            ul-DCH-TFCS      TFCS
        },
        tdd                SEQUENCE {
            ul-DCH-TFCS-Identity TFCS-Identity
        }
    }
}
OPTIONAL

UL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxDelTrCHcount)) OF
    DeletedUL-TransChInformation

UL-DeletedTransChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    modeSpecificInfo        CHOICE {
        fdd                NULL,
        tdd                SEQUENCE {
            individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList
        }
    }
}
OPTIONAL

}
OPTIONAL

UL-PreDefTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-PreDefTrChInformation

UL-PreDefTrChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    transportFormatSet      TransportFormatSet
}

END

```

## 11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    maxAddRLcount,
    maxAP-SigNum,
    maxAP-SubCH,
    maxChanCount,
    maxCodeCount,
    maxCodeNum,
    maxCodeNumComp-1,
    maxCombineSet,
    maxCPCH-SetCount,
    maxDelRLcount,
    maxDPDCHcount,
    maxFACH-Count,
    maxMidambleShift-1,
    maxNoCodeGroups,
    maxNoTFCI-Groups,
    maxPCPCHs,
    maxPDSCHcount,
    maxPRACHcount,
    maxPUSCHcount,
    maxReplaceCount,
    maxRLcount,
    maxSCCPCHcount,
    maxSigNum,
    maxSF-Num,
    maxSubChNum,
    maxTFCI-2-Combs,
    maxTFs,
    maxTimeslotCount,
    maxTScount,
    maxUL-CCTrCHcount
FROM Constant-definitions

    ActivationTime
FROM UserEquipment-IEs

    CPCH-SetID,
    FACH-PCH-InformationList,
    TFCS,
    TFCS-Identity,
    TransportFormatSet

```

```

FROM TransportChannel-IEs

    SIB-ReferenceListFACH
FROM Other-IEs;

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

AC-To-ASC-MappingTable ::=           SEQUENCE (SIZE (7)) OF
                                       AC-To-ASC-Mapping

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

AccessServiceClassIndex ::=          INTEGER (1..8)

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

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

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

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

AP-AICH-ChannelisationCode ::=       INTEGER (0..255)

AP-AICH-ScramblingCode ::=           INTEGER (0..255)

AP-PreambleScramblingCode ::=        INTEGER (0..255)

AP-Signature ::=                     INTEGER (0..15)

AP-Subchannel ::=                    INTEGER (0..11)

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

ASC-Info ::=                         SEQUENCE {
    asc-List                          ASC-List
}

ASC-List ::=                         SEQUENCE (SIZE (1..8)) OF
                                       ASC

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

AvailableAP-SignatureList ::=         SEQUENCE (SIZE (1..maxAP-SigNum)) OF
                                       AP-Signature

AvailableAP-SubchannelList ::=        SEQUENCE (SIZE (1..maxAP-SubCH)) OF
                                       AP-Subchannel

AvailableMinimumSF-VCAM ::=          SEQUENCE {
    minimumSpreadingFactor            MinimumSpreadingFactor,
    nf-Max                            NF-Max,
    maxAvailablePCPCH-Number          MaxAvailablePCPCH-Number,
    availableAP-SignatureList          AvailableAP-SignatureList,
    availableAP-SubchannelList         AvailableAP-SubchannelList   OPTIONAL
}

AvailableMinimumSF-ListUCSM ::=      SEQUENCE (SIZE (1..maxSF-Num)) OF

```

	MinimumSpreadingFactor	
AvailableMinimumSF-ListVCAM ::=	SEQUENCE (SIZE (1..maxSF-Num)) OF AvailableMinimumSF-VCAM	
AvailableSignatureList ::=	SEQUENCE (SIZE (1..maxSigNum)) OF Signature	
AvailableSubChannelNumber ::=	INTEGER (0..11)	
AvailableSubChannelNumberList ::=	SEQUENCE (SIZE (1..maxSubChNum)) OF AvailableSubChannelNumber	
BlockSTTD-Indicator ::=	BOOLEAN	
BurstType ::=	ENUMERATED { short1, long2 }	
BurstType1 ::=	ENUMERATED { ms4, ms8, ms16 }	
BurstType2 ::=	ENUMERATED { ms3, ms6 }	
CCTrCH-PowerControlInfo ::=	SEQUENCE { tfcs-Identity ul-DPCH-PowerControlInfo }	OPTIONAL,
CD-AccessSlotSubchannel ::=	INTEGER (0..11)	
CD-AccessSlotSubchannelList ::=	SEQUENCE (SIZE (1..maxSubChNum)) OF CD-AccessSlotSubchannel	
CD-CA-ICH-ChannelisationCode ::=	INTEGER (0..255)	
CD-CA-ICH-ScramblingCode ::=	INTEGER (0..255)	
CD-PreambleScramblingCode ::=	INTEGER (0..255)	
CD-SignatureCode ::=	INTEGER (0..15)	
CD-SignatureCodeList ::=	SEQUENCE (SIZE (1..maxSigNum)) OF CD-SignatureCode	
CellParametersID ::=	INTEGER (0..127)	
CFN ::=	INTEGER (0..255)	
ChannelAssignmentActive ::=	CHOICE { notActive isActive }	VCAM-Info
ChannelisationCode256 ::=	INTEGER (0..255)	
ChannelReqParamsForUCSM ::=	SEQUENCE { availableAP-SignatureList availableAP-SubchannelList }	
ChannelReqParamsForUCSM-List ::=	SEQUENCE (SIZE (1..maxSigNum)) OF ChannelReqParamsForUCSM	
ClosedLoopTimingAdjMode ::=	ENUMERATED { slot1, slot2 }	
CodeNumber ::=	INTEGER (0..maxCodeNum)	
CodeNumberDSCH ::=	INTEGER (0..maxCodeNumComp-1)	
CodeRange ::=	SEQUENCE { pdsch-CodeMapList codeNumberStart codeNumberStop }	PDSCH-CodeMapList, CodeNumberDSCH, CodeNumberDSCH
CodeWordSet ::=	ENUMERATED { longCWS, mediumCWS, shortCWS, ssdtOff }	



```

CommonTimeslotInfo ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding TFCI-Coding OPTIONAL,
    puncturingLimit PuncturingLimit,
    repetitionPeriodAndLength RepetitionPeriodAndLength OPTIONAL
}

CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    secondInterleavingMode SecondInterleavingMode OPTIONAL,
    tfci-Coding TFCI-Coding OPTIONAL,
    puncturingLimit PuncturingLimit,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}

CompressedModeMethod ::= CHOICE {
    puncturing NULL,
    sf-2 ScramblingCodeChange,
    upperLayerScheduling NULL,
    noCompressing NULL
}

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

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

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

CPCH-SetInfo ::= SEQUENCE {
    cpch-SetID CPCH-SetID,
    transportFormatSet TransportFormatSet,
    ap-PreambleScramblingCode AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList OPTIONAL,
    cd-SignatureCodeList CD-SignatureCodeList OPTIONAL,
    slotFormat SlotFormat,
    n-StartMessage N-StartMessage,
    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..maxCPCH-SetCount)) OF
    CPCH-SetInfo

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

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

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

DL-CCTrCh ::= SEQUENCE {
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::= SEQUENCE {
    tfcs-Identity TFCS-Identity,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::= CHOICE {
    single DL-CCTrCh,
    handover SEQUENCE (SIZE (1..8)) OF
        DL-CCTrCh-HO
}

DL-ChannelisationCode ::= SEQUENCE {

```

```

secondaryScramblingCode      SecondaryScramblingCode      OPTIONAL,
codeNumber                   CodeNumber
}

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

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

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

DL-DPCCH-SlotFormat ::= ENUMERATED {
  slf0, slf1 }

DL-DPCH-InfoCommon ::= SEQUENCE {
  dl-DPCH-PowerControlInfo    DL-DPCH-PowerControlInfo    OPTIONAL,
  spreadingFactor              SF-DL-DPCH,
  -- TABULAR: The number of pilot bits is nested inside the spreading factor.
  positionFixedOrFlexible      PositionFixedOrFlexible,
  tfci-Existence               BOOLEAN
}

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

DL-DPCH-PowerControlInfo ::= SEQUENCE {
  modeSpecificInfo            CHOICE {
    fdd                        SEQUENCE {
      dpc-Mode                  DPC-Mode                  OPTIONAL
    },
    tdd                        NULL
  }
}

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

DL-InfoPerRL ::= SEQUENCE {
  dl-InformationPerRL         DL-InformationPerRL-Short,
  dl-DPCH-InfoPerRL          DL-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::= SEQUENCE (SIZE (1..maxRLcount)) OF
  DL-InfoPerRL

DL-InformationPerRL ::= SEQUENCE {
  modeSpecificInfo            CHOICE {
    fdd                        SEQUENCE {
      primaryCPICH-Info        PrimaryCPICH-Info,

```

```

        pdsch-SHO-DCH-Info          PDSCH-SHO-DCH-Info          OPTIONAL,
        pdsch-CodeMapping           PDSCH-CodeMapping           OPTIONAL
    },
    tdd                             SEQUENCE {
        primaryCCPCH-Info           PrimaryCCPCH-Info
    }
},
dl-DPCH-InfoPerRL                 DL-DPCH-InfoPerRL           OPTIONAL,
secondaryCCPCH-Info               SecondaryCCPCH-Info         OPTIONAL,
sib-ReferenceList                  SIB-ReferenceListFACH      OPTIONAL
}

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

DL-InformationPerRL-Short ::=     SEQUENCE {
    modeSpecificInfo               CHOICE {
        fdd                         SEQUENCE {
            primaryCPICH-Info
        },
        tdd                         NULL
    },
    dl-DPCH-InfoPerRL             DL-DPCH-InfoPerRL         OPTIONAL
}

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

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

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

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

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

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

DPCH-CompressedModeInfo ::=      SEQUENCE {
    tgl                             TGL,
    cfn                             CFN,
    sn                             Timeslot,
    tgp1                            TGP,
    tgp2                            TGP,
    tgd                             TGD,
    pd                              PD,
    pcm                             PCM,
    prm                             PRM,
    ul-DL-Mode                      UL-DL-Mode,
    compressedModeMethod             CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType                    DL-FrameType,
    deltaSIR                        DeltaSIR,
    deltaSIRAfter                   DeltaSIR
}

DPDCH-ChannelisationCode ::=     ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

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

```

```

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
                      DSCH-Mapping

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

DurationTimeInfo ::= INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

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

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

FACH-PCH-Information ::= SEQUENCE {
  transportFormatSet TransportFormatSet,
  etch-Indicator      BOOLEAN
}

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

FBI-BitNumber ::= INTEGER (1..2)

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

IndividualTimeslotInfo ::= SEQUENCE {
  timeslotNumber Timeslot,
  tfci-Existence BOOLEAN,
  -- The IE above is CH, but since it is a boolean it's kept mandatory.
  burstType      BurstType,
  midambleShift  MidambleShift
}

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

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

IndividualTS-InfoPDSCH ::= SEQUENCE {
  individualTimeslotInfo IndividualTimeslotInfo,
  pdsch-ChannelisationCode PDSCH-ChannelisationCode
}

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

IndividualTS-InfoPUSCH ::= SEQUENCE {
  individualTimeslotInfo IndividualTimeslotInfo,
  pusch-ChannelisationCode PUSCH-ChannelisationCode
}

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

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
  individualTimeslotInfo IndividualTimeslotInfo,
  channelisationCode     UL-TS-ChannelisationCode
}

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

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

```

```

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

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

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

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

MidambleConfiguration ::= SEQUENCE {
    burstType1      BurstType1,
    burstType2      BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

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

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

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

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

-- **TODO**, not defined yet
NB01Max ::= SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::= SEQUENCE {
}

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

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

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

PC-Preamble ::= ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::= ENUMERATED {
    slf0, slf1 }

PCM ::= ENUMERATED {
    pc-mode0, pc-mode1 }

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

PCPCH-ChannelInfo ::= SEQUENCE {
    pcpch-UL-ScramblingCode      INTEGER (0..255),
    pcpch-DL-ChannelisationCode  INTEGER (0..511),
    pcpch-DL-ScramblingCode      INTEGER (0..255),
    pcp-Length                    PCP-Length,
    ucsm-Info                      UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::= INTEGER (0..35)

PDSCH-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 }

```

PDSCH-CodeInfo ::=	SEQUENCE {	
spreadingFactor	SF-PDSCH,	
codeNumber	CodeNumberDSCH,	
multiCodeInfo	MultiCodeInfo	
}		
PDSCH-CodeInfoList ::=	SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF	
	PDSCH-CodeInfo	
PDSCH-CodeMap ::=	SEQUENCE {	
spreadingFactor	SF-PDSCH,	
multiCodeInfo	MultiCodeInfo	
}		
PDSCH-CodeMapList ::=	SEQUENCE (SIZE (1..maxNoCodeGroups)) OF	
	PDSCH-CodeMap	
PDSCH-CodeMapping ::=	SEQUENCE {	
dl-ScramblingCode	SecondaryScramblingCode,	
signallingMethod	CHOICE {	
codeRange	CodeRange,	
tfci-Range	DSCH-MappingList,	
explicit	PDSCH-CodeInfoList,	
replace	ReplacedPDSCH-CodeInfoList	
}		
}		
PDSCH-Info ::=	SEQUENCE {	
tfcs-Identity	TFCS-Identity	OPTIONAL,
timeInfo	TimeInfo,	
commonTimeslotInfo	CommonTimeslotInfo	OPTIONAL,
individualTimeslotInfoList	IndividualTS-InfoPDSCH-List	OPTIONAL
}		
PDSCH-SHO-DCH-Info ::=	SEQUENCE {	
dsch-RadioLinkIdentifier	DSCH-RadioLinkIdentifier,	
tfci-CombiningSet	TFCI-CombiningSet,	
rl-IdentifierList	RL-IdentifierList	OPTIONAL
}		
PDSCH-SysInfo ::=	SEQUENCE {	
pdsch-Info	PDSCH-Info,	
dsch-TFS	TransportFormatSet	OPTIONAL
}		
PDSCH-SysInfoList ::=	SEQUENCE (SIZE (1..maxPDSCHcount)) OF	
	PDSCH-SysInfo	
PersistenceScalingFactor ::=	ENUMERATED {	
	psf0-9, psf0-8, psf0-7, psf0-6,	
	psf0-5, psf0-4, psf0-3, psf0-2 }	
PersistenceScalingFactorList ::=	SEQUENCE (SIZE (1..6)) OF	
	PersistenceScalingFactor	
PI-CountPerFrame ::=	ENUMERATED {	
	e18, e36, e72, e144 }	
PICH-Info ::=	CHOICE {	
fdd	SEQUENCE {	
secondaryScramblingCode	SecondaryScramblingCode	OPTIONAL,
channelisationCode256	ChannelisationCode256,	
pi-CountPerFrame	PI-CountPerFrame,	
std-Indicator	STTD-Indicator	
},		
tdd	SEQUENCE {	
channelisationCode	TDD-PICH-CCode	OPTIONAL,
timeslot	Timeslot	OPTIONAL,
burstType	BurstType,	
midambleShift	MidambleShift	OPTIONAL,
repetitionPeriodLengthOffset	RepPerLengthOffset-PICH	OPTIONAL,
pagingIndicatorLength	PagingIndicatorLength	OPTIONAL,
n-GAP	N-GAP	OPTIONAL,
n-PCH	N-PCH	OPTIONAL
}		
}		
PICH-PowerOffset ::=	INTEGER (-10..5)	
PilotBits128 ::=	ENUMERATED {	

```

        pb4, pb8 }

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

PositionFixedOrFlexible ::= ENUMERATED {
                               fixed,
                               flexible }

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

PowerOffsetP0 ::= INTEGER (1..8)

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

PRACH-Partitioning ::= SEQUENCE (SIZE (1..8)) OF
                       AccessServiceClass

PRACH-PowerOffset ::= SEQUENCE {
    powerOffsetP0   PowerOffsetP0,
    preambleRetransMax PreambleRetransMax
}

PRACH-RACH-Info ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            availableSignatureList AvailableSignatureList,
            availableSF             SF-PRACH,
            scramblingCodeWordNumber ScramblingCodeWordNumber,
            puncturingLimit         PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd SEQUENCE {
            timeslot           Timeslot,
            channelisationCode TDD-PRACH-CCode,
            prach-Midamble     PRACH-Midamble
        }
    }
}

PRACH-SystemInformation ::= SEQUENCE {
    prach-RACH-Info      PRACH-RACH-Info,
    rach-TransportFormatSet TransportFormatSet,
    rach-TFCS           TFCS,
    modeSpecificInfo    CHOICE {
        fdd SEQUENCE {
            prach-Partitioning PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
        } OPTIONAL,
        ac-To-ASC-MappingTable AC-To-ASC-MappingTable OPTIONAL,
        primaryCPICH-TX-Power PrimaryCPICH-TX-Power,
        constantValue         ConstantValue,
        prach-PowerOffset     PRACH-PowerOffset,
        rach-TransmissionParameters RACH-TransmissionParameters,
        aich-Info             AICH-Info
    },
    tdd SEQUENCE {
        asc-Info ASC-Info
    } OPTIONAL
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
                                PRACH-SystemInformation

PreambleRetransMax ::= INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef UL-DPCH-InfoPredef,
    dl-CommonInformationPredef DL-CommonInformationPredef
}

PrimaryCCPCH-Info ::= CHOICE {
    fdd SEQUENCE {
        tx-DiversityIndicator BOOLEAN
    }
}

```

```

    },
    tdd
        timeslot
        cellParametersID
        syncCase
        repetitionPeriodLengthAndOffset
    OPTIONAL,
    blockSTTD-Indicator
}

PrimaryCCPCH-InfoSI ::=
    CHOICE {
        fdd
            tx-DiversityIndicator
        },
        tdd
            repetitionPeriodLengthAndOffset
            blockSTTD-Indicator
    }

PrimaryCCPCH-TX-Power ::=
    INTEGER (6..43)

PrimaryCPICH-Info ::=
    SEQUENCE {
        primaryScramblingCode
    }

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

PrimaryScramblingCode ::=
    INTEGER (0..511)

PRM ::=
    ENUMERATED {
        pr-mode0, pr-mode1 }

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-AllocationAssignment ::=
    SEQUENCE {
        pusch-PowerControlInfo
        timeInfo
        commonTimeslotInfo
        timeslotInfoList
    }

PUSCH-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 }

PUSCH-Info ::=
    SEQUENCE {
        pusch-Allocation
        pusch-AllocationPending
        pusch-AllocationAssignment
    }

PUSCH-PowerControlInfo ::=
    SEQUENCE {
        ul-TargetSIR
    }

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

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

RACH-TransmissionParameters ::=
    SEQUENCE {
        mmax
        nb01Min
        nb01Max
    }

```



```

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..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

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

RL-AdditionInformation ::=            SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL                DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator           BOOLEAN,
    secondaryCCPCH-Info               SecondaryCCPCH-Info                OPTIONAL,
    sib-ReferenceListFACH              SIB-ReferenceListFACH            OPTIONAL
}

RL-AdditionInformationList ::=        SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::=                SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::=             SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info
}

```

```

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
                               RL-RemovalInformation

S-Field ::= ENUMERATED {
              elbit, e2bits }

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

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

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

ScramblingCodeChange ::= ENUMERATED {
                           codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
                          shortSC,
                          longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

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

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

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

SecondInterleavingMode ::= ENUMERATED {
                             frameRelated, timeslotRelated }

SelectionIndicator ::= ENUMERATED {
                         on, off }

SF-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)
}

SF-DL-DPCH ::= CHOICE {

```

```

    sfd4                NULL,
    sfd8                NULL,
    sfd16               NULL,
    sfd32               NULL,
    sfd64               NULL,
    sfd128              PilotBits128,
    sfd256              PilotBits256,
    sfd512              NULL
}

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

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

Signature ::=
INTEGER (0..15)

SlotFormat ::=
SEQUENCE {
    pc-PreambleSlotFormat,
    ul-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat
}

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,
    codeWordSet
}

STTD-Indicator ::=
BOOLEAN

SyncCase ::=
ENUMERATED {
    sc1, sc2 }

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-CCode ::=
ENUMERATED {
    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 }

TFC-ControlDuration ::=
ENUMERATED {
    tfc-cd1, 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 }

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

TGD ::=
INTEGER (0..35)

TGL ::=
INTEGER (1..15)

TGP ::=
INTEGER (1..256)

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

Timeslot ::=
INTEGER (0..14)

TimeslotList ::=
SEQUENCE (SIZE (1..14)) OF

```

```

Timeslot

-- Actual value = IE value * 256
TimingOffset ::= INTEGER (0..149)

TPC-CombinationIndex ::= INTEGER (0..5)

TPC-StepSize ::= ENUMERATED {
    dB1, dB2 }

TX-DiversityMode ::= ENUMERATED {
    noDiversity,
    sttd,
    closedLoopModel,
    closedLoopMode2 }

UARFCN-Nd ::= INTEGER (0..16383)

UARFCN-Nt ::= INTEGER (0..16383)

UARFCN-Nu ::= INTEGER (0..16383)

UCSM-Info ::= SEQUENCE {
    availableMinimumSF-ListUCSM AvailableMinimumSF-ListUCSM,
    nf-Max NF-Max,
    channelReqParamsForUCSM-List ChannelReqParamsForUCSM-List OPTIONAL
}

UL-CCTrCH ::= SEQUENCE {
    tfcs-Identity TFCS-Identity OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    timeslotInfoList IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
    UL-CCTrCH

UL-ChannelRequirement ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info,
    prach-RACH-Info PRACH-RACH-Info,
    spare NULL
}

UL-DL-Mode ::= ENUMERATED {
    dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::= ENUMERATED {
    slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::= SEQUENCE {
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            scramblingCodeType ScramblingCodeType,
            scramblingCode UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList OPTIONAL,
            -- this IE is conditional
            tfci-Existence BOOLEAN,
            fbi-BitNumber FBI-BitNumber OPTIONAL,
            -- this IE is conditional based on history
            puncturingLimit PuncturingLimit
        },
        tdd SEQUENCE {
            ul-CCTrCHList UL-CCTrCHList
        }
    }
}

UL-DPCH-InfoHO ::= SEQUENCE {
    ul-DPCH-PowerControlInfoHO UL-DPCH-PowerControlInfoHO OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            scramblingCodeType ScramblingCodeType,
            scramblingCode UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList,
            tfci-Existence BOOLEAN,
            fbi-BitNumber FBI-BitNumber,
            puncturingLimit PuncturingLimit
        },
        tdd SEQUENCE {

```

```

        ul-CCTrCHList
    }
}

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
        maxAllowedUL-TX-Power
        pc-Preamble
        tfci-Existence
        puncturingLimit
    },
    tdd
}

UL-DPCH-InfoShort ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
        scramblingCodeType
        reducedScramblingCodeNumber
        dpdch-ChannelisationCode
        numberOfFBI-Bits
        -- The IE above is CH, which is questionable as such.
        -- There's no point in making a 1-bit integer optional, however.
    },
    tdd
}

UL-DPCH-PowerControlInfo ::=
    fdd
        dpccch-PowerOffset
        pc-Preamble
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
}

UL-DPCH-PowerControlInfoHO ::=
    fdd
        dpccch-PowerOffset
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
}

UL-DPCH-PowerControlInfoShort ::=
    modeSpecificInfo
    fdd
        dpccch-PowerOffset
        powerControlAlgorithm
    },
    tdd
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::=
    INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::=
    INTEGER (0..48575)

```

```

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List AvailableMinimumSF-ListVCAM
}

END

```

### 11.3.7 Measurement information elements

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

```
BEGIN
```

```
IMPORTS
```

```
    CellIdentity
FROM UTRANMobility-IEs
```

```
    DRX-CycleLengthCoefficient
FROM UserEquipment-IEs
```

```
    RB-Identity
FROM RadioBearer-IEs
```

```
    TransportChannelIdentity
FROM TransportChannel-IEs
```

```
    FrequencyInfo,
    MaxAllowedUL-TX-Power,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PrimaryCPICH-Info,
    PrimaryCPICH-TX-Power,
    Timeslot
FROM PhysicalChannel-IEs
```

```
    BSIC
FROM Other-IEs
```

```
    maxAdditionalMeas,
    maxAddRLcount,
    maxBLER,
    maxCCTrCHcount,
    maxCellCount,
    maxCellsForbidden,
    maxDelRLcount,
    maxEventCount,
    maxFreqCount,
    maxInterCells,
    maxInterRAT,
    maxInterSys,
    maxInterSysCells,
    maxIntraCells,
    maxN-BadSAT,
    maxN-SAT,
    maxNoCells,
    maxNonUsedFrequency,
    maxNumFreq,
    maxTraf,
    maxTrCHcount,
    maxTSperCCTrCHcount,
    maxTStoMeasureCount,
    maxUsedRLcount,
    maxUsedUplTScout
FROM Constant-definitions;
```

```

AcquisitionSatInfo ::=
    satID
    doppler0thOrder
    extraDopplerInfo
    codePhase
    integerCodePhase
    gps-BitNumber
    codePhaseSearchWindow
    azimuthAndElevation
}
SEQUENCE {
    INTEGER (0..63),
    INTEGER (-2048..2047),
    ExtraDopplerInfo
    INTEGER (0..1022),
    INTEGER (0..19),
    INTEGER (0..3),
    CodePhaseSearchWindow,
    AzimuthAndElevation
}
OPTIONAL,
OPTIONAL

AcquisitionSatInfoList ::=
SEQUENCE (SIZE (1..maxN-SAT)) OF
AcquisitionSatInfo

ActiveSetCellReport ::=
ENUMERATED {
    includeAll,
    excludeAll,
    other }

-- **TODO**, definition to be checked from TS 09.31
AdditionalAssistanceData ::=
SEQUENCE {
}

AdditionalMeasurementID-List ::=
SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
MeasurementIdentityNumber

AlmanacSatInfo ::=
SEQUENCE {
    satID
    deltaI
    e
    m0
    a-Sqrt
    omega0
    omegaDot
    omega
    af0
    af1
}
INTEGER (0..63),
BIT STRING (SIZE (16)),
BIT STRING (SIZE (16)),
BIT STRING (SIZE (24)),
BIT STRING (SIZE (24)),
BIT STRING (SIZE (24)),
BIT STRING (SIZE (16)),
BIT STRING (SIZE (24)),
BIT STRING (SIZE (11)),
BIT STRING (SIZE (11))

AlmanacSatInfoList ::=
SEQUENCE (SIZE (1..maxN-SAT)) OF
AlmanacSatInfo

AverageRLC-BufferPayload ::=
ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k,
    pla32k, pla64k, pla128k,
    pla256k, pla512k, pla1024k }

AzimuthAndElevation ::=
SEQUENCE {
    azimuth
    elevation
}
INTEGER (0..31),
INTEGER (0..7)

BadSatList ::=
SEQUENCE (SIZE (1..maxN-BadSAT)) OF
INTEGER (0..63)

BCCH-ARFCN ::=
INTEGER (0..1023)

BLER-MeasurementResults ::=
SEQUENCE {
    transportChannelIdentity
    dl-TransportChannelBLER
}
TransportChannelIdentity,
DL-TransportChannelBLER
OPTIONAL

BLER-MeasurementResultsList ::=
SEQUENCE (SIZE(1..maxBLER)) OF
BLER-MeasurementResults

BLER-TransChIdList ::=
SEQUENCE (SIZE (1..maxBLER)) OF
TransportChannelIdentity

-- IE value 0 = true value -0.05, IE value 16 = true value -0.003125,
-- IE value 17 = true value 0.003125, IE value 32 = true value 0.05
BTS-ClockDrift ::=
INTEGER (0..31)

BurstModeParameters ::=
SEQUENCE {
    burstStart
    burstLength
    burstFreq
}
INTEGER (0..15),
INTEGER (10..25),
INTEGER (1..16)

CCTrCH-Timeslot ::=
SEQUENCE {

```

```

    iscp          DL-TimeslotISCP          OPTIONAL,
    rscp          RSCP                     OPTIONAL,
}

CCTrCH-TimeslotList ::= SEQUENCE (SIZE(1..maxTSperCCTrCHcount)) OF
                        CCTrCH-Timeslot

CellDCH-ReportCriteria ::= CHOICE {
    intraFreqReportingCriteria    IntraFreqReportingCriteria,
    periodicalReportingCriteria    PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::= INTEGER (-20..20)

CellInfo ::= SEQUENCE {
|   cellIndividualOffset          CellIndividualOffset          DEFAULT 0±,
    referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell  OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                      SEQUENCE {
            primaryCPICH-Info      PrimaryCPICH-Info          OPTIONAL,
            primaryCPICH-TX-Power  PrimaryCPICH-TX-Power     OPTIONAL,
            readSFN-Indicator      BOOLEAN,
            tx-DiversityIndicator  BOOLEAN
        },
        tdd                      SEQUENCE {
            primaryCCPCH-Info      PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power  PrimaryCCPCH-TX-Power,
            dl-CCTrCH-Info         DL-CCTrCH-Info          OPTIONAL,
            dl-TimeslotInfo        DL-TimeslotInfo         OPTIONAL
        }
    }
}

CellInfoSI ::= 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,
            dl-CCTrCH-Info         DL-CCTrCH-Info          OPTIONAL,
            dl-TimeslotInfo        DL-TimeslotInfo         OPTIONAL
        }
    },
    cellSelectionReselectionInfo CellSelectionReselectionInfo,
|   signallingOption        SignallingOption
}

CellMeasuredResults ::= SEQUENCE {
    cellIdentity          CellIdentity          OPTIONAL,
    sfn-SFN-ObsTimeDifference SFN-SFN-ObsTimeDifference  OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd              SEQUENCE {
            primaryCPICH-Info      PrimaryCPICH-Info,
            cpich-Ec-N0           CPICH-Ec-N0          OPTIONAL,
            cpich-RSCP            CPICH-RSCP           OPTIONAL,
            cpich-SIR              CPICH-SIR            OPTIONAL,
            pathloss               Pathloss                 OPTIONAL,
            cfn-SFN-ObsTimeDifference CFN-SFN-ObsTimeDifference  OPTIONAL
        },
        tdd              SEQUENCE {
            primaryCCPCH-Info      PrimaryCCPCH-Info,
            dl-CCTrCH-SIR-List     DL-CCTrCH-SIR-List  OPTIONAL,
            dl-TimeslotISCP-List   DL-TimeslotISCP-List  OPTIONAL
        }
    }
}

CellMeasurementEventResults ::= CHOICE {
    fdd          SEQUENCE (SIZE (1..maxCellCount)) OF
                PrimaryCPICH-Info,
    tdd          SEQUENCE (SIZE (1..maxCellCount)) OF
                PrimaryCCPCH-Info
}

```



```

CellPosition ::=
    relativeNorth
    relativeEast
    relativeAltitude
}

CellReportingQuantities ::=
    sfm-SFM-OTD-Type
    cellIdentity
    modeSpecificInfo
        fdd
            cpich-Ec-N0
            cpich-RSCP
            cpich-SIR
            pathloss
            cfm-SFM-ObsTimeDifference
        },
        tdd
            dl-CCTrCH-SIR
            timeslotISCP
            primaryCCPCH-RSCP
            pathloss
    }
}

CellSelectionReselectionInfo ::=
    modeSpecificInfo
        fdd
            Qmin-FDD,
        tdd
            Qmin-TDD
    }
    maxAllowedUL-TX-Power
    signallingOption
    hcs-NeighbouringCellInformation
}

CellToMeasure ::=
    sfm-sfm-Drift
    primaryCPICH-Info
    frequencyInfo
    sfm-SFM-ObservedTimeDifference
    fineSFM-SFM
    cellPosition
}

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

CellToReport ::=
    frequency
    bsic
}

CellToReportList ::=
    SEQUENCE (SIZE (1..maxCellCount)) OF
        CellToReport

CFM-SFM-ObsTimeDifference ::=
    INTEGER (0..9830399)

CodePhaseSearchWindow ::=
    ENUMERATED {
        w1023, w1, w2, w3, w4, w6, w8,
        w12, w16, w24, w32, w48, w64,
        w96, w128, w192 }

CompressedNavModel ::=
    iode
    t-oe
    c-rc
    c-rs
    c-ic
    c-is
    c-uc
    c-us
    e
    m0
    a-Sqrt
    delta-n
    omega0
    omegaDot
    i0
    iDot
    SEQUENCE {
        BIT STRING (SIZE (4)),
        BIT STRING (SIZE (7)),
        BIT STRING (SIZE (12)),
        BIT STRING (SIZE (12)),
        BIT STRING (SIZE (9)),
        BIT STRING (SIZE (9)),
        BIT STRING (SIZE (11)),
        BIT STRING (SIZE (11)),
        BIT STRING (SIZE (16)),
        BIT STRING (SIZE (22)),
        BIT STRING (SIZE (13)),
        BIT STRING (SIZE (11)),
        BIT STRING (SIZE (14)),
        BIT STRING (SIZE (12)),
        BIT STRING (SIZE (15)),
        BIT STRING (SIZE (11)),
    }

```

```

    omega                BIT STRING (SIZE (21)),
    t-oc                 BIT STRING (SIZE (7)),
    af0                  BIT STRING (SIZE (7)),
    af1                  BIT STRING (SIZE (3)),
    af2                  BIT STRING (SIZE (1))
}

CPICH-Ec-N0 ::=          INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::=   INTEGER (0..26)

CPICH-RSCP ::=          INTEGER (-115..-40)

CPICH-SIR ::=           INTEGER (-10..20)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID                INTEGER (0..63),
    iode                  BIT STRING (SIZE (8)),
    udre                  UDRE,
    prc                   INTEGER (-2048..2048),
    rrc                   INTEGER (-125..125),
    deltaPRC2             INTEGER (-127..127),
    deltaRRC2             INTEGER (-7..7),
    deltaPRC3             INTEGER (-127..127),
    deltaRRC3             INTEGER (-7..7)
}

DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-CorrectionSatInfo

DGPS-Information ::=     SEQUENCE {
    satID                SatID,
    iode                  IODE,
    udre                  UDRE,
    scaleFactor           ScaleFactor,
    prc                   PRC,
    rrc                   RRC
}

DGPS-InformationList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-Information

DiffCorrectionStatus ::= ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- **TODO**, not defined yet
DL-CCTrCH-Info ::=      SEQUENCE {
}

DL-CCTrCH-SIR ::=       SEQUENCE {
    ccTrCH-TimeslotList CCTrCH-TimeslotList
}

DL-CCTrCH-SIR-List ::=  SEQUENCE (SIZE(1..maxCCTrCHcount)) OF
    DL-CCTrCH-SIR

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

-- **TODO**, not defined yet
DL-TimeslotInfo ::=     SEQUENCE {
}

-- **TODO**, not defined yet
DL-TimeslotISCP ::=     SEQUENCE {
}

DL-TimeslotISCP-List ::= SEQUENCE (SIZE(1..maxTStoMeasureCount)) OF
    DL-TimeslotISCP

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

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

EnvironmentCharacterization ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
}

```

```

notDefined }

Event1a ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
    hysteresis
    reportDeactivationThreshold
}
SEQUENCE {
    TriggeringCondition,
    ReportingRange,
    ForbiddenAffectCellList,
    W,
    Hysteresis
    ReportDeactivationThreshold
OPTIONAL,
}

Event1b ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
    hysteresis
}
SEQUENCE {
    TriggeringCondition,
    ReportingRange,
    ForbiddenAffectCellList,
    W,
    Hysteresis
OPTIONAL
}

Event1c ::=
    hysteresis
    replacementActivationThreshold
}
SEQUENCE {
    Hysteresis
    ReplacementActivationThreshold
OPTIONAL,
}

Event2a ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
OPTIONAL
}

Event2b ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
OPTIONAL
}

Event2c ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
OPTIONAL
}

Event2d ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event2e ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
OPTIONAL
}

Event2f ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event3a ::=
    thresholdOwnSystem
    w
}
SEQUENCE {
    Threshold,
    W,
}

```

```

    thresholdOtherSystem      Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingAmount            ReportingAmount,
    reportingInterval          ReportingInterval
}

Event3b ::=
    thresholdOtherSystem      Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingAmount            ReportingAmount,
    reportingInterval          ReportingInterval
}

Event3c ::=
    thresholdOtherSystem      Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingAmount            ReportingAmount,
    reportingInterval          ReportingInterval
}

Event3d ::=
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingAmount            ReportingAmount,
    reportingInterval          ReportingInterval
}

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

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

EventIDIntraFreq ::=
    ENUMERATED {
        e1a, e1b, e1c, e1d, e1e,
        e1f, e1g, e1h, e1i, e1j }

EventIDTrafficVolume ::=
    ENUMERATED {
        e4a, e4b }

EventResults ::=
    CHOICE {
        intraFreqEventResults  IntraFreqEventResults,
        interFreqEventResults  InterFreqEventResults,
        interSystemEventResults InterSystemEventResults,
        trafficVolumeEventResults TrafficVolumeEventResults,
        qualityEventResults     QualityEventResults,
        ue-InternalEventResults UE-InternalEventResults,
        lcs-MeasurementEventResults LCS-MeasurementEventResults
    }

ExtraDopplerInfo ::=
    SEQUENCE {
        doppler1stOrder        INTEGER (-42..21),
        dopplerUncertainty      DopplerUncertainty
    }

FACH-MeasurementOccasionInfo ::=
    SEQUENCE {
        k-UTRA                  DRX-CycleLengthCoefficient,
        otherRAT-InSysInfoList  OtherRAT-InSysInfoList
    }

FilterCoefficient ::=
    ENUMERATED {
        fc1, fc2, fc3, fc4, fc6, fc8,
        fc12, fc16, fc24, fc32, fc64,
        fc128, fc256, fc512, fc1024,
        spare1 }

FineSFN-SFN ::=
    ENUMERATED {
        fs0, fs0-25, fs0-5, fs0-75 }

ForbiddenAffectCell ::=
    SEQUENCE {
        modeSpecificInfo       CHOICE {
            fdd                  SEQUENCE {
                primaryCPICH-Info PrimaryCPICH-Info
            },
            tdd                    SEQUENCE {
                primaryCCPCH-Info PrimaryCCPCH-Info
            }
        }
    }

```

```

}

ForbiddenAffectCellList ::= SEQUENCE (SIZE(1..maxCellsForbidden)) OF
                             ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
                                     cpich-Ec-NO,
                                     cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
                                     primaryCCPCH-RSCP }

-- **TODO**, not defined yet
Frequency ::= SEQUENCE {
}

GPS-MeasurementParam ::= SEQUENCE {
    satelliteID          INTEGER (0..63),
    c-NO                 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..maxN-SAT)) OF
                              GPS-MeasurementParam

GPS-TOW-lmsec ::= INTEGER (0..604700000)

GPS-TOW-Assist ::= SEQUENCE {
    satID                INTEGER (0..63),
    tlm-Message          BIT STRING (SIZE (14)),
    antiSpoof            BOOLEAN,
    alert                BOOLEAN,
    tlm-Reserved         BIT STRING (SIZE (2))
}

GPS-TOW-AssistList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
                        GPS-TOW-Assist

GPS-TOW-HighResolution ::= INTEGER (0..999)

GSM-CarrierRSSI ::= BIT STRING (SIZE (6))

-- **TODO**, not defined yet
GSM-OutputPower ::= SEQUENCE {
}

HCS-CellReselectInformation ::= SEQUENCE {
    penaltyTime          PenaltyTime
    -- The default value is "notUsed"
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO             HCS-PRIO                OPTIONAL,
    q-HCS                Q-HCS                   OPTIONAL,
    hcs-CellReselectInformation HCS-CellReselectInformation OPTIONAL
}

HCS-PRIO ::= INTEGER (0..7)

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

-- Actual value = IE value * 0.5
HysteresisInterFreq ::= INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo        FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxInterCells)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList     NewInterFreqCellList     OPTIONAL
}

```

```

InterFreqCellInfoSI-List ::= SEQUENCE {
    removedInterFreqCellList      RemovedInterFreqCellList      OPTIONAL,
    newInterFreqCellList          NewInterFreqCellSI-List      OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreqCount)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a      Event2a,
    event2b      Event2b,
    event2c      Event2c,
    event2d      Event2d,
    event2e      Event2e,
    event2f      Event2f
}

InterFreqEventList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID      EventIDInterFreq,
    interFreqCellList      InterFreqCellList
}

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria      CHOICE {
        intraFreqReportingCriteria      SEQUENCE {
            intraFreqMeasQuantity      IntraFreqMeasQuantity,
        },
        interFreqReportingCriteria      SEQUENCE {
            filterCoefficient      FilterCoefficient DEFAULT fc0,
            modeSpecificInfo      CHOICE {
                fdd      SEQUENCE {
                    freqQualityEstimateQuantity-FDD      FreqQualityEstimateQuantity-FDD
                },
                tdd      SEQUENCE {
                    freqQualityEstimateQuantity-TDD      FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::= SEQUENCE {
    frequencyInfo      FrequencyInfo      OPTIONAL,
    ultra-CarrierRSSI      UTRA-CarrierRSSI      OPTIONAL,
    interFreqCellMeasuredResultsList      InterFreqCellMeasuredResultsList      OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxNumFreq)) OF
    InterFreqMeasuredResults

InterFreqMeasurementSysInfo ::= SEQUENCE {
    interFreqMeasurementID      MeasurementIdentityNumber      OPTIONAL,
    interFreqCellInfoSI-List      InterFreqCellInfoSI-List      OPTIONAL,
    interFreqMeasQuantity      InterFreqMeasQuantity      OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    interFreqReportingCriteria      InterFreqReportingCriteria,
    periodicalReportingCriteria      PeriodicalReportingCriteria,
    noReporting      NULL
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList      InterFreqEventList      OPTIONAL
}

InterFreqReportingQuantity ::= SEQUENCE {
    ultra-Carrier-RSSI      BOOLEAN,
    frequencyQualityEstimate      BOOLEAN,
    nonFreqRelatedQuantities      CellReportingQuantities
}

InterFreqSetUpdate ::= SEQUENCE {
    ue-AutonomousUpdateMode      UE-AutonomousUpdateMode
}

```

```

}

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList      InterFreqCellInfoList,
    interFreqMeasQuantity      InterFreqMeasQuantity      OPTIONAL,
    interFreqReportingQuantity InterFreqReportingQuantity  OPTIONAL,
    reportingCellStatus        ReportingCellStatus        OPTIONAL,
    measurementValidity        MeasurementValidity        OPTIONAL,
    interFreqSetUpdate         InterFreqSetUpdate         OPTIONAL,
    reportCriteria              InterFreqReportCriteria
}

InterSystemCellID ::= INTEGER (0..maxInterSysCells)

InterSystemCellInfoList ::= SEQUENCE {
    removedInterSystemCellList RemovedInterSystemCellList,
    newInterSystemCellList     NewInterSystemCellList
}

InterSystemEvent ::= CHOICE {
    event3a      Event3a,
    event3b      Event3b,
    event3c      Event3c,
    event3d      Event3d
}

InterSystemEventList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    InterSystemEvent

InterSystemEventResults ::= SEQUENCE {
    eventID      EventIDInterSystem,
    cellToReportList CellToReportList
}

InterSystemInfo ::= ENUMERATED {
    gsm, spare1 }

InterSystemMeasQuantity ::= SEQUENCE {
    measQuantityUTRAN-QualityEstimate IntraFreqMeasQuantity,
    systemSpecificInfo                CHOICE {
        gsm                            SEQUENCE {
            measurementQuantity      MeasurementQuantityGSM,
            filterCoefficient        FilterCoefficient DEFAULT fc0,
            bsic-VerificationRequired BOOLEAN
        },
        is-2000                       SEQUENCE {
            tadd-EcIo                 INTEGER (0..63),
            tcomp-EcIo                 INTEGER (0..15),
            softSlope                   INTEGER (0..63)      OPTIONAL,
            addIntercept                 INTEGER (0..63)      OPTIONAL
        }
    }
}

InterSystemMeasuredResults ::= CHOICE {
    gsm                            SEQUENCE {
        frequency                    Frequency,
        gsm-CarrierRSSI               GSM-CarrierRSSI      OPTIONAL,
        pathloss                       Pathloss              OPTIONAL,
        bsic                           BSIC                  OPTIONAL,
        observedTimeDifferenceToGSM     ObservedTimeDifferenceToGSM OPTIONAL
    },
    other                            NULL
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterSys)) OF
    InterSystemMeasuredResults

InterSystemMeasurement ::= SEQUENCE {
    interSystemCellInfoList      InterSystemCellInfoList      OPTIONAL,
    interSystemMeasQuantity      InterSystemMeasQuantity      OPTIONAL,
    interSystemReportingQuantity InterSystemReportingQuantity  OPTIONAL,
    reportingCellStatus          ReportingCellStatus          OPTIONAL,
    reportCriteria                InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::= SEQUENCE {
    interSystemMeasurementID      MeasurementIdentityNumber  OPTIONAL,
    interSystemCellInfoList       InterSystemCellInfoList    OPTIONAL,
    interSystemMeasQuantity       InterSystemMeasQuantity    OPTIONAL
}

```

```

InterSystemReportCriteria ::= CHOICE {
    interSystemReportingCriteria
    periodicalReportingCriteria
    noReporting
    NULL
}

InterSystemReportingCriteria ::= SEQUENCE {
    interSystemEventList
    InterSystemEventList
    OPTIONAL
}

InterSystemReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality
    systemSpecificInfo
    gsm
        pathloss
        observedTimeDifferenceGSM
        gsm-Carrier-RSSI
        bsic
    },
    spare1
}

IntraFreqCellID ::= INTEGER (0..maxIntraCells)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList
    newIntraFreqCellList
}
OPTIONAL,
OPTIONAL

IntraFreqCellInfoSI ::= SEQUENCE {
    cellInfo
    CellInfoSI
}

IntraFreqCellInfoSI-List ::= SEQUENCE {
    removedIntraFreqCellList
    newIntraFreqCellList
}
OPTIONAL,
OPTIONAL

IntraFreqEvent ::= CHOICE {
    ela
    elb
    elc
    eld
    ele
    elf
    elg
    elh
    eli
    elj
    Eventla,
    Eventlb,
    Eventlc,
    Hysteresis,
    TriggeringCondition,
    TriggeringCondition,
    Hysteresis,
    Hysteresis,
    Hysteresis,
    Hysteresis
}

IntraFreqEventCriteria ::= SEQUENCE {
    event
    timeToTrigger
    reportingAmount
    reportingInterval
    IntraFreqEvent,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID
    cellMeasurementEventResults
    EventIDIntraFreq,
    CellMeasurementEventResults
}

IntraFreqMeasQuantity ::= SEQUENCE {
    filterCoefficient
    modeSpecificInfo
    fdd
        intraFreqMeasQuantity-FDD
    },
    tdd
        intraFreqMeasQuantity-TDD
}
FilterCoefficient _____ DEFAULT fc0,
CHOICE {
    SEQUENCE {
        IntraFreqMeasQuantity-FDD
    }
    SEQUENCE {
        IntraFreqMeasQuantity-TDD
    }
}

IntraFreqMeasQuantity-FDD ::= ENUMERATED {

```



```

        cpich-Ec-NO,
        cpich-RSCP,
        cpich-SIR,
        pathloss,
        ultra-CarrierRSSI }

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

IntraFreqMeasuredResults ::= SEQUENCE {
    cellMeasuredResults      CellMeasuredResults
}

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    IntraFreqMeasuredResults

IntraFreqMeasurementSysInfo ::= SEQUENCE {
    intraFreqMeasurementID      MeasurementIdentityNumber      OPTIONAL,
    intraFreqCellInfoSI-List    IntraFreqCellInfoSI-List      OPTIONAL,
    intraFreqMeasQuantity       IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH      MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH     ReportingInfoForCellDCH        OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria  IntraFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting                  NULL
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList          IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    unlistedSetReportingQuantities CellReportingQuantities      OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
sfn-SFN-ObsTimeDifference SFN-SFN-ObsTimeDifference,
sfn-SFN-OTD-Type SFN-SFN-OTD-Type,
    modeSpecificInfo          CHOICE {
        fdd                    SEQUENCE {
            intraFreqRepQuantityRACH-FDD      IntraFreqRepQuantityRACH-FDD
        },
        tdd                    SEQUENCE {
            intraFreqRepQuantityRACH-TDD      IntraFreqRepQuantityRACH-TDD
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    cpich-SIR, pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList      IntraFreqCellInfoList      OPTIONAL,
    intraFreqMeasQuantity       IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantity  IntraFreqReportingQuantity    OPTIONAL,
    reportingCellStatus         ReportingCellStatus            OPTIONAL,
    measurementValidity         MeasurementValidity            OPTIONAL,
    reportCriteria              IntraFreqReportCriteria
}

IODD ::= INTEGER (0..255)

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

```

```

IP-Spacing ::=
    ENUMERATED {
        e5, e7, e10, e15, e20,
        e30, e40, e50 }

IS-2000SpecificMeasInfo ::=
    ENUMERATED {
        frequency, timeslot, colourcode,
        outputpower, pn-Offset }

K-InterRAT ::=
    INTEGER (0..12)

LCS-Accuracy ::=
    BIT STRING (SIZE (7))

LCS-CipherParameters ::=
    SEQUENCE {
        cipheringKeyFlag
            BIT STRING (SIZE (1)),
        cipheringSerialNumber
            INTEGER (0..65535)
    }

LCS-Error ::=
    SEQUENCE {
        errorReason
            LCS-ErrorCause,
        additionalAssistanceData
            AdditionalAssistanceData
        -- The IE above is defined in GSM 09.31, the actual definition
        -- will have to be checked
    }

LCS-ErrorCause ::=
    ENUMERATED {
        notEnoughOTDOA-Cells,
        notEnoughGPS-Satellites,
        assistanceDataMissing,
        methodNotSupported,
        undefinedError,
        requestDeniedByUser,
        notProcessedAndTimeout }

LCS-EventID ::=
    ENUMERATED {
        e7a, e7b, e7c }

LCS-EventParam ::=
    SEQUENCE {
        eventID
            LCS-EventID,
        reportingAmount
            ReportingAmount,
        reportFirstFix
            BOOLEAN,
        measurementInterval
            LCS-MeasurementInterval,
        eventSpecificInfo
            LCS-EventSpecificInfo
    }

LCS-EventParamList ::=
    SEQUENCE (SIZE (1..maxEventCount)) OF
        LCS-EventParam

LCS-EventSpecificInfo ::=
    CHOICE {
        e7a
            ThresholdPositionChange,
        e7b
            ThresholdSFN-SFN-Change,
        e7c
            ThresholdSFN-GPS-TOW
    }

LCS-GPS-AcquisitionAssistance ::=
    SEQUENCE {
        referenceTime
            CHOICE {
                utran-ReferenceTime
                    UTRAN-ReferenceTime,
                gps-ReferenceTimeOnly
                    INTEGER (0..604700000)
            },
        satelliteInformationList
            AcquisitionSatInfoList
    }

LCS-GPS-Almanac ::=
    SEQUENCE {
        almanacSatInfoList
            AlmanacSatInfoList
    }

LCS-GPS-AssistanceSIB ::=
    SEQUENCE {
        lcs-CipherParameters
            LCS-CipherParameters OPTIONAL,
        referenceGPS-TOW
            ReferenceGPS-TOW,
        status
            DiffCorrectionStatus,
        btsClockDrift
            BTS-ClockDrift OPTIONAL,
        timeOffset
            LCS-TimeOffset OPTIONAL,
        iodd
            IODD OPTIONAL,
        dgps-InformationList
            DGPS-InformationList OPTIONAL
    }

LCS-GPS-AssistanceData ::=
    SEQUENCE {
        lcs-GPS-ReferenceTime
            LCS-GPS-ReferenceTime OPTIONAL,
        lcs-GPS-ReferenceLocation
            LCS-GPS-ReferenceLocation OPTIONAL,
        lcs-GPS-DGPS-Corrections
            LCS-GPS-DGPS-Corrections OPTIONAL,
        lcs-GPS-NavigationModel
            LCS-GPS-NavigationModel OPTIONAL
    }

```

```

lcs-GPS-IonosphericModel          LCS-GPS-IonosphericModel          OPTIONAL,
lcs-GPS-UTC-Model                  LCS-GPS-UTC-Model                  OPTIONAL,
lcs-GPS-Almanac                    LCS-GPS-Almanac                    OPTIONAL,
lcs-GPS-AcquisitionAssistance      LCS-GPS-AcquisitionAssistance      OPTIONAL,
lcs-GPS-Real-timeIntegrity          LCS-GPS-Real-timeIntegrity          OPTIONAL
}

LCS-GPS-DGPS-Corrections ::=      SEQUENCE {
  gps-TOW                            INTEGER (0..604799),
  statusHealth                        DiffCorrectionStatus,
  dgps-CorrectionSatInfoList         DGPS-CorrectionSatInfoList
}

LCS-GPS-IonosphericModel ::=      SEQUENCE {
  alfa0                               BIT STRING (SIZE (8)),
  alfa1                               BIT STRING (SIZE (8)),
  alfa2                               BIT STRING (SIZE (8)),
  alfa3                               BIT STRING (SIZE (8)),
  beta0                               BIT STRING (SIZE (8)),
  beta1                               BIT STRING (SIZE (8)),
  beta2                               BIT STRING (SIZE (8)),
  beta3                               BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::=           SEQUENCE {
  referenceSFN                        ReferenceSFN                          OPTIONAL,
  gps-TOW-lmsec                       GPS-TOW-lmsec,
  gps-TOW-HighResolution              GPS-TOW-HighResolution              OPTIONAL,
  gps-MeasurementParamList           GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::=       SEQUENCE {
  n-SAT                               INTEGER (1..16),
  navigationModelSatInfoList         NavigationModelSatInfoList
}

-- **TODO**, definition in 23.032
LCS-GPS-ReferenceLocation ::=     SEQUENCE {
}

LCS-GPS-Real-timeIntegrity ::=    SEQUENCE {
  badSatList                          BadSatList
}

LCS-GPS-ReferenceTime ::=         SEQUENCE {
  gps-Week                            INTEGER (0..1023),
  gps-TOW                             INTEGER (0..604700000000),
  sfn                                  INTEGER (0..4095),
  gps-TOW-AssistList                 GPS-TOW-AssistList                  OPTIONAL
}

LCS-GPS-UTC-Model ::=            SEQUENCE {
  a0                                   BIT STRING (SIZE (32)),
  a1                                   BIT STRING (SIZE (24)),
  delta-t-LS                          BIT STRING (SIZE (8)),
  t-ot                                 BIT STRING (SIZE (8)),
  wn-t                                 BIT STRING (SIZE (8)),
  wn-lsf                               BIT STRING (SIZE (8)),
  dn                                   BIT STRING (SIZE (8)),
  delta-t-LSF                         BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::=          SEQUENCE {
  ip-Spacing                          IP-Spacing,
  ip-Length                            IP-Length,
  ip-Offset                            INTEGER (0..9),
  seed                                 INTEGER (0..63),
  burstModeParameters                 BurstModeParameters
}

LCS-MeasuredResults ::=          SEQUENCE {
  lcs-MultipleSets                    LCS-MultipleSets                    OPTIONAL,
  lcs-ReferenceCellIdentity           PrimaryCPICH-Info                   OPTIONAL,
  lcs-OTDOA-Measurement               LCS-OTDOA-Measurement              OPTIONAL,
  lcs-Position                        LCS-Position                        OPTIONAL,
  lcs-GPS-Measurement                 LCS-GPS-Measurement                OPTIONAL,
  lcs-Error                           LCS-Error                           OPTIONAL
}

LCS-Measurement ::=              SEQUENCE {
  lcs-ReportingQuantity               LCS-ReportingQuantity,

```

```

reportCriteria                LCS-ReportCriteria,
lcs-OTDOA-AssistanceData      LCS-OTDOA-AssistanceData      OPTIONAL,
lcs-GPS-AssistanceData        LCS-GPS-AssistanceData        OPTIONAL
}

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a                    LCS-Position,
    event7b                    LCS-OTDOA-Measurement,
    event7c                    LCS-GPS-Measurement
}

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets    INTEGER (2..3),
    numberOfReferenceCells         INTEGER (1..3),
    referenceCellRelation          ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell        LCS-OTDOA-ReferenceCell        OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters            LCS-IPDL-Parameters            OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters           LCS-CipherParameters           OPTIONAL,
    searchWindowSize               OTDOA-SearchWindowSize,
    referenceCellPosition          ReferenceCellPosition,
    lcs-IPDL-Parameters            LCS-IPDL-Parameters            OPTIONAL,
    cellToMeasureInfoList         CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {
    sfn                            INTEGER (0..4095),
    -- Actual value = IE value * 0.25 + 876
    ue-Rx-Tx-TimeDifference         INTEGER (0..1184),
    qualityType                    QualityType,
    qualityChoice                  CHOICE {
        std-10                    ReferenceQuality10,
        std-50                    ReferenceQuality50,
        cpich-EcN0                 CPICH-Ec-N0-OTDOA,
        defaultQuality             ReferenceQuality
    },
    neighborList                   NeighborList                    OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info              PrimaryCPICH-Info,
    frequencyInfo                  FrequencyInfo                    OPTIONAL,
    sfn-SFN-ObsTimeDifference       SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                    FineSFN-SFN                      OPTIONAL,
    searchWindowSize               OTDOA-SearchWindowSize,
    relativeNorth                  INTEGER (-20000..20000)          OPTIONAL,
    relativeEast                   INTEGER (-20000..20000)          OPTIONAL,
    relativeAltitude               INTEGER (-4000..4000)           OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..15)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info              PrimaryCPICH-Info,
    frequencyInfo                  FrequencyInfo                    OPTIONAL,
    cellPosition                   ReferenceCellPosition          OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN                   ReferenceSFN,
    gps-TOW                        INTEGER (0..604700000000),
    positionEstimate               PositionEstimate
}

```

```

LCS-ReportCriteria ::=
  lcs-ReportingCriteria
  periodicalReportingCriteria
  noReporting
}

LCS-ReportingCriteria ::=
  eventParameterList
}

LCS-ReportingQuantity ::=
  methodType
  positioningMethod
  responseTime
  accuracy
  gps-TimingOfCellWanted
  multipleSets
  environmentCharacterization
}

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

LCS-TimeOffset ::=
  INTEGER (0..4095)

MaxNumberOfReportingCells ::=
  ENUMERATED {
    mandatoryCellsOnly,
    mandatoryCellsPlus1,
    mandatoryCellsPlus2,
    mandatoryCellsPlus3,
    mandatoryCellsPlus4,
    mandatoryCellsPlus5,
    mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::=
  ENUMERATED {
    noReport,
    currentCell,
    currentAnd-1-BestNeighbour,
    currentAnd-2-BestNeighbour,
    currentAnd-3-BestNeighbour,
    currentAnd-4-BestNeighbour,
    currentAnd-5-BestNeighbour,
    currentAnd-6-BestNeighbour }

MeasuredResults ::=
  intraFreqMeasuredResultsList
  interFreqMeasuredResultsList
  interSystemMeasuredResultsList
  trafficVolumeMeasuredResultsList
  qualityMeasuredResults
  ue-InternalMeasuredResults
  lcs-MeasuredResults
}

MeasuredResultsList ::=
  SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
  MeasuredResults

MeasuredResultsOnRACH ::=
  currentCell
  modeSpecificInfo
  fdd
  measurementQuantity
  cpich-Ec-N0
  cpich-RSCP
  cpich-SIR
  pathloss
  },
  tdd
  timeslotISCP
  primaryCCPCH-RSCP
  },
  monitoredCells
}

MeasurementCommand ::=
  setup
  modify
}

CHOICE {
  LCS-ReportingCriteria,
  PeriodicalReportingCriteria,
  NULL
}

SEQUENCE {
  LCS-EventParamList
}

OPTIONAL

SEQUENCE {
  LCS-MethodType,
  PositioningMethod,
  LCS-ResponseTime,
  LCS-Accuracy
}

OPTIONAL,

BOOLEAN,
BOOLEAN,
EnvironmentCharacterization
OPTIONAL

ENUMERATED {
  s1, s2, s4, s8, s16,
  s32, s64, s128 }

INTEGER (0..4095)

ENUMERATED {
  mandatoryCellsOnly,
  mandatoryCellsPlus1,
  mandatoryCellsPlus2,
  mandatoryCellsPlus3,
  mandatoryCellsPlus4,
  mandatoryCellsPlus5,
  mandatoryCellsPlus6 }

ENUMERATED {
  noReport,
  currentCell,
  currentAnd-1-BestNeighbour,
  currentAnd-2-BestNeighbour,
  currentAnd-3-BestNeighbour,
  currentAnd-4-BestNeighbour,
  currentAnd-5-BestNeighbour,
  currentAnd-6-BestNeighbour }

CHOICE {
  IntraFreqMeasuredResultsList,
  InterFreqMeasuredResultsList,
  InterSystemMeasuredResultsList,
  TrafficVolumeMeasuredResultsList,
  QualityMeasuredResults,
  UE-InternalMeasuredResults,
  LCS-MeasuredResults
}

SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
  MeasuredResults

SEQUENCE {
  SEQUENCE {
    CHOICE {
      SEQUENCE {
        CHOICE {
          CPICH-Ec-N0,
          CPICH-RSCP,
          CPICH-SIR,
          Pathloss
        }
      }
    }
  },
  SEQUENCE {
    TimeslotISCP,
    PrimaryCCPCH-RSCP
  }
},
  MonitoredCellRACH-List
}

OPTIONAL

CHOICE {
  MeasurementType,
  SEQUENCE {

```

	MeasurementType	OPTIONAL
measurementType	MeasurementType	OPTIONAL
},		
release	NULL	
}		
MeasurementControlSysInfo ::=	SEQUENCE {	
intraFreqMeasurementSysInfo	IntraFreqMeasurementSysInfo	OPTIONAL,
interFreqMeasurementSysInfo	InterFreqMeasurementSysInfo	OPTIONAL,
interSystemMeasurementSysInfo	InterSystemMeasurementSysInfo	OPTIONAL,
trafficVolumeMeasSysInfo	TrafficVolumeMeasSysInfo	OPTIONAL,
ue-InternalMeasurementSysInfo	UE-InternalMeasurementSysInfo	OPTIONAL
}		
-- **TODO**, not defined yet		
MeasurementIdentityNumber ::=	SEQUENCE {	
}		
MeasurementQuantityGSM ::=	ENUMERATED {	
	gsm-CarrierRSSI,	
	pathloss }	
MeasurementReportingMode ::=	SEQUENCE {	
measurementReportTransferMode	TransferMode,	
periodicalOrEventTrigger	PeriodicalOrEventTrigger	
}		
MeasurementType ::=	CHOICE {	
intraFrequencyMeasurement	IntraFrequencyMeasurement,	
interFrequencyMeasurement	InterFrequencyMeasurement,	
interSystemMeasurement	InterSystemMeasurement,	
lcs-Measurement	LCS-Measurement,	
trafficVolumeMeasurement	TrafficVolumeMeasurement,	
qualityMeasurement	QualityMeasurement,	
ue-InternalMeasurement	UE-InternalMeasurement	
}		
MeasurementValidity ::=	SEQUENCE {	
resume-Release	Resume-Release	
}		
MonitoredCellRACH-List ::=	SEQUENCE (SIZE(1..7)) OF	
	MonitoredCellRACH-Result	
MonitoredCellRACH-Result ::=	SEQUENCE {	
sfn-SFN-ObsTimeDifference	SFN-SFN-ObsTimeDifference	OPTIONAL,
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
primaryCPICH-Info	PrimaryCPICH-Info,	
measurementQuantity	CHOICE {	
cpich-Ec-N0	CPICH-Ec-N0,	
cpich-RSCP	CPICH-RSCP,	
cpich-SIR	CPICH-SIR,	
pathloss	Pathloss	
}		OPTIONAL
},		
tdd	SEQUENCE {	
primaryCCPCH-Info	PrimaryCCPCH-Info,	
primaryCCPCH-RSCP	PrimaryCCPCH-RSCP	OPTIONAL
}		
}		
}		
MonitoredSetCellReport ::=	ENUMERATED {	
	excludeAll,	
	other }	
MultipathIndicator ::=	ENUMERATED {	
	nm,	
	low,	
	medium,	
	high }	
NavigationModelSatInfo ::=	SEQUENCE {	
satID	INTEGER (0..63),	
satelliteStatus	SatelliteStatus,	
compression	CHOICE {	
uncompressed	UncompressedNavModel,	
compressed	CompressedNavModel	
}		
}		

```

NavigationModelSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    NavigationModelSatInfo

Neighbor ::= SEQUENCE {
    neighborIdentity PrimaryCPICH-Info OPTIONAL,
    neighborQuantity NeighborQuantity,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2
}

NeighborList ::= SEQUENCE (SIZE (1..15)) OF
    Neighbor

-- **TODO**, to be defined fully
NeighborQuantity ::= SEQUENCE {
}

NewInterFreqCell ::= SEQUENCE {
    interFreqCellID InterFreqCellID OPTIONAL,
    frequencyInfo FrequencyInfo OPTIONAL,
    cellInfo CellInfo
}

NewInterFreqCellList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    NewInterFreqCell

NewInterFreqCellSI ::= SEQUENCE {
    interFreqCellID InterFreqCellID OPTIONAL,
    frequencyInfo FrequencyInfo OPTIONAL,
    cellInfo CellInfoSI
}

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

NewInterSystemCell ::= SEQUENCE {
    technologySpecificInfo CHOICE {
        gsm SEQUENCE {
            q-Offset Q-Offset OPTIONAL,
            hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL,
            q-Min Q-Min,
            maxAllowedUL-TX-Power MaxAllowedUL-TX-Power,
            bsic BSIC,
            bcch-ARFCN BCCH-ARFCN,
            gsm-OutputPower GSM-OutputPower OPTIONAL
        },
        is-2000 SEQUENCE {
            is-2000SpecificMeasInfo IS-2000SpecificMeasInfo
        }
    }
}

NewInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
    NewInterSystemCell

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

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

NewIntraFreqCellSI ::= SEQUENCE {
    intraFreqCellID IntraFreqCellID OPTIONAL,
    cellInfo CellInfoSI
}

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

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

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

ObservedTimeDifferenceToGSM ::= INTEGER (0..4095)

```

```

OtherRAT-InSysInfo ::= SEQUENCE {
    rat-Type          RAT-Type,
    k-InterRAT       K-InterRAT
}

OtherRAT-InSysInfoList ::= SEQUENCE (SIZE (1..maxInterRAT)) OF
    OtherRAT-InSysInfo

OTDOA-SearchWindowSize ::= ENUMERATED {
    c10, c20, c30, c40, c50,
    c60, c70, moreThan70 }

Pathloss ::= INTEGER (46..158)

PenaltyTime ::= CHOICE {
    notUsed          NULL,
    pt10             TemporaryOffset,
    pt20             TemporaryOffset,
    pt30             TemporaryOffset,
    pt40             TemporaryOffset,
    pt50             TemporaryOffset,
    pt60             TemporaryOffset
}

PendingTimeAfterTrigger ::= ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::= ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::= SEQUENCE {
    reportingAmount   ReportingAmount          OPTIONAL,
    reportingInterval ReportingIntervalLong    OPTIONAL
}

-- **TODO**, contents to be defined, source 23.032
PositionEstimate ::= CHOICE {
    ellipsoidPoint          SEQUENCE {},
    ellipsoidPointUncertCircle SEQUENCE {},
    ellipsoidPointUncertEllipse SEQUENCE {},
    ellipsoidPointAltitude SEQUENCE {},
    ellipsoidPointAltitudeEllipse SEQUENCE {}
}

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

PRC ::= INTEGER (-32767..32767)

-- **TODO**, not defined yet
PrimaryCCPCH-RSCP ::= SEQUENCE {
}

Q-Accept-s-n ::= INTEGER (0..63)

Q-HCS ::= INTEGER (0..99)

Q-Offset ::= INTEGER (-50..50)

-- Actual value = IE value * 0.5
Q-OffsetS-N ::= INTEGER (-40..40)

-- **TODO**, not defined yet
Q-Min ::= SEQUENCE {
}

Qmin-FDD ::= INTEGER (-20..0)

-- Actual value = IE value * 2 - 115
Qmin-TDD ::= INTEGER (0..45)

-- **TODO**, not defined yet
QualityEventResults ::= SEQUENCE {
}

-- **TODO**, not defined yet

```



```

QualityMeasQuantity ::= SEQUENCE {
}

QualityMeasuredResults ::= SEQUENCE {
    blerMeasurementResultsList          BLER-MeasurementResultsList          OPTIONAL,
    dl-PhysicalChannelBER                DL-PhysicalChannelBER                OPTIONAL,
    sir                                   SIR                                   OPTIONAL
}

QualityMeasurement ::= SEQUENCE {
    qualityMeasurementObject            QualityMeasurementObject            OPTIONAL,
    qualityMeasQuantity                  QualityMeasQuantity                  OPTIONAL,
    qualityReportingQuantity             QualityReportingQuantity             OPTIONAL,
    reportCriteria                       QualityReportCriteria
}

-- **TODO**, not defined yet
QualityMeasurementObject ::= SEQUENCE {
}

QualityReportCriteria ::= CHOICE {
    qualityReportingCriteria            QualityReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    noReporting                          NULL
}

-- **TODO**, not defined yet
QualityReportingCriteria ::= SEQUENCE {
}

QualityReportingQuantity ::= SEQUENCE {
    dl-TransChBLER                      BOOLEAN,
    bler-TransChIdList                  BLER-TransChIdList                  OPTIONAL,
    sir                                   BOOLEAN
}

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

RAT-Type ::= ENUMERATED {
    gsm, is2000, spare1, spare2,
    spare3, spare4, spare5, spare6,
    spare7, spare8, spare9, spare10,
    spare11, spare12, spare13, spare14 }

-- **TODO**, definition to be checked from 23.032
ReferenceCellPosition ::= SEQUENCE {
}

ReferenceCellRelation ::= ENUMERATED {
    first-12-second-3,
    first-13-second-2,
    first-1-second-23 }

ReferenceGPS-TOW ::= INTEGER (0..604700000000)

ReferenceQuality ::= ENUMERATED {
    m0-19, m20-39, m40-79,
    m80-159, m160-319, m320-639,
    m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::= INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::= INTEGER (1..32)

ReferenceSFN ::= INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::= CHOICE {
    -- Actual value = IE value * 40
    accuracy40                INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256                INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560              INTEGER (0..15)
}

RemovedInterFreqCell ::= SEQUENCE {
    interFreqCellID            InterFreqCellID
}

```

```

}

RemovedInterFreqCellList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
                               RemovedInterFreqCell

RemovedInterSystemCell ::= SEQUENCE {
    interSystemCellID
}

RemovedInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
                                RemovedInterSystemCell

RemovedIntraFreqCell ::= SEQUENCE {
    intraFreqCellID
}

RemovedIntraFreqCellList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
                              RemovedIntraFreqCell

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 ::= SEQUENCE {
    maxNumberOfReportingCells
    measurement
        intraFreq
        otherMeasurement
    }

ReportingCellStatusIntraFreq ::= SEQUENCE {
    activeSetCellReport
    monitoredSetCellReport
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity
    reportCriteria
}

ReportingInterval ::= ENUMERATED {
    noPeriodicalreporting, ri0-25,
    ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::= ENUMERATED {
    ril0, ril0-25, ril0-5, ril1,
    ril2, ril3, ril4, ril6, ril8,
    ril12, ril16, ril20, ril24,
    ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::= INTEGER (0..29)

Resume-Release ::= CHOICE {
    resume
    release
    NULL
}

RL-AdditionInfo ::= SEQUENCE {
    primaryCPICH-Info
}

RL-AdditionInfoList ::= SEQUENCE (SIZE(1..maxAddRLcount)) OF
                          RL-AdditionInfo

RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList
    rl-RemovalInfoList
}

RL-RemovalInfo ::= SEQUENCE {
    primaryCPICH-Info
}

```

OPTIONAL,  
OPTIONAL

```

}

RL-RemovalInfoList ::= SEQUENCE (SIZE(1..maxDelRLcount)) OF
                        RL-RemovalInfo

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

RRC ::= INTEGER (-127..127)

-- **TODO**, not defined yet
RSCP ::= SEQUENCE {
}

SatelliteStatus ::= ENUMERATED {
                        ns-NN-U,
                        es-SN,
                        es-NN-U,
                        es-NN-C }

SatID ::= INTEGER (0..31)

ScaleFactor ::= ENUMERATED {
                        prc0-02-rrc0-002,
                        prc0-32-rrc0-032 }

SFN-SFN-ObsTimeDifference ::= CHOICE {
                        type1 SFN-SFN-ObsTimeDifference1,
                        -- Actual value for type2 = IE value * 0.25
                        type2 SFN-SFN-ObsTimeDifference2
}

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

SFN-SFN-ObsTimeDifference2 ::= INTEGER (-5119..5120)

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

SignallingOption ::= CHOICE {
                        alternative1 SEQUENCE {
                                q-OffsetS-N OPTIONAL
                        },
                        alternative2 NULL
}

SIR ::= INTEGER (-10..20)

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

-- **TODO**, not defined yet
Threshold ::= SEQUENCE {
}

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 }

-- **TODO**, not defined yet
TimeslotISCP ::= SEQUENCE {
}

TimeslotListWithISCP ::= SEQUENCE (SIZE (1..14)) OF

```

```

TimeslotWithISCP
TimeslotWithISCP ::= SEQUENCE {
    timeslot
    timeslotISCP
}

TimeToTrigger ::= ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, ttt320, ttt640,
    ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::= SEQUENCE {
    eventID
    reportingThreshold
}

TrafficVolumeEventResults ::= SEQUENCE {
    transportChannelCausingEvent
    trafficVolumeEventIdentity
}

TrafficVolumeEventType ::= ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasObject ::= SEQUENCE {
    targetTransportChannelID
}

TrafficVolumeMeasObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasObject

TrafficVolumeMeasQuantity ::= ENUMERATED {
    rlc-BufferPayload,
    averageRLC-BufferPayload,
    varianceOfRLC-BufferPayload }

TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID MeasurementIdentityNumber OPTIONAL,
    trafficVolumeMeasObjectList TrafficVolumeMeasObjectList OPTIONAL,
    trafficVolumeMeasQuantity TrafficVolumeMeasQuantity OPTIONAL,
    trafficVolumeReportingQuantity TrafficVolumeReportingQuantity OPTIONAL
}

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..maxTraf)) OF
    TrafficVolumeMeasuredResults

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

TrafficVolumeMeasurementObject ::= SEQUENCE {
    targetTransportChannelID
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasurementObject

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList TransChCriteriaList OPTIONAL,
    timeToTrigger TimeToTrigger OPTIONAL,
    pendingTimeAfterTrigger PendingTimeAfterTrigger OPTIONAL,

```

```

tx-InterruptionAfterTrigger      TX-InterruptionAfterTrigger      OPTIONAL,
reportingAmount                   ReportingAmount                   OPTIONAL,
reportingInterval                 ReportingInterval                 OPTIONAL
}

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

TrafficVolumeThreshold ::=
    ENUMERATED {
        th8, th16, th32, th64, th128,
        th256, th512, th1024, th1536,
        th2048, th3072, th4096, th6144,
        th8192 }

TransChCriteria ::=
    SEQUENCE {
        transportChannelID        TransportChannelIdentity,
        eventSpecificParameters   SEQUENCE (SIZE (1..2)) OF
            TrafficVolumeEventParam      OPTIONAL
    }

TransChCriteriaList ::= =
    SEQUENCE (SIZE (1..maxTrCHcount)) OF
        TransChCriteria

TransferMode ::=
    ENUMERATED {
        acknowledgedModeRLC,
        unacknowledgedModeRLC }

TransmittedPowerThreshold ::=
    INTEGER (-50..33)

TriggeringCondition ::=
    ENUMERATED {
        activeSetCellsOnly,
        monitoredCellsOnly,
        activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::=
    ENUMERATED {
        txiat0-25, txiat0-5, txiat1,
        txiat2, txiat4, txiat8, txiat16 }

UDRE ::=
    ENUMERATED {
        lessThan1,
        between1-and-4,
        between4-and-8,
        over8 }

UE-6AB-Event ::=
    SEQUENCE {
        timeToTrigger             TimeToTrigger,
        transmittedPowerThreshold TransmittedPowerThreshold
    }

UE-6FG-Event ::=
    SEQUENCE {
        timeToTrigger             TimeToTrigger,
        ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
    }

UE-AutonomousUpdateMode ::=
    CHOICE {
        on                        NULL,
        onWithNoReporting         NULL,
        off                       RL-InformationLists
    }

UE-InternalEventParam ::=
    CHOICE {
        event6a                   UE-6AB-Event,
        event6b                   UE-6AB-Event,
        event6c                   TimeToTrigger,
        event6d                   TimeToTrigger,
        event6e                   TimeToTrigger,
        event6f                   UE-6FG-Event,
        event6g                   UE-6FG-Event
    }

UE-InternalEventParamList ::=
    SEQUENCE (SIZE (1..maxEventCount)) 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
}

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            ue-TransmittedPowerFDD    UE-TransmittedPowerFDD    OPTIONAL,
            ue-RX-TX-ReportEntryList  UE-RX-TX-ReportEntryList  OPTIONAL
        },
        tdd                SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity    UE-InternalMeasQuantity    OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity  OPTIONAL,
    reportCriteria             UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID    MeasurementIdentityNumber    OPTIONAL,
    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,
    ue-RX-TX-TimeDifferece      BOOLEAN,
    ue-Position                  BOOLEAN
}

UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info    PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference UE-RX-TX-TimeDifference
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxUsedRLcount)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::= INTEGER (876..1172)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (769..1280)

UE-State ::= ENUMERATED {
    cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPowerFDD ::= INTEGER (-50..33)

-- **TODO**, not defined yet
UE-TransmittedPowerTDD ::= SEQUENCE {
}

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

UncompressedNavModel ::= SEQUENCE {
    iode                BIT STRING (SIZE (8)),

```

```

t-oe          BIT STRING (SIZE (16)),
c-rc          BIT STRING (SIZE (16)),
c-rs          BIT STRING (SIZE (16)),
c-ic          BIT STRING (SIZE (16)),
c-is          BIT STRING (SIZE (16)),
c-uc          BIT STRING (SIZE (16)),
c-us          BIT STRING (SIZE (16)),
e             BIT STRING (SIZE (32)),
m0           BIT STRING (SIZE (32)),
a-Sqrt        BIT STRING (SIZE (32)),
delta-n       BIT STRING (SIZE (16)),
omega0        BIT STRING (SIZE (32)),
omegaDot      BIT STRING (SIZE (24)),
i0           BIT STRING (SIZE (32)),
iDot          BIT STRING (SIZE (14)),
omega         BIT STRING (SIZE (32)),
t-oc          BIT STRING (SIZE (16)),
af0           BIT STRING (SIZE (22)),
af1           BIT STRING (SIZE (16)),
af2           BIT STRING (SIZE (8))
}

UTRA-CarrierRSSI ::=          INTEGER (-95..-30)

UTRAN-ReferenceTime ::=      SEQUENCE {
    gps-TOW                    INTEGER (0..604700000000),
    sfn                        INTEGER (0..4095)
}

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

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

END

```

## 11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    CN-DomainSysInfoList,
    NAS-SystemInformationGSM-MAP,
    PLMN-Type
FROM CoreNetwork-IEs

    CellAccessRestriction,
    CellIdentity,
    CellSelectReselectInfo,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PreDefRadioConfigurationList
FROM RadioBearer-IEs

    PreDefTransChConfiguration
FROM TransportChannel-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    DynamicPersistenceLevelList,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    MidambleConfiguration,

```

```

PDSCH-SysInfoList,
PICH-PowerOffset,
PRACH-SystemInformationList,
PreDefPhyChConfiguration,
PrimaryCCPCH-InfoSI,
PrimaryCCPCH-TX-Power,
PUSCH-SysInfoList,
SCCPCH-SystemInformationList,
UL-Interference
FROM PhysicalChannel-IEs

FACH-MeasurementOccasionInfo,
LCS-GPS-AssistanceSIB,
LCS-OTDOA-AssistanceSIB,
MeasurementControlSysInfo
FROM Measurement-IEs

ANSI-41-GlobalServiceRedirectInfo,
ANSI-41-PrivateNeighborListInfo,
ANSI-41-RAND-Information,
ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

maxDataLength,
maxInterSysMessages,
maxNoOfErrors,
maxSysInfoBlockCount,
maxSysInfoBlockFACHcount
FROM Constant-definitions;

BCC ::=                                INTEGER (0..7)

BCCH-ModificationInfo ::=              SEQUENCE {
    mib-ValueTag                        MIB-ValueTag,
    bcch-ModificationTime                BCCH-ModificationTime                OPTIONAL
}

-- Actual value = IE value * 2
BCCH-ModificationTime ::=              INTEGER (0..2047)

BASIC ::=                               SEQUENCE {
    ncc                                  NCC,
    bcc                                  BCC
}

CBS-DRX-Level1Information ::=          SEQUENCE {
    ctch-AllocationPeriod                INTEGER (1..256),
    cbs-FrameOffset                      INTEGER (0..255)
}

CDMA2000-Message ::=                   SEQUENCE {
    msg-Type                              BIT STRING (SIZE (8)),
    payload                              BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::=                SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                         CDMA2000-Message

CellValueTag ::=                        INTEGER (1..4)

GSM-MessageList ::=                     SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                                         BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::=               SEQUENCE {
    interSystemHO-FailureCause            InterSystemHO-FailureCause            OPTIONAL,
    interSystemMessage                    InterSystemMessage                    OPTIONAL
}

InterSystemHO-FailureCause ::=          CHOICE {
    configurationUnacceptable             NULL,
    physicalChannelFailure                NULL,
    protocolError                         ProtocolErrorInformation,
    unspecified                            NULL,
    spare                                  NULL
}

InterSystemMessage ::=                  SEQUENCE {
    systemType                            SystemType,
    systemSpecificMessage                 CHOICE {
        gsm                               SEQUENCE {
            gsm-MessageList                GSM-MessageList
        }
    }
}

```



```

    },
    cdma2000
        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.
        modeSpecificInfo     CHOICE {
            fdd               NULL,
            tdd               SEQUENCE {
                sfn-prime    SFN-Prime
            }
        },
        sib-ReferenceList    SIB-ReferenceList,
        -- Extension mechanism
        non-Release99-Information SEQUENCE {} OPTIONAL
    }

MIB-ValueTag ::=
    INTEGER (1..8)

NCC ::=
    INTEGER (0..7)

PLMN-ValueTag ::=
    INTEGER (1..256)

ProtocolErrorInformation ::=
    SEQUENCE {
        diagnosticsType     CHOICE {
            type1           SEQUENCE {
                protocolErrorCause ProtocolErrorCause
            },
            spare           NULL
        }
    }

ProtocolErrorInformationList ::=
    SEQUENCE (SIZE (1..maxNoOfErrors)) OF
        ProtocolErrorInformation

SchedulingInformation ::=
    SEQUENCE {
        sib-Type             SIB-TypeAndTag,
        scheduling           SEQUENCE {
            segCount        SegCount          DEFAULT 1,
            sib-Pos         CHOICE {
                -- The element name indicates the repetition period and the value
                -- (multiplied by two) indicates the position of the first segment.
                rep4        INTEGER (0..1),
                rep8        INTEGER (0..3),
                rep16       INTEGER (0..7),
                rep32       INTEGER (0..15),
                rep64       INTEGER (0..31),
                rep128      INTEGER (0..63),
                rep256      INTEGER (0..127),
                rep512      INTEGER (0..255),
                rep1024     INTEGER (0..511),
                rep2048     INTEGER (0..1023)
            }
        },
        sib-PosOffsetInfo   SibOFF-List      OPTIONAL
    } OPTIONAL

SegCount ::=
    INTEGER (1..16)

SegmentIndex ::=
    INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::=
    INTEGER (0..2047)

SIB-Content ::=
    CHOICE {
        masterInformationBlock MasterInformationBlock,
        sysInfoType1          SysInfoType1,
        sysInfoType2          SysInfoType2,
        sysInfoType3          SysInfoType3,
        sysInfoType4          SysInfoType4,
        sysInfoType5          SysInfoType5,
        sysInfoType6          SysInfoType6,
        sysInfoType7          SysInfoType7,
        sysInfoType8          SysInfoType8,
        sysInfoType9          SysInfoType9,
    }

```

```

sysInfoType10          SysInfoType10,
sysInfoType11          SysInfoType11,
sysInfoType12          SysInfoType12,
sysInfoType13          SysInfoType13,
sysInfoType13-1        SysInfoType13-1,
sysInfoType13-2        SysInfoType13-2,
sysInfoType13-3        SysInfoType13-3,
sysInfoType13-4        SysInfoType13-4,
sysInfoType14          SysInfoType14,
sysInfoType15          SysInfoType15,
sysInfoType16          SysInfoType16,
spare                  SEQUENCE {}
}

SIB-Data ::=
BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::=
SEQUENCE {
    schedulingInformation
}

SIB-ReferenceList ::=
SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
    SIB-Reference

SIB-ReferenceListFACH ::=
SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
    SIB-Reference

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,
    systemInformationBlockType16,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11}

SIB-TypeAndTag ::=
CHOICE {
    sysInfoType1        PLMN-ValueTag,
    sysInfoType2        PLMN-ValueTag,
    sysInfoType3        CellValueTag,
    sysInfoType4        CellValueTag,
    sysInfoType5        CellValueTag,
    sysInfoType6        CellValueTag,
    sysInfoType7        NULL,
    sysInfoType8        NULL,
    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       NULL,
    sysInfoType16       NULL
}

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

```

```

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

SysInfoType1 ::=                             SEQUENCE {
  -- Core network IES
  cn-CommonGSM-MAP-NAS-SysInfo      NAS-SystemInformationGSM-MAP,
  cn-DomainSysInfoList              CN-DomainSysInfoList,
  -- User equipment IES
  ue-IdleTimersAndConstants         UE-IdleTimersAndConstants,
  -- Extension mechanism
  non-Release99-Information          SEQUENCE {}                               OPTIONAL
}

SysInfoType2 ::=                             SEQUENCE {
  -- UTRAN mobility IES
  ura-IdentityList                  URA-IdentityList,
  -- User equipment IES
  ue-ConnTimersAndConstants         UE-ConnTimersAndConstants,
  -- Extension mechanism
  non-Release99-Information          SEQUENCE {}                               OPTIONAL
}

SysInfoType3 ::=                             SEQUENCE {
  -- Other IES
  sib-ReferenceList                  SIB-ReferenceList                               OPTIONAL,
  -- UTRAN mobility IES
  cellIdentity                       CellIdentity,
  cellSelectReselectInfo             CellSelectReselectInfo,
  cellAccessRestriction              CellAccessRestriction,
  -- Extension mechanism
  non-Release99-Information          SEQUENCE {}                               OPTIONAL
}

SysInfoType4 ::=                             SEQUENCE {
  -- Other IES
  sib-ReferenceList                  SIB-ReferenceList                               OPTIONAL,
  -- UTRAN mobility IES
  cellIdentity                       CellIdentity,
  cellSelectReselectInfo             CellSelectReselectInfo,
  cellAccessRestriction              CellAccessRestriction,
  -- Extension mechanism
  non-Release99-Information          SEQUENCE {}                               OPTIONAL
}

SysInfoType5 ::=                             SEQUENCE {
  -- Other IES
  sib-ReferenceList                  SIB-ReferenceList                               OPTIONAL,
  -- Physical channel IES
  frequencyInfo                      FrequencyInfo                               OPTIONAL,
  maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power                               OPTIONAL,
  modeSpecificInfo                   CHOICE {
    fdd                               NULL,
    tdd                               SEQUENCE {
      midambleConfiguration           MidambleConfiguration                               OPTIONAL
    }
  },
  primaryCCPCH-Info                  PrimaryCCPCH-InfoSI                               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
  non-Release99-Information          SEQUENCE {}                               OPTIONAL
}

SysInfoType6 ::=                             SEQUENCE {
  -- Other IES
  sib-ReferenceList                  SIB-ReferenceList                               OPTIONAL,
  -- Physical channel IES
  frequencyInfo                      FrequencyInfo                               OPTIONAL,
  maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power                               OPTIONAL,
  primaryCCPCH-Info                  PrimaryCCPCH-InfoSI                               OPTIONAL,
  modeSpecificInfo                   CHOICE {
    fdd                               SEQUENCE {
      pich-PowerOffset                PICH-PowerOffset,
      aich-PowerOffset                AICH-PowerOffset
    },
    tdd                               SEQUENCE {
      pusch-SysInfo                   PUSCH-SysInfoList                               OPTIONAL,
      pdsch-SysInfo                   PDSCH-SysInfoList                               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
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType7 ::=                      SEQUENCE {
    -- Physical channel IEs
    modeSpecificInfo                CHOICE {
        fdd                          SEQUENCE {
            ul-Interference          UL-Interference
        },
        tdd                          NULL
    },
    prach-Information-SIB5-List      DynamicPersistenceLevelList,
    prach-Information-SIB6-List      DynamicPersistenceLevelList      OPTIONAL,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType8 ::=                      SEQUENCE {
    -- User equipment IEs
    cpch-Parameters                  CPCH-Parameters,
    -- Physical channel IEs
    cpch-SetInfoList                 CPCH-SetInfoList,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType9 ::=                      SEQUENCE {
    -- Physical channel IEs
    cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType10 ::=                     SEQUENCE {
    -- User equipment IEs
    drac-SysInfoList                 DRAC-SysInfoList,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType11 ::=                     SEQUENCE {
    -- Other IEs
    sib-ReferenceList                 SIB-ReferenceList          OPTIONAL,
    -- Measurement IEs
    fach-MeasurementOccasionInfo     FACH-MeasurementOccasionInfo  OPTIONAL,
    measurementControlSysInfo        MeasurementControlSysInfo,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType12 ::=                     SEQUENCE {
    -- Other IEs
    sib-ReferenceList                 SIB-ReferenceList          OPTIONAL,
    -- Measurement IEs
    fach-MeasurementOccasionInfo     FACH-MeasurementOccasionInfo  OPTIONAL,
    measurementControlSysInfo        MeasurementControlSysInfo,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType13 ::=                     SEQUENCE {
    -- Other IEs
    sib-ReferenceList                 SIB-ReferenceList          OPTIONAL,
    -- Core network IEs
    cn-DomainSysInfoList             CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants        UE-IdleTimersAndConstants     OPTIONAL,
    capabilityUpdateRequirement      CapabilityUpdateRequirement   OPTIONAL,
    -- Extension mechanism
    non-Release99-Information        SEQUENCE {}                    OPTIONAL
}

SysInfoType13-1 ::=                   SEQUENCE {

```

```

-- ANSI-41 IEs
ansi-41-RAND-Information      ANSI-41-RAND-Information,
-- Extension mechanism
non-Release99-Information     SEQUENCE {}                OPTIONAL
}

SysInfoType13-2 ::=
-- ANSI-41 IEs
ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-3 ::=
-- ANSI-41 IEs
ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-4 ::=
-- ANSI-41 IEs
ansi-41-GlobalServiceRedirectInfo
                                ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType14 ::=
-- Other IEs
sib-ReferenceList              SIB-ReferenceList          OPTIONAL,
-- Physical channel IEs
primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power      OPTIONAL,
individualTS-InterferenceList  IndividualTS-InterferenceList,
rach-ConstantValue             ConstantValue              OPTIONAL,
dpch-ConstantValue             ConstantValue              OPTIONAL,
usch-ConstantValue             ConstantValue              OPTIONAL,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType15 ::=
-- Other IEs
sib-ReferenceList              SIB-ReferenceList          OPTIONAL,
-- Measurement IEs
lcs-GPS-Assistance             LCS-GPS-AssistanceSIB     OPTIONAL,
lcs-OTDOA-Assistance           LCS-OTDOA-AssistanceSIB   OPTIONAL,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType16 ::=
-- Other IEs
sib-ReferenceList              SIB-ReferenceList          OPTIONAL,
-- Radio bearer IEs
preDefinedRadioConfigurations  PreDefRadioConfigurationList,
-- Transport channel IEs
preDefTransChConfiguration     PreDefTransChConfiguration,
-- Physical channel IEs
preDefPhyChConfiguration       PreDefPhyChConfiguration,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SystemType ::=
                                ENUMERATED {
                                gsm, cdma2000,
                                spare1, spare2, spare3, spare4,
                                spare5, spare6, spare7, spare8,
                                spare9, spare10, spare11,
                                spare12, spare13, spare14 }

```

END

**CHANGE REQUEST**

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

**25.331 CR 283r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
 list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
 non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** IEs on SIB5/6

**Work item:**

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

**Reason for change:** (1) IEs on SIB5 and SIB6 are corrected. SIB5 contains parameters for the configuration of the common physical channels in the cell. SIB6 contains parameters for the configuration of the common and shared channels to be used in connected mode. It is mentioned in section 8.1.1.1.2 that if SIB6 is not broadcast in a cell, the connected mode UE shall read SIB5. And also it says that if some of the optional IEs are not included in SIB6, the UE shall read the corresponding IEs in SIB5. Therefore some IEs are aligned.  
 (2) IE "Frequency info" is removed since it is defined in RAN WG3 that there is one frequency band per cell.  
 (3) IE "Maximum allowed UL TX power" is removed since same parameter appears in SIB11/12 for serving cell.  
 (4) Action when receiving SIB5 and SIB6 is clearly defined.

**Clauses affected:** 8.1.1.5.5, 8.1.1.5.6, 10.2.49.4.7, 10.2.49.4.8, 11.3.8

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

**Other comments:**



help.doc

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

### 10.2.49.4.7 System Information Block type 5

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
<b>PhyCH information elements</b>				
<a href="#">Frequency info</a>	OP		<a href="#">Frequency info</a> 10.3.6.24	
<a href="#">Maximum allowed UL TX power</a>	OP		<a href="#">Maximum allowed UL TX power</a> 10.3.6.27	
CHOICE <i>mode</i>	MP			
>FDD				
>> <a href="#">PICH Power offset</a>	MP		<a href="#">PICH Power offset</a> 10.3.6.35	
>> <a href="#">AICH Power offset</a>	MP		<a href="#">AICH Power offset</a> 10.3.6.3	
>TDD				
>> <a href="#">PUSCH system information</a>	OP		<a href="#">PUSCH system information</a> 10.3.6.48	
>> <a href="#">PDSCH system information</a>	OP		<a href="#">PDSCH system information</a> 10.3.6.31	
>>Midamble configuration	MD		Midamble configuration 10.3.6.28	Default value is defined in 10.3.6.23
>FDD				(no data)
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.41	Note 1
PRACH system information	MP		PRACH system information 10.3.6.39	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.53	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

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

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



#### 10.2.49.4.8 System Information Block type 6

The system information block type 6 contains parameters for the configuration of the common and shared physical channels to be used in connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
<b>PhyCH information elements</b>				
<a href="#">Frequency info</a>	<a href="#">OP</a>		<a href="#">Frequency info</a> <a href="#">10.3.6.24</a>	
<a href="#">Maximum allowed UL TX power</a>	<a href="#">OP</a>		<a href="#">Maximum allowed UL TX power</a> <a href="#">10.3.6.27</a>	
<a href="#">Primary CCPCH info</a>	<a href="#">OP</a>		<a href="#">Primary CCPCH info</a> <a href="#">10.3.6.41</a>	<a href="#">Note 1</a>
CHOICE <i>mode</i>	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.35	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.48	
>>PDSCH system information	OP		PDSCH system information 10.3.6.31	
<a href="#">&gt;&gt;Midamble configuration</a>	<a href="#">MD</a>		<a href="#">Midamble configuration</a> <a href="#">10.3.6.28</a>	<a href="#">Default value is defined in 10.3.6.23</a>
<a href="#">Primary CCPCH info</a>	<a href="#">OP</a>		<a href="#">Primary CCPCH info</a> <a href="#">10.3.6.41</a>	<a href="#">Note 1</a>
PRACH system information	MP		PRACH system information 10.3.6.39	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.53	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

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

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

### 8.1.1.5.5 System Information Block type 5

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

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- ~~— if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.~~
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only) if given PRACH is used.
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" " if UE is in Idle mode or in CELL/URA\_PCH state.
- start to monitor its paging occasions on the PICH if UE is in Idle mode or in CELL/URA\_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL\_FACH state.

### 8.1.1.5.6 System Information Block type 6

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- ~~— if the IE "Frequency info" is included, tune to the frequency given by this IE and use it as the active frequency.~~
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" if given PRACH is used. If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information (FDD only).
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in CELL/URA\_PCH state. If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.
- start to monitor its paging occasions on the PICH if UE is in CELL/URA\_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL\_FACH state. If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

## 11.3.8 Other information elements

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

```
BEGIN
```

```
IMPORTS
```

```
    CN-DomainSysInfoList,  
    NAS-SystemInformationGSM-MAP,
```

```

    PLMN-Type
FROM CoreNetwork-IEs

    CellAccessRestriction,
    CellIdentity,
    CellSelectReselectInfo,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PreDefRadioConfigurationList
FROM RadioBearer-IEs

    PreDefTransChConfiguration
FROM TransportChannel-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    DynamicPersistenceLevelList,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PreDefPhyChConfiguration,
    PrimaryCCPCH-InfoSI,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

    FACH-MeasurementOccasionInfo,
    LCS-GPS-AssistanceSIB,
    LCS-OTDOA-AssistanceSIB,
    MeasurementControlSysInfo
FROM Measurement-IEs

    ANSI-41-GlobalServiceRedirectInfo,
    ANSI-41-PrivateNeighborListInfo,
    ANSI-41-RAND-Information,
    ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

    maxDataLength,
    maxInterSysMessages,
    maxNoOfErrors,
    maxSysInfoBlockCount,
    maxSysInfoBlockFACHcount
FROM Constant-definitions;

BCC ::= INTEGER (0..7)

BCCH-ModificationInfo ::= SEQUENCE {
    mib-ValueTag MIB-ValueTag,
    bcch-ModificationTime BCCH-ModificationTime OPTIONAL
}

-- Actual value = IE value * 2
BCCH-ModificationTime ::= INTEGER (0..2047)

BSIC ::= SEQUENCE {
    ncc NCC,
    bcc BCC
}

CBS-DRX-Level1Information ::= SEQUENCE {

```

```

    ctch-AllocationPeriod          INTEGER (1..256),
    cbs-FrameOffset                INTEGER (0..255)
}

CDMA2000-Message ::=
    msg-Type                       BIT STRING (SIZE (8)),
    payload                         BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::=
    SEQUENCE (SIZE (1..maxInterSysMessages)) OF
        CDMA2000-Message

CellValueTag ::=
    INTEGER (1..4)

GSM-MessageList ::=
    SEQUENCE (SIZE (1..maxInterSysMessages)) OF
        BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::=
    interSystemHO-FailureCause     OPTIONAL,
    interSystemMessage              OPTIONAL
}

InterSystemHO-FailureCause ::=
    configurationUnacceptable       NULL,
    physicalChannelFailure          NULL,
    protocolError                   ProtocolErrorInformation,
    unspecified                     NULL,
    spare                            NULL
}

InterSystemMessage ::=
    systemType                      SystemType,
    systemSpecificMessage            CHOICE {
        gsm                          SEQUENCE {
            gsm-MessageList
        },
        cdma2000                     SEQUENCE {
            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.
        modeSpecificInfo             CHOICE {
            fdd                       NULL,
            tdd                       SEQUENCE {
                sfn-prime
            }
        },
        sib-ReferenceList            SIB-ReferenceList,
        -- Extension mechanism
        non-Release99-Information    SEQUENCE {}
    }
}

MIB-ValueTag ::=
    INTEGER (1..8)

NCC ::=
    INTEGER (0..7)

PLMN-ValueTag ::=
    INTEGER (1..256)

ProtocolErrorInformation ::=
    SEQUENCE {
        diagnosticsType              CHOICE {
            type1                     SEQUENCE {
                protocolErrorCause
            },
            spare                      NULL
        }
    }
}

ProtocolErrorInformationList ::=
    SEQUENCE (SIZE (1..maxNoOfErrors)) OF
        ProtocolErrorInformation

SchedulingInformation ::=
    SEQUENCE {
        sib-Type                      SIB-TypeAndTag,

```

```

scheduling                               SEQUENCE {
  segCount                               SegCount                               DEFAULT 1,
  sib-Pos                                CHOICE {
    -- The element name indicates the repetition period and the value
    -- (multiplied by two) indicates the position of the first segment.
    rep4                                 INTEGER (0..1),
    rep8                                 INTEGER (0..3),
    rep16                                INTEGER (0..7),
    rep32                                INTEGER (0..15),
    rep64                                INTEGER (0..31),
    rep128                               INTEGER (0..63),
    rep256                               INTEGER (0..127),
    rep512                               INTEGER (0..255),
    rep1024                              INTEGER (0..511),
    rep2048                              INTEGER (0..1023)
  },
  sib-PosOffsetInfo                      SibOFF-List                               OPTIONAL
}
                                           OPTIONAL

SegCount ::=                             INTEGER (1..16)

SegmentIndex ::=                          INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::=                             INTEGER (0..2047)

SIB-Content ::=                           CHOICE {
  masterInformationBlock                 MasterInformationBlock,
  sysInfoType1                           SysInfoType1,
  sysInfoType2                           SysInfoType2,
  sysInfoType3                           SysInfoType3,
  sysInfoType4                           SysInfoType4,
  sysInfoType5                           SysInfoType5,
  sysInfoType6                           SysInfoType6,
  sysInfoType7                           SysInfoType7,
  sysInfoType8                           SysInfoType8,
  sysInfoType9                           SysInfoType9,
  sysInfoType10                          SysInfoType10,
  sysInfoType11                          SysInfoType11,
  sysInfoType12                          SysInfoType12,
  sysInfoType13                          SysInfoType13,
  sysInfoType13-1                        SysInfoType13-1,
  sysInfoType13-2                        SysInfoType13-2,
  sysInfoType13-3                        SysInfoType13-3,
  sysInfoType13-4                        SysInfoType13-4,
  sysInfoType14                          SysInfoType14,
  sysInfoType15                          SysInfoType15,
  sysInfoType16                          SysInfoType16,
  spare                                  SEQUENCE {}
}

SIB-Data ::=                              BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::=                         SEQUENCE {
  schedulingInformation                   SchedulingInformation
}

SIB-ReferenceList ::=                     SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
                                           SIB-Reference

SIB-ReferenceListFACH ::=                 SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
                                           SIB-Reference

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,
        systemInformationBlockType16,
        spare1, spare2, spare3 }

SIB-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
}

CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    NULL,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    NULL,
    NULL
}

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

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

SysInfoType1 ::=
    SEQUENCE {
        -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList            CN-DomainSysInfoList,
        -- User equipment IEs
        ue-IdleTimersAndConstants        UE-IdleTimersAndConstants,
        -- Extension mechanism
        non-Release99-Information        SEQUENCE {}                OPTIONAL
    }

SysInfoType2 ::=
    SEQUENCE {
        -- UTRAN mobility IEs
        ura-IdentityList                URA-IdentityList,
        -- User equipment IEs
        ue-ConnTimersAndConstants        UE-ConnTimersAndConstants,
        -- Extension mechanism
        non-Release99-Information        SEQUENCE {}                OPTIONAL
    }

SysInfoType3 ::=
    SEQUENCE {
        -- Other IEs
        sib-ReferenceList                SIB-ReferenceList            OPTIONAL,
        -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo           CellSelectReselectInfo,
        cellAccessRestriction            CellAccessRestriction,
        -- Extension mechanism
        non-Release99-Information        SEQUENCE {}                OPTIONAL
    }

SysInfoType4 ::=
    SEQUENCE {
        -- Other IEs
        sib-ReferenceList                SIB-ReferenceList            OPTIONAL,
        -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo           CellSelectReselectInfo,
    }

```

```

        cellAccessRestriction          CellAccessRestriction,
-- Extension mechanism
        non-Release99-Information      SEQUENCE {}                                OPTIONAL
    }

SysInfoType5 ::=                               SEQUENCE {
-- Other IEs
    sib-ReferenceList                  SIB-ReferenceList                    OPTIONAL,
-- Physical channel IEs
frequencyInfo                        FrequencyInfo                        OPTIONAL,
maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power                OPTIONAL,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            pich-PowerOffset            PICH-PowerOffset,
            aich-PowerOffset            AICH-PowerOffset
        }, NULL,
        tdd                            SEQUENCE {
            pusch-SysInfo                PUSCH-SysInfoList                OPTIONAL,
            pdsch-SysInfo                PDSCH-SysInfoList                OPTIONAL,
            midambleConfiguration        MidambleConfiguration            OPTIONAL
        }
    },
    primaryCCPCH-Info                  PrimaryCCPCH-InfoSI                    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
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

SysInfoType6 ::=                               SEQUENCE {
-- Other IEs
    sib-ReferenceList                  SIB-ReferenceList                    OPTIONAL,
-- Physical channel IEs
frequencyInfo                        FrequencyInfo                        OPTIONAL,
maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power                OPTIONAL,
primaryCCPCH-Info                    PrimaryCCPCH-InfoSI                OPTIONAL,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            pich-PowerOffset            PICH-PowerOffset,
            aich-PowerOffset            AICH-PowerOffset
        },
        tdd                            SEQUENCE {
            pusch-SysInfo                PUSCH-SysInfoList                OPTIONAL,
            pdsch-SysInfo                PDSCH-SysInfoList                OPTIONAL,
            midambleConfiguration        MidambleConfiguration            OPTIONAL
        }
    },
primaryCCPCH-Info                    PrimaryCCPCH-InfoSI                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
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

SysInfoType7 ::=                               SEQUENCE {
-- Physical channel IEs
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            ul-Interference              UL-Interference
        },
        tdd                            NULL
    },
    prach-Information-SIB5-List        DynamicPersistenceLevelList,
    prach-Information-SIB6-List        DynamicPersistenceLevelList            OPTIONAL,
-- Extension mechanism
    non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

SysInfoType8 ::=                               SEQUENCE {
-- User equipment IEs
    cpch-Parameters                    CPCH-Parameters,
-- Physical channel IEs

```

```

        cpch-SetInfoList                CPCH-SetInfoList,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType9 ::=                        SEQUENCE {
-- Physical channel IEs
        cpch-PersistenceLevelsList     CPCH-PersistenceLevelsList,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType10 ::=                       SEQUENCE {
-- User equipment IEs
        drac-SysInfoList                DRAC-SysInfoList,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType11 ::=                       SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                OPTIONAL,
-- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo    OPTIONAL,
        measurementControlSysInfo       MeasurementControlSysInfo,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType12 ::=                       SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                OPTIONAL,
-- Measurement IEs
        fach-MeasurementOccasionInfo    FACH-MeasurementOccasionInfo    OPTIONAL,
        measurementControlSysInfo       MeasurementControlSysInfo,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13 ::=                       SEQUENCE {
-- Other IEs
        sib-ReferenceList               SIB-ReferenceList                OPTIONAL,
-- Core network IEs
        cn-DomainSysInfoList           CN-DomainSysInfoList,
-- User equipment IEs
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants        OPTIONAL,
        capabilityUpdateRequirement     CapabilityUpdateRequirement      OPTIONAL,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-1 ::=                     SEQUENCE {
-- ANSI-41 IEs
        ansi-41-RAND-Information        ANSI-41-RAND-Information,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-2 ::=                     SEQUENCE {
-- ANSI-41 IEs
        ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-3 ::=                     SEQUENCE {
-- ANSI-41 IEs
        ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

SysInfoType13-4 ::=                     SEQUENCE {
-- ANSI-41 IEs
        ansi-41-GlobalServiceRedirectInfo ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism
        non-Release99-Information       SEQUENCE {}                OPTIONAL
}

```



```

}

SysInfoType14 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
  -- Physical channel IEs
  primaryCCPCH-TX-Power                         PrimaryCCPCH-TX-Power      OPTIONAL,
  individualTS-InterferenceList                 IndividualTS-InterferenceList,
  rach-ConstantValue                            ConstantValue               OPTIONAL,
  dpch-ConstantValue                            ConstantValue               OPTIONAL,
  usch-ConstantValue                            ConstantValue               OPTIONAL,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                OPTIONAL
}

SysInfoType15 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
  -- Measurement IEs
  lcs-GPS-Assistance                           LCS-GPS-AssistanceSIB      OPTIONAL,
  lcs-OTDOA-Assistance                         LCS-OTDOA-AssistanceSIB    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                OPTIONAL
}

SysInfoType16 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList                             SIB-ReferenceList           OPTIONAL,
  -- Radio bearer IEs
  preDefinedRadioConfigurations                PreDefRadioConfigurationList,
  -- Transport channel IEs
  preDefTransChConfiguration                   PreDefTransChConfiguration,
  -- Physical channel IEs
  preDefPhyChConfiguration                     PreDefPhyChConfiguration,
  -- Extension mechanism
  non-Release99-Information                     SEQUENCE {}                OPTIONAL
}

SystemType ::=                                 ENUMERATED {
  gsm, cdma2000,
  spare1, spare2, spare3, spare4,
  spare5, spare6, spare7, spare8,
  spare9, spare10, spare11,
  spare12, spare13, spare14 }

```

END

<h2 style="margin: 0;">CHANGE REQUEST</h2>				<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>	
<b>25.331</b>		<b>CR</b>		<b>285r2</b>	
<small>GSM (AA.BB) or 3G (AA.BBB) specification number ↑</small>				<small>↑ CR number as allocated by MCC support team</small>	
For submission to: <b>TSG-RAN #8</b>		for approval <input checked="" type="checkbox"/>		strategic <input type="checkbox"/>	
<small>list expected approval meeting # here ↑</small>		for information <input type="checkbox"/>		non-strategic <input type="checkbox"/> <small>(for SMG use only)</small>	

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

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

**Source:**    TSG-RAN WG2    **Date:**    22<sup>nd</sup> May, 2000

**Subject:**    Re-establishment timer

**Work item:**    \_\_\_\_\_

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

**Reason for change:**

- (1) Based on R2-000660 (Source:Nokia), new concept of T314 and T315 were introduced for re-establishment timer. Basic idea of this concept was that the U-plane using UM/TM-RLC mode uses T314 and the U-plane using AM-RLC mode uses T315. Currently, IE "Re-Establishment timer" is present in a lot of messages (Source: Ericsson & DoCoMo) and this is coming from the concept that T314 can be modified during the UE in connected mode. Considering the 2 concepts, This CR is proposed to merge them.
- (2) 2 timers are used in one UE.
- (3) The values of these timers are broadcasted in SYSTEM INFORMATION. The value ranges of T314,T315 in IE "UE Timers and Constants in connected mode " are modified.
- (4) UTRAN can update these timers by using dedicated message during connected mode. The value of timers shall not be updated in UE locally by decoding SYSTEM INFORMATION during connected mode.
- (5) Which timer to use for RBs is indicated from UTRAN when allocating RAB.
- (6) T314 is used for SRBs.
- (7) IE "Re-establishment timer" is removed from all the messages.
- (8) IE "Re-establishment timer" is added-moved into IE "RAB Info" in IE "RAB information for setup" in RB SETUP message and RRC CONNECTION RE-ESTABLISHMENT message.
- (9) The value ranges in section 13.1 and section 13.3 are removed since there are

inconsistency between them and the value ranges in 10.3.3.42/43.

Revision 1: There were mismatch between ASN.1 description and proposed changes. These are aligned. Also, ASN.1 syntax error was fixed.

**Clauses affected:** 8.1.5, 10.2.18, 10.2.18, 10.2.23, 10.2.26, 10.2.29, 10.2.35, 10.2.42, 10.2.51, 10.3.3.31, 10.3.4.8, 10.3.3.42, 13.1, 13.3

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

**Other comments:**



help.doc

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

## 8.1.5 RRC connection re-establishment

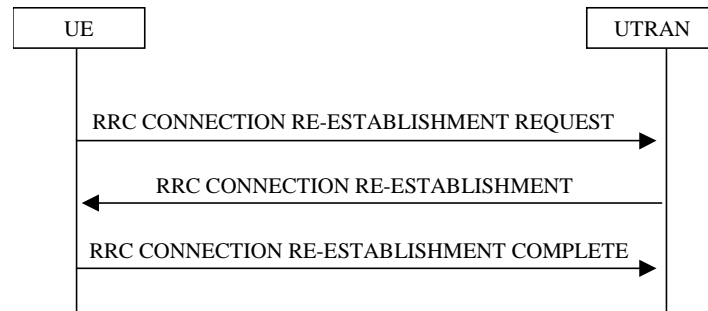


Figure 9: RRC Connection Re-establishment, successful case

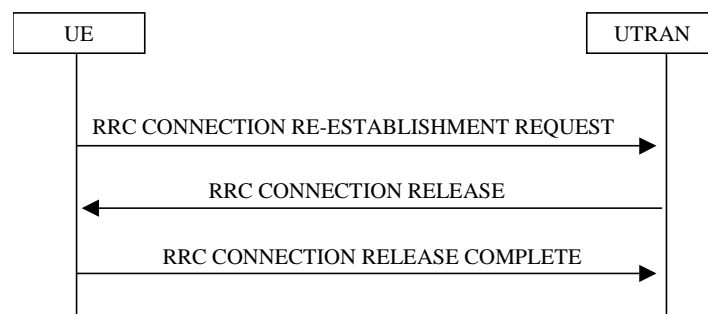


Figure 10: RRC Connection Re-establishment, failure case

### 8.1.5.1 General

The purpose of this procedure is to re-establish a lost RRC connection.

### 8.1.5.2 Initiation

When a UE loses the radio connection due to e.g. radio link failure (see 8.5.6) in CELL\_DCH state, the UE may initiate a new cell selection by transiting to CELL\_FACH state.

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

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

If timer T314>0 the UE shall:

- Release locally all radio bearers (except Signalling Radio Bearers) [using Tr or UM RLC which are associated with T314](#). An indication may be sent to the non-access stratum.

If timer T315>0 the UE shall:

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

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

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

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

### 8.1.5.3 Detection of "in service area"

If the UE detects "in service area"(see 8.5.10), it shall:

- Set the IE "U-RNTI" to the value stored in the UE.
- If the value of the variable `PROTOCOL_ERROR_INDICATOR` is TRUE, set the IE "Protocol error indicator" to TRUE and include the IE "Protocol error information" set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.

- If the value of the variable `PROTOCOL_ERROR_INDICATOR` is `FALSE`, set the IE "Protocol error indicator" to `FALSE`.
- Include an IE "Measured Results", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 12.
- Transmit an `RRC CONNECTION RE-ESTABLISHMENT REQUEST` message on the uplink `CCCH` and start timer `T301`.

#### 8.1.5.4 Reception of an `RRC CONNECTION RE-ESTABLISHMENT REQUEST` message by the UTRAN

UTRAN may either:

- initiate the `RRC connection re-establishment` procedure and transmit an `RRC CONNECTION RE-ESTABLISHMENT` message on the downlink `DCCH` on `FACH`; or
- initiate the `RRC connection release` procedure in `CELL_FACH` state.

#### 8.1.5.5 Reception of an `RRC CONNECTION RE-ESTABLISHMENT` message by the UE

Upon reception of the `RRC CONNECTION RE-ESTABLISHMENT` message the UE shall:

- Stop timer `T301`;
- Re-establish the `RRC connection` according to the IEs included in the `RRC CONNECTION RE-ESTABLISHMENT` message as specified below;
- Transmit a `RRC CONNECTION RE-ESTABLISHMENT COMPLETE` message on the uplink `DCCH` using `AM RLC`;
- If the variable `RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO` is set, the UE shall include and set the IE "Radio bearer uplink ciphering activation time info" to the value of that variable;
- When the transmission of the `RRC CONNECTION RE-ESTABLISHMENT COMPLETE` message has been confirmed by `RLC`, the UE shall clear the variable `RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO` and the procedure ends.

The UE shall use the contents of the `RRC CONNECTION RE-ESTABLISHMENT` message as specified in subclause 8.5.7, unless specified otherwise in the following:

- For each reconfigured radio bearer use the mapping option applicable for the transport channels used according to the IE "RB mapping info";
- Configure `MAC multiplexing` if that is needed in order to use said transport channel(s);
- Use `MAC logical channel priority` when selecting `TFC` in `MAC`.

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

- Let the physical channel of type `PRACH` that is given in system information Block Type 6 be the default in uplink. If system information block type 6 is not present in the cell, the UE shall let the physical channel of type `PRACH` given in system information block type 5 be the default in uplink.

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

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

The UE shall use the transport channel(s) applicable for the physical channel types that is used. If the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s), the UE shall:

- Use the `TFS` given in system information.

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

- Delete the stored `TFS` and use the `TFS` given in system information.

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

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

If the IE "New U-RNTI" is included, the UE shall update its identity.

If the IEs "CN domain identity" and "NAS system information" are included, the UE shall:

- Forward the content of the IE to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

The UE shall enter a state according to 8.5.8.

#### 8.1.5.6 T314 timeout

Upon expiry of timer T314 the UE shall:

If timer T301 is running,

- Continue awaiting response message from UTRAN

If timer T301 is not running and timer T315 is running,

- Release locally all radio bearers (except Signalling Radio Bearers) [which are associated with T314 using Tr or UM RLC](#). An indication may be sent to the non-access stratum.

If timers T301 and T315 are not running,

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

#### 8.1.5.7 T315 timeout

Upon expiry of timer T315 the UE shall:

If timer T301 is running,

- Continue awaiting response message from UTRAN.

If timer T301 is not running and timer T314 is running,

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

If timers T301 and T314 are not running,

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

#### 8.1.5.8 Invalid RRC CONNECTION RE-ESTABLISHMENT message

If the UE receives an RRC CONNECTION RE-ESTABLISHMENT message, which contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 16, the UE shall perform procedure specific error handling as follows:

The UE shall check the value of `V301`, and

- If `V301` is equal to or smaller than `N301`, the UE shall set the variable `PROTOCOL_ERROR_INDICATOR` to `TRUE`, transmit a new RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH, restart timer T301 and increase counter `V301`. The UE shall set the IEs in the RRC CONNECTION RE-ESTABLISHMENT REQUEST message according to subclause 8.1.5.2.
- If `V301` is greater than `N301`, the UE shall enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

#### 8.1.5.9 T301 timeout or DPCH failure

Upon expiry of timer T301, or if the UE failed to re-establish the RRC Connection indicated in the RRC CONNECTION RE-ESTABLISHMENT message the UE shall:

If timers T314 and T315 are not running,

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

If timer T314 has expired during the last T301 cycle and T315 is still running,

- Release locally all radio bearers (except Signalling Radio Bearers) [which are associated with T314 using Tr or UM RLC](#). An indication may be sent to the non-access stratum.

If timer T315 has expired during the last T301 cycle and T314 is still running,

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

The UE shall re-check whether it is still in "in service area" (see 8.5.10).

If the UE still finds "in service area", it shall:

- Set the IEs in the RRC CONNECTION RE-ESTABLISHMENT REQUEST message according to subclause 8.1.5.3.
- Transmit a new RRC CONNECTION RE-ESTABLISHMENT REQUEST message on the uplink CCCH and restart timer T301.

If the UE does not find "in service area", it shall:

- Continue searching for "in service area".

#### 8.1.5.10 Reception of an RRC CONNECTION RE-ESTABLISHMENT COMPLETE message by the UTRAN

When UTRAN has received the RRC CONNECTION RE-ESTABLISHMENT COMPLETE message, the procedure ends on the UTRAN side.

## 10.2.18 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.  
RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
<a href="#">Re-establishment timer</a>	<a href="#">MD</a>		<a href="#">Re-establishment timer 10.3.3.31</a>	<a href="#">Default value is the existing value of the re-establishment timer</a>
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB information elements</b>				
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing value of the maximum allowed UL TX power
CHOICE <i>channel requirement</i>	OP			At least one criticality=reject spare value needed for future extension
>Uplink DPCH info			Uplink	



Information Element	Need	Multi	Type and reference	Semantics description
			DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
> TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up

## 10.2.23 RADIO BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
<a href="#">Re-establishment timer</a>	<a href="#">MD</a>		<a href="#">Re-establishment timer 10.3.3.31</a>	<a href="#">Default value is the existing value of the re-establishment timer</a>
<b>CN information elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB information elements</b>				
RB information to reconfigure list	MP	1 to <MaxReconRBCount >		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel	OP		UL Transport	

Information Element	Need	Multi	Type and reference	Semantics description
information common for all transport channels			channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
> Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum	Default value is the existing

Information Element	Need	Multi	Type and reference	Semantics description
			allowed UL TX power 10.3.6.27	maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRLcount</i>	Maximum number of radio links
<i>MaxOtherRBcount</i>	Maximum number of RBs to be affected
<i>MaxReconfRBcount</i>	Maximum number of RBs to be reconfigured
<i>MaxDelTrCHcount</i>	Maximum number of Transport Channels to be removed
<i>MaxReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure
<i>MaxDRACReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure for DRAC
<i>MaxSysInfoBlockFACHCount</i>	Maximum number of references to system information blocks on the FACH

## 10.2.26 RADIO BEARER RELEASE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB Information Elements</b>				
RB information to release list	MP	1 to <MaxRelR Bcount>		
>RB information to release	MP		RB information to release 10.3.4.14	
RB information to be affected list	OP	1 to <MaxOther RBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information	

Information Element	Need	Multi	Type and reference	Semantics description
			common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power	Default value is the existing maximum UL TX power

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.6.27	
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRLcount</i>	Maximum number of radio links
<i>MaxRelRBcount</i>	Maximum number of RBs to be released
<i>MaxOtherRBcount</i>	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure
<i>MaxDelTrCHcount</i>	Maximum number of Transport CHannels to be removed
<i>MaxSysInfoBlockFACHCount</i>	Maximum number of references to system information blocks on the FACH
<i>MaxReconfAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure
<i>MaxDRACReconAddTrCHCount</i>	Maximum number of transport channels to add and reconfigure for DRAC

## 10.2.29 RADIO BEARER SETUP

NOTE: Functional description of this message to be included here.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
<a href="#">Re-establishment timer</a>	<a href="#">MD</a>		<a href="#">Re-establishment timer</a> <a href="#">10.3.3.31</a>	<a href="#">Default value is the existing value of the re-establishment timer</a>
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB Information Elements</b>				
Signalling RB information to setup list	OP	1 to <MaxSRBcount>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information to setup list	MP	1 to <MaxRABcount>		For each RAB established
>RAB information for setup	MP		RAB information to setup 10.3.4.9	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information	



Information Element	Need	Multi	Type and reference	Semantics description
			to be affected 10.3.4.12	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	

Information Element	Need	Multi	Type and reference	Semantics description
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport Channels to be removed
MaxReconfAddcount	Maximum number of Transport Channels reconfigured or added
MaxDRACReconfAddcount	Maximum number of Transport Channels reconfigured or added for DRAC
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxRBcount	Maximum number of RBs pre RAB that could be setup with this message
MaxOtherRBcount	Maximum number of Other RBs (i.e., RBs not being released) affected by the procedure

## 10.2.35 RRC CONNECTION RE-ESTABLISHMENT

NOTE: Functional description of this message to be included here.

RLC-SAP: UM

Logical channel: CCCH, DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
Re-establishment timer	MD		Re-establishment timer 10.3.3.31	Default value is the existing value of the re-establishment timer
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB Information Elements</b>				
Signalling RB information to setup list	OP	1 to <MaxSRBcount>		For each signalling radio bearer established
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
RAB information for setup list	OP	1 to <MaxRABcount>		For each RAB established
>RAB information for setup	MP		RAB information for setup 10.3.4.9	
RB information to release list	OP	1 to <MaxRelRBCount>		

Information Element	Need	Multi	Type and reference	Semantics description
>RB information to release	MP		RB information to release 10.3.4.14	
RB information to reconfigure list	OP	1 to <MaxReconRBcount>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.13	
RB information to be affected list	OP	1 to <MaxOtherRBcount>		
>RB information to be affected	MP		RB information to be affected 10.3.4.12	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconfAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels	

Information Element	Need	Multi	Type and reference	Semantics description
			10.3.5.7	
Deleted TrCH information list	OP	1 to <MaxDelTrCHCount>		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
			Maximum allowed UL TX power 10.3.6.27	
Maximum allowed UL TX power	MD			Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP		Uplink DPCH info 10.3.6.65	At least one spare choice (criticality = reject) required
>Uplink DPCH info			PRACH Info (for RACH) 10.3.6.36	
>PRACH Info (for RACH)				
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPCH SET Info	OP		CPCH SET Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

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

<b>Multi Bound</b>	<b>Explanation</b>
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRABcount	Maximum number of RABs that could be setup with this message
MaxSetupRBcount	Maximum number of RBs to be setup
MaxRelRBcount	Maximum number of RBs to be released
MaxReconRBcount	Maximum number of RBs to be reconfigured
MaxOtherRBcount	Maximum number of RBs to be affected.
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconfAddTrCHCount	Maximum number of transport channels to add and reconfigure
MaxDRACReconAddTrCHCount	Maximum number of transport channels to add and reconfigure for DRAC
MaxRLcount	Maximum number of radio links

## 10.2.42 RRC CONNECTION SETUP

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

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	MP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
UTRAN DRX cycle length coefficient	MP		DRX cycle length coefficient 10.3.3.9	
<del>Re-establishment timer</del>	<del>MD</del>		<del>Re-establishment timer 10.3.3.31</del>	<del>Default value is the existing value of the re-establishment timer</del>
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.3
<b>RB Information Elements</b>				
Signalling RB information to setup list	MP	3 to 4		Information for signalling radio bearers, in the order RB 0 up to 3.
>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.19	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCH Count>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
<b>Downlink transport channels</b>				
DL Transport channel information common for all	OP		DL Transport channel	

Information Element	Need	Multi	Type and reference	Semantics description
transport channels			information common for all transport channels 10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
MaxReconfAddTrCHCount	Maximum number of new transport channels to set
MaxRLcount	Maximum number of radio links to be set up



## 10.2.51 TRANSPORT CHANNEL RECONFIGURATION

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

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE Information Elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.45	
New C-RNTI	OP		C-RNTI 10.3.3.7	
DRX Indicator	MP		DRX Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		DRX cycle length coefficient 10.3.3.9	Default value is the existing value of UTRAN DRX cycle length coefficient
<del>Re-establishment timer</del>	<del>MD</del>		<del>Re-establishment timer 10.3.3.31</del>	<del>Default value is the existing value of the re-establishment timer</del>
<b>CN Information Elements</b>				
CN Information info	OP		CN Information info 10.3.1.3	
<b>RB information elements</b>				
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCount>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	
<b>TrCH Information Elements</b>				
<b>Uplink transport channels</b>				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.21	
Added or Reconfigured TrCH information list	MP	1 to <MaxReco		

Information Element	Need	Multi	Type and reference	Semantics description
		nfAddTrCH Count>		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.4	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <MaxDRACReconAddTrCHCount>		
>>>DRAC static information	MP		DRAC static information 10.3.5.8	
>TDD				(no data)
<b>Downlink transport channels</b>				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.7	
Added or Reconfigured TrCH information list	MP	1 to <MaxReconfAddTrCHCount>		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
<b>PhyCH information elements</b>				
Frequency info	MD		Frequency info 10.3.6.24	Default value is the existing value of frequency information
<b>Uplink radio resources</b>				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			At least one spare choice (criticality = reject) required
>Uplink DPCH info			Uplink DPCH info 10.3.6.65	
>PRACH Info (for RACH)			PRACH Info (for RACH) 10.3.6.36	
<b>Downlink radio resources</b>				
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.17	
Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.21	
CHOICE <i>mode</i>	MP			

Information Element	Need	Multi	Type and reference	Semantics description
>FDD				
>>CPCH set Info	OP		CPCH set Info 10.3.6.11	
>TDD				(no data)
Downlink information per radio link list	OP	1 to <MaxRLcount>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.18	

Multi Bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured
<i>MaxRLcount</i>	Maximum number of radio links to be set up
<i>MaxReconAddCount</i>	Maximum number of Transport Channels reconfigured or added
<i>MaxDRACReconAddCount</i>	Maximum number of Transport Channels reconfigured or added for DRAC

### 10.3.3.31 Re-establishment timer

This information element indicates which timer to associate with RAB. SRBs are associated with T314. IE “T314 value” and IE “T315 value” are used to update timer value stored in the UE. The value of timers shall be updated in UE locally by decoding SYSTEM INFORMATION during connected mode. s T314 and T315.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>CHOICE Timer value</u>	<u>MP</u>			
<u>&gt;T314</u>				
<u>&gt;&gt;T314 value</u>	<u>OP</u>		<u>Enumerated(0, 2, 4, 6, 8, 12, 16, 20)</u>	
<u>&gt;T315</u>				
<u>&gt;&gt;T315 value</u>	<u>OP</u>		<u>Enumerated(0,10, 30, 60, 180, 600, 1200, 1800)</u>	
<u>T314</u>	<u>MP</u>		<u>Enumerated(0, 10, 20, 30,60, 180, 600, 1200, 1800)</u>	<u>Maximum RRC Connection re-establishment time for radio bearers using Tr and UM RLC. Value in seconds</u>
<u>T315</u>	<u>MP</u>		<u>Enumerated(0,10, 30, 60, 180, 600, 1200, 1800)</u>	<u>Maximum RRC Connection re-establishment time for radio bearers using AM RLC. Value in seconds</u>

### 10.3.4.8 RAB info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB identity	MP		RAB identity 10.3.1.14	
CN domain identity	MP		CN domain identity 10.3.1.1	
<a href="#">Re-establishment timer</a>	<a href="#">MP</a>		<a href="#">Re-establishment timer</a> <a href="#">10.3.3.31</a>	

#### 10.3.3.42 UE Timers and Constants in connected mode

This information element indicates timers and constants used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MP		Integer(1...8)	Value in seconds
T302	MP		Integer(1...8)	Value in seconds
N302	MP		Integer(1..8)	
T303	MP		Integer(1...8)	Value in seconds
N303	MP		Integer(1..8)	
T304	MP		Integer(10, 200, 400, 1000, 2000)	Value in milliseconds At least 3 spare values are needed Criticality: reject is needed
N304	MP		Integer(1..8)	
T305	MP		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T306	MP		Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes
T307	MP		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds At least 1 spare value needed Criticality: reject is needed
T308	MP		Integer(40, 80, 160, 320)	Value in milliseconds
T309	MP		Integer(1...8)	Value in seconds
T310	MP		Integer(40 .. 320 by step of 40)	Value in milliseconds
N310	MP		Integer(1 .. 8)	
T311	MP		Integer(250 .. 2000 by step of 250)	Value in milliseconds
T312	MP		Integer (0..15)	Value in seconds
N312	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	
T313	MP		Integer (0..15)	Value in seconds
N313	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	
T314	MP		Enumerated(0, <a href="#">2,4,6,8,12,16,20,40,</a> <a href="#">20, 30, 60,</a> <a href="#">180, 600,</a>	Value in seconds

			4200, 4800)	
T315	MP		Enumerated (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds
N315	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	

## 11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

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

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-CycleLengthCoefficient,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Capability,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RLC-ReconfigurationIndicator,
    RRC-MessageTX-Count,
    U-RNTI,
    U-RNTI-Short,

```

UE-RadioAccessCapability,  
URA-UpdateCause,  
WaitTime  
FROM UserEquipment-IEs

PredefinedConfigIdentity,  
RAB-Info,  
RAB-InformationSetupList,  
RB-ActivationTimeInfo,  
RB-ActivationTimeInfoList,  
RB-InformationAffectedList,  
RB-InformationReconfigList,  
RB-InformationReleaseList,  
RB-InformationSetupList,  
RB-WithPDCP-InfoList,  
SRB-InformationSetupList,  
SRB-InformationSetupList2  
FROM RadioBearer-IEs

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

AllocationPeriodInfo,  
CCTrCH-PowerControlInfo,  
ConstantValue,  
CPCH-SetInfo,  
DL-CommonInformation,  
DL-InfoPerRL-List,  
DL-InformationPerRL,  
DL-InformationPerRL-List,  
DL-DPCH-InfoCommon,  
DL-DPCH-PowerControlInfo,  
DL-OuterLoopControl,  
DL-PDSCH-Information,  
FrequencyInfo,  
IndividualTS-InterferenceList,  
MaxAllowedUL-TX-Power,  
PDSCH-Info,  
PRACH-RACH-Info,  
PrimaryCCPCH-TX-Power,  
PUSCH-Info,  
RL-AdditionInformationList,  
RL-RemovalInformationList,  
UL-DPCH-InfoShort,  
SSDT-Information,  
TFC-ControlDuration,  
TimeslotList,  
TX-DiversityMode,  
UL-ChannelRequirement,  
UL-DPCH-Info,  
UL-DPCH-InfoHO,  
UL-Interference,  
UL-TimingAdvance  
FROM PhysicalChannel-IEs

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

BCCH-ModificationInfo,

```

InterSystemHO-Failure,
InterSystemMessage,
ProtocolErrorInformation,
SegCount,
SegmentIndex,
SFN-Prime,
SIB-Content,
SIB-Data,
SIB-Type
FROM Other-IEs;

```

```

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

```

```

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  newU-RNTI                       U-RNTI                          OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo                OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList             OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power            OPTIONAL,
  rl-AdditionInformationList      RL-AdditionInformationList        OPTIONAL,
  rl-RemovalInformationList       RL-RemovalInformationList         OPTIONAL,
  tx-DiversityMode                TX-DiversityMode                 OPTIONAL,
  ssdt-Information                SSDT-Information                 OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo       OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList             OPTIONAL,
  -- Extension mechanism
  non-Release99-Information       SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                     FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                            U-RNTI,
  am-RLC-ErrorIndication             BOOLEAN,
  cellUpdateCause                    CellUpdateCause,
  protocolErrorIndicator              ProtocolErrorIndicatorWithInfo,

```



```

-- TABULAR: Protocol error information is nested in
-- ProtocolErrorIndicatorWithInfo.
-- Measurement IEs
  measuredResultsOnRACH          MeasuredResultsOnRACH          OPTIONAL,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

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

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  new-U-RNTI                     U-RNTI                       OPTIONAL,
  new-C-RNTI                     C-RNTI                       OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient    OPTIONAL,
  rlc-ReconfIndicatorC-Plane     RLC-ReconfigurationIndicator,
  rlc-ReconfIndicatorU-Plane     RLC-ReconfigurationIndicator,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo            OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                   URA-Identity                  OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList         OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power        OPTIONAL,
  prach-RACH-Info                PRACH-RACH-Info              OPTIONAL,
  dl-InformationPerRL            DL-InformationPerRL           OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

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

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  cn-DomainIdentity              CN-DomainIdentity,
  nas-Message                    NAS-Message,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

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

DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IEs
  dl-OuterLoopControl            DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo       DL-DPCH-PowerControlInfo     OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

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

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                    U-RNTI-Short,
  activationTime                 ActivationTime                  OPTIONAL,
  cipheringAlgorithm             CipheringAlgorithm             OPTIONAL,
  -- Radio bearer IEs

```

```

    rab-Info                RAB-Info,
-- Specification mode information
    specificationMode       CHOICE {
        complete            SEQUENCE {
            srb-InformationSetupList    SRB-InformationSetupList,
            rb-InformationSetupList     RB-InformationSetupList,
            ul-CommonTransChInfo       UL-CommonTransChInfo,
            ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo       DL-CommonTransChInfo,
            dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
            ul-DPCH-Info                UL-DPCH-InfoHO,
            dl-CommonInformation        DL-CommonInformation,
            dl-PDSCH-Information        DL-PDSCH-Information    OPTIONAL,
            modeSpecificInfo           CHOICE {
                fdd                SEQUENCE {
                    cpch-SetInfo    CPCH-SetInfo    OPTIONAL
                },
                tdd                NULL
            },
            dl-InformationPerRL-List    DL-InformationPerRL-List
        },
        preconfiguration            SEQUENCE {
            predefinedConfigIdentity    PredefinedConfigIdentity,
            ul-DPCH-Info                UL-DPCH-InfoShort,
            dl-DPCH-InfoCommon          DL-DPCH-InfoCommon,
            dl-InfoPerRL-List          DL-InfoPerRL-List
        }
    },
-- Physical channel IEs
    frequencyInfo            FrequencyInfo,
    maxAllowedUL-TX-Power    MaxAllowedUL-TX-Power,
    modeSpecificPhysChInfo   CHOICE {
        fdd                NULL,
        tdd                SEQUENCE {
            primaryCCPCH-TX-Power    PrimaryCCPCH-TX-Power,
            constantValue            ConstantValue,
            ul-Interference          UL-Interference,
            cellParametersID         INTEGER (0..127)
        }
    },
-- Extension mechanism
    non-Release99-Information SEQUENCE {}    OPTIONAL
}

-- *****
--
-- HANOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionHFN    HyperFrameNumber,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}    OPTIONAL
}

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

InitialDirectTransfer ::= SEQUENCE {
-- Core network IEs
    serviceDescriptor        ServiceDescriptor,
    flowIdentifier            FlowIdentifier,
    cn-DomainIdentity         CN-DomainIdentity,
    nas-Message               NAS-Message,
-- Measurement IEs
    measuredResultsOnRACH     MeasuredResultsOnRACH    OPTIONAL,
-- Extension mechanism
    non-Release99-Information SEQUENCE {}    OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANOVER COMMAND

```

```

--
-- *****
InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IEs
  activationTime           ActivationTime           OPTIONAL,
  -- Radio bearer IEs
  remainingRAB-Info       RAB-Info                 OPTIONAL,
  -- Other IEs
  interSystemMessage      InterSystemMessage,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}
-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IEs
  interSystemHO-Failure   InterSystemHO-Failure   OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}
-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber MeasurementIdentityNumber,
  measurementCommand       MeasurementCommand,
  -- TABULAR: The measurement type is included in MeasurementCommand.
  measurementReportingMode MeasurementReportingMode   OPTIONAL,
  additionalMeasurementList AdditionalMeasurementID-List   OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}
-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause            FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}
-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber MeasurementIdentityNumber,
  measuredResults          MeasuredResults          OPTIONAL,
  additionalMeasuredResults MeasuredResultsList    OPTIONAL,
  eventResults             EventResults             OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}
-- *****
--
-- PAGING TYPE 1
--
-- *****

```

```

PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList          PagingRecordList          OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo    BCCH-ModificationInfo    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

```

```

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

```

```

PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause              PagingCause,
  -- Core network IEs
  cn-DomainIdentity       CN-DomainIdentity,
  pagingRecordTypeID      PagingRecordTypeID,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

```

```

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

```

```

PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo          OPTIONAL,
  activationTime              ActivationTime              OPTIONAL,
  new-U-RNTI                  U-RNTI                  OPTIONAL,
  new-C-RNTI                  C-RNTI                  OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient  OPTIONAL,
  re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
  -- Core network IEs
  cn-InformationInfo         CN-InformationInfo         OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList      RB-WithPDCP-InfoList      OPTIONAL,
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation       DL-CommonInformation       OPTIONAL,
  dl-PDSCH-Information       DL-PDSCH-Information       OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      SEQUENCE {
      cpch-SetInfo          CPCH-SetInfo          OPTIONAL
    },
    tdd                      NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

```

```

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

```

```

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance      UL-TimingAdvance      OPTIONAL
    }
  }
}

```

```

    },
-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo    OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList    OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                OPTIONAL
}

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
  failureCause                    FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                OPTIONAL
}

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

PhysicalSharedChannelAllocation ::= SEQUENCE {
-- User equipment IEs
  c-RNTI                          C-RNTI,
-- Physical channel IEs
  ul-TimingAdvance                UL-TimingAdvance        OPTIONAL,
  allocationPeriodInfo            AllocationPeriodInfo    OPTIONAL,
  pusch-Info                      PUSCH-Info              OPTIONAL,
  pdsch-Info                      PDSCH-Info              OPTIONAL,
  timeslotList                    TimeslotList             OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                OPTIONAL
}

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

PUSCHCapacityRequest ::= SEQUENCE {
-- User equipment IEs
  c-RNTI                          C-RNTI,
-- Measurement IEs
  trafficVolumeMeasuredResultsList
                                TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP           TimeslotListWithISCP    OPTIONAL,
  primaryCCPCH-RSCP              PrimaryCCPCH-RSCP       OPTIONAL,
-- Extension mechanism
  non-Release99-Information       SEQUENCE {}                OPTIONAL
}

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

RadioBearerReconfiguration ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo               CipheringModeInfo              OPTIONAL,
  activationTime                   ActivationTime                  OPTIONAL,
  new-U-RNTI                       U-RNTI                        OPTIONAL,
  new-C-RNTI                       C-RNTI                         OPTIONAL,
  drx-Indicator                    DRX-Indicator,
  utran-DRX-CycleLengthCoeff       DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer      Re-EstablishmentTimer    OPTIONAL,
-- Core network IEs
  cn-InformationInfo               CN-InformationInfo            OPTIONAL,
-- Radio bearer IEs

```

```

        rb-InformationReconfigList      RB-InformationReconfigList,
        rb-InformationAffectedList     RB-InformationAffectedList      OPTIONAL,
-- Transport channel IEs
    ul-CommonTransChInfo              UL-CommonTransChInfo            OPTIONAL,
    ul-deletedTransChInfoList         UL-DeletedTransChInfoList       OPTIONAL,
    ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList     OPTIONAL,
    modeSpecificTransChInfo           CHOICE {
        fdd                            SEQUENCE {
            cpch-SetID                 CPCH-SetID                      OPTIONAL,
            addReconfTransChDRAC-Info   DRAC-StaticInformationList     OPTIONAL
        },
        tdd                            NULL
    }
    dl-CommonTransChInfo              DL-CommonTransChInfo            OPTIONAL,
    dl-DeletedTransChInfoList         DL-DeletedTransChInfoList       OPTIONAL,
    dl-AddReconfTransChInfoList       DL-AddReconfTransChInfo2List    OPTIONAL,
-- Physical channel IEs
    frequencyInfo                    FrequencyInfo                    OPTIONAL,
    maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power           OPTIONAL,
    ul-ChannelRequirement             UL-ChannelRequirement           OPTIONAL,
    dl-CommonInformation              DL-CommonInformation            OPTIONAL,
    dl-PDSCH-Information              DL-PDSCH-Information            OPTIONAL,
    modeSpecificPhysChInfo           CHOICE {
        fdd                            SEQUENCE {
            cpch-SetInfo               CPCH-SetInfo                    OPTIONAL
        },
        tdd                            NULL
    },
    dl-InformationPerRL-List          DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo       IntegrityProtActivationInfo     OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                          NULL,
        tdd                          SEQUENCE {
            ul-TimingAdvance          UL-TimingAdvance               OPTIONAL
        }
    },
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfo          OPTIONAL,
-- Extension mechanism
    non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                     FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

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

```

```

RadioBearerRelease ::= SEQUENCE {
-- User equipment IEs
    integrityProtectionModeInfo      IntegrityProtectionModeInfo     OPTIONAL,
    cipheringModeInfo               CipheringModeInfo               OPTIONAL,
    activationTime                   ActivationTime                   OPTIONAL,
}

```

```

new-U-RNTI          U-RNTI          OPTIONAL,
new-C-RNTI          C-RNTI          OPTIONAL,
drx-Indicator       DRX-Indicator,
utran-DRX-CycleLengthCoeff  DRX-CycleLengthCoefficient  OPTIONAL,
re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
-- Core network IEs
  cn-InformationInfo  CN-InformationInfo  OPTIONAL,
-- Radio bearer IEs
  rb-InformationReleaseList  RB-InformationReleaseList,
  rb-InformationAffectedList  RB-InformationAffectedList  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo  UL-CommonTransChInfo  OPTIONAL,
  ul-deletedTransChInfoList  UL-DeletedTransChInfoList  OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo  CHOICE {
    fdd  SEQUENCE {
      cpch-SetID  CPCH-SetID  OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd  NULL
  }
  dl-CommonTransChInfo  DL-CommonTransChInfo  OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfo2List  OPTIONAL,
-- Physical channel IEs
  frequencyInfo  FrequencyInfo  OPTIONAL,
  maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power  OPTIONAL,
  ul-ChannelRequirement  UL-ChannelRequirement  OPTIONAL,
  dl-CommonInformation  DL-CommonInformation  OPTIONAL,
  dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL,
  modeSpecificPhysChInfo  CHOICE {
    fdd  SEQUENCE {
      cpch-SetInfo  CPCH-SetInfo  OPTIONAL
    },
    tdd  NULL
  },
  dl-InformationPerRL-List  DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}  OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
  modeSpecificInfo  CHOICE {
    fdd  NULL,
    tdd  SEQUENCE {
      ul-TimingAdvance  UL-TimingAdvance  OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo  OPTIONAL,
  rb-WithPDCP-InfoList  RB-WithPDCP-InfoList  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}  OPTIONAL
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause  FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information  SEQUENCE {}  OPTIONAL
}

-- *****
--

```

```

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

RadioBearerSetup ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  activationTime                  ActivationTime                    OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient      OPTIONAL,
  re-EstablishmentTimer      Re-EstablishmentTimer      OPTIONAL,
  -- Core network IEs
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList        SRB-InformationSetupList        OPTIONAL,
  rab-InformationSetupList        RAB-InformationSetupList,
  rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo            UL-CommonTransChInfo            OPTIONAL,
  ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
  ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
  modeSpecificTransChInfo         CHOICE {
    fdd                            SEQUENCE {
      cpch-SetID                   CPCH-SetID                       OPTIONAL,
      addReconfTransChDRAC-Info     DRAC-StaticInformationList       OPTIONAL
    },
    tdd                            NULL
  }
  dl-CommonTransChInfo            DL-CommonTransChInfo            OPTIONAL,
  dl-DeletedTransChInfoList        DL-DeletedTransChInfoList        OPTIONAL,
  dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList      OPTIONAL,
  -- Physical channel IEs
  frequencyInfo                   FrequencyInfo                     OPTIONAL,
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
  ul-ChannelRequirement            UL-ChannelRequirement            OPTIONAL,
  dl-CommonInformation             DL-CommonInformation             OPTIONAL,
  dl-PDSCH-Information             DL-PDSCH-Information             OPTIONAL,
  modeSpecificPhysChInfo          CHOICE {
    fdd                            SEQUENCE {
      cpch-SetInfo                 CPCH-SetInfo                     OPTIONAL
    },
    tdd                            NULL
  },
  dl-InformationPerRL-List         DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                      OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo       IntegrityProtActivationInfo       OPTIONAL,
  modeSpecificInfo                 CHOICE {
    fdd                            NULL,
    tdd                            SEQUENCE {
      ul-TimingAdvance             UL-TimingAdvance                 OPTIONAL
    }
  },
  hyperFrameNumber                 HyperFrameNumber,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfo             OPTIONAL,
  -- Extension mechanism
  non-Release99-Information        SEQUENCE {}                      OPTIONAL
}

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

```



```

RadioBearerSetupFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

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

RNTIReallocation ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo             OPTIONAL,
  new-U-RNTI                 U-RNTI                       OPTIONAL,
  new-C-RNTI                 C-RNTI                       OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient    OPTIONAL,
  -- CN information elements
  cn-InformationInfo         CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList      RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

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

RNTIReallocationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo  OPTIONAL,
  rb-WithPDCP-InfoList        RB-WithPDCP-InfoList          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

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

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

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

RRCConnectionReEstablishment ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo             OPTIONAL,
  activationTime             ActivationTime                 OPTIONAL,
  new-U-RNTI                 U-RNTI                       OPTIONAL,
  new-C-RNTI                 C-RNTI                       OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
  -- Core network IEs
  cn-InformationInfo         CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs

```

```

srb-InformationSetupList      SRB-InformationSetupList      OPTIONAL,
rab-InformationSetupList      RAB-InformationSetupList      OPTIONAL,
rb-InformationReleaseList     RB-InformationReleaseList     OPTIONAL,
rb-InformationReconfigList    RB-InformationReconfigList    OPTIONAL,
rb-InformationAffectedList    RB-InformationAffectedList    OPTIONAL,
-- Transport channel IEs
ul-CommonTransChInfo         UL-CommonTransChInfo         OPTIONAL,
ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList   OPTIONAL,
modeSpecificTransChInfo      CHOICE {
    fdd                        SEQUENCE {
        cpch-SetID            CPCH-SetID            OPTIONAL,
        addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                        NULL
},
dl-CommonTransChInfo         DL-CommonTransChInfo         OPTIONAL,
dl-DeletedTransChInfoList     DL-DeletedTransChInfoList     OPTIONAL,
dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList   OPTIONAL,
-- Physical channel IEs
frequencyInfo                 FrequencyInfo                 OPTIONAL,
maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power         OPTIONAL,
ul-ChannelRequirement         UL-ChannelRequirement         OPTIONAL,
dl-CommonInformation          DL-CommonInformation          OPTIONAL,
dl-PDSCH-Information          DL-PDSCH-Information          OPTIONAL,
modeSpecificPhysChInfo      CHOICE {
    fdd                        SEQUENCE {
        cpch-SetInfo          CPCH-SetInfo          OPTIONAL
    },
    tdd                        NULL
},
dl-InformationPerRL-List      DL-InformationPerRL-List,
-- Extension mechanism
non-Release99-Information     SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

```

```

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

```

```

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

```

```

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
-- User equipment IEs
ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,
modeSpecificInfo                CHOICE {
    fdd                          NULL,
    tdd                          SEQUENCE {
        ul-TimingAdvance         UL-TimingAdvance              OPTIONAL
    }
},
-- TABULAR: The choice above is optional in the tabular definitions,
-- but this does not seem to make much sense. Either the choice should
-- be optional and UL-TimingAdvance mandatory inside the TDD choice,
-- but not both.
-- Radio bearer IEs
rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo          OPTIONAL,
rb-WithPDCP-InfoList           RB-WithPDCP-InfoList           OPTIONAL,
-- Extension mechanism
non-Release99-Information       SEQUENCE {}                    OPTIONAL
}

```

```

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

```

```

--
-- *****
RRCConnectionReEstablishmentRequest ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
  -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
  -- optional wastes one bit (using PER) and produces no additional
  -- information.
  -- Measurement IEs
  measuredResultsOnRACH MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                OPTIONAL
}

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

RRCConnectionReject ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity      InitialUE-Identity,
  rejectionCause          RejectionCause,
  waitTime                WaitTime,
  redirectionInfo         RedirectionInfo              OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                OPTIONAL
}

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

RRCConnectionRelease ::= SEQUENCE {
  -- User equipment IEs
  rrc-MessageTX-Count     RRC-MessageTX-Count,
  -- The IE above is conditional on the UE state.
  releaseCause            ReleaseCause,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                OPTIONAL
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                OPTIONAL
}

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

RRCConnectionRequest ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity      InitialUE-Identity,
  initialUE-Capability    InitialUE-Capability,
  establishmentCause      EstablishmentCause,
  protocolErrorIndicator  ProtocolErrorIndicator,
  -- Measurement IEs
  measuredResultsOnRACH   MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}                OPTIONAL
}

-- *****
--

```

```

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

RRCConnectionSetup ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity          InitialUE-Identity,
  activationTime              ActivationTime          OPTIONAL,
  new-U-RNTI                  U-RNTI,
  new-c-RNTI                  C-RNTI              OPTIONAL,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient,
  re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
  capabilityUpdateRequirement CapabilityUpdateRequirement OPTIONAL,
  -- Radio bearer IEs
  re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
  srb-InformationSetupList    SRB-InformationSetupList2,
  -- Transport channel IEs
  ul-CommonTransChInfo        UL-CommonTransChInfo    OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo        DL-CommonTransChInfo    OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
  -- Physical channel IEs
  frequencyInfo                FrequencyInfo          OPTIONAL,
  maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power  OPTIONAL,
  ul-ChannelRequirement        UL-ChannelRequirement  OPTIONAL,
  dl-CommonInformation         DL-CommonInformation  OPTIONAL,
  dl-InformationPerRL-List     DL-InformationPerRL-List  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}          OPTIONAL
}

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

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  hyperFrameNumber            HyperFrameNumber,
  ue-RadioAccessCapability     UE-RadioAccessCapability,
  ue-SystemSpecificCapability  InterSystemMessage    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}          OPTIONAL
}

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

RRCStatus ::= SEQUENCE {
  -- Other IEs
  protocolErrorInformation     ProtocolErrorInformation,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}          OPTIONAL
}

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

SecurityModeCommand ::= SEQUENCE {
  -- User equipment IEs
  cipheringAlgorithm           CipheringAlgorithm,
  cipheringModeInfo            CipheringModeInfo      OPTIONAL,
  integrityProtectionModeInfo  IntegrityProtectionModeInfo OPTIONAL,
  -- Core network IEs
  cn-DomainIdentity            CN-DomainIdentity,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}          OPTIONAL
}

-- *****
--

```

```

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

SecurityModeComplete ::= SEQUENCE {
  -- User equipment IEs
  hyperFrameNumber          HyperFrameNumber          OPTIONAL,
  ul-IntegProtActivationInfo IntegrityProtActivationInfo  OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfoList  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

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

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause              FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

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

SignallingConnectionRelease ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList    SignallingFlowInfoList,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

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

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo          CHOICE {
    fdd                      SFN-Prime,
    tdd                      NULL
  },
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment       SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete         SEQUENCE {
      completeSIB-List      CompleteSIB-List,
      lastSegment           SubsequentOrLastSegment
    },
    completeSIB-List        CompleteSIB-List,
    spare                   NULL
  }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment       SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete         SEQUENCE {

```

```

        completeSIB-List          CompleteSIB-List,
        lastSegment              SubsequentOrLastSegment
    },
    completeSIB-List            CompleteSIB-List,
    spare                       NULL
}

-- *****
--
-- First segment
-- *****

FirstSegment ::=                SEQUENCE {
    -- Other information elements
    sib-Type                    SIB-Type,
    seg-Count                   SegCount,
    sib-Data                    SIB-Data
}

-- *****
--
-- Subsequent or last segment
-- *****

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

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

CompleteSIB-List ::=          SEQUENCE (SIZE(1..16)) OF
                               CompleteSIB

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

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

SystemInformationChangeIndication ::= SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo       BCCH-ModificationInfo,
    -- Extension mechanism
    non-Release99-Information    SEQUENCE {} OPTIONAL
}

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

TransportChannelReconfiguration ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo           CipheringModeInfo           OPTIONAL,
    activationTime              ActivationTime              OPTIONAL,
    new-U-RNTI                  U-RNTI                    OPTIONAL,
    new-C-RNTI                  C-RNTI                    OPTIONAL,
    drx-Indicator               DRX-Indicator,
    utran-DRX-CycleLengthCoeff  DRX-CycleLengthCoefficient OPTIONAL,
    re-EstablishmentTimer Re-EstablishmentTimer OPTIONAL,
}

```

```

-- Core network IEs
cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IEs
rb-WithPDCP-InfoList      RB-WithPDCP-InfoList      OPTIONAL,
-- Transport channel IEs
ul-CommonTransChInfo      UL-CommonTransChInfo      OPTIONAL,
ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
modeSpecificTransChInfo    CHOICE {
    fdd                      SEQUENCE {
        cpch-SetID          CPCH-SetID          OPTIONAL,
        addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                      NULL
}
dl-CommonTransChInfo      DL-CommonTransChInfo      OPTIONAL,
dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
-- Physical channel IEs
frequencyInfo             FrequencyInfo             OPTIONAL,
maxAllowedUL-TX-Power     MaxAllowedUL-TX-Power     OPTIONAL,
ul-ChannelRequirement     UL-ChannelRequirement     OPTIONAL,
dl-CommonInformation      DL-CommonInformation      OPTIONAL,
dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL,
modeSpecificPhysChInfo    CHOICE {
    fdd                      SEQUENCE {
        cpch-SetInfo        CPCH-SetInfo        OPTIONAL
    },
    tdd                      NULL
},
dl-InformationPerRL-List  DL-InformationPerRL-List  OPTIONAL,
-- Extension mechanism
non-Release99-Information  SEQUENCE {}              OPTIONAL
}

```

```

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

```

```

TransportChannelReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
modeSpecificInfo            CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
        ul-TimingAdvance    UL-TimingAdvance            OPTIONAL
    }
},
-- Radio bearer IEs
rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo        OPTIONAL,
rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

```

```

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

```

```

TransportChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
failureCause                 FailureCauseWithProtErr,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}                    OPTIONAL
}

```

```

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

```

```

TransportFormatCombinationControl ::= SEQUENCE {
channelRequirement           CHOICE {
    dpch-TFCS-InUplink       TFC-Subset,
    tfc-ControlDuration       TFC-ControlDuration
}
}

```

```

    },
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
       failureCause                      FailureCauseWithProtErr,
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IEs
       capabilityUpdateRequirement       CapabilityUpdateRequirement,
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
       ue-RadioAccessCapability          UE-RadioAccessCapability                OPTIONAL,
    -- Other IEs
       ue-SystemSpecificCapability       InterSystemMessage                    OPTIONAL,
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
       flowIdentifier                    FlowIdentifier,
       nas-Message                       NAS-Message,
    -- Measurement IEs
       measuredResultsOnRACH             MeasuredResultsOnRACH                OPTIONAL,
    -- Extension mechanism
       non-Release99-Information          SEQUENCE {}                                OPTIONAL
}

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

```



```

UplinkPhysicalChannelControl ::= SEQUENCE {
  -- Physical channel IES
  ccTrCH-PowerControlInfo      CcTrCH-PowerControlInfo      OPTIONAL,
  timingAdvance                 UL-TimingAdvance              OPTIONAL,
  individualTS-InterferenceList IndividualTS-InterferenceList  OPTIONAL,
  rach-ConstantValue            ConstantValue                  OPTIONAL,
  dpch-ConstantValue            ConstantValue                  OPTIONAL,
  usch-ConstantValue            ConstantValue                  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                        OPTIONAL
}

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

URAUUpdate ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                        U-RNTI,
  ura-UpdateCause               URA-UpdateCause,
  protocolErrorIndicator        ProtocolErrorIndicatorWithInfo,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                        OPTIONAL
}

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

URAUUpdateConfirm ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
  cipheringModeInfo             CipheringModeInfo              OPTIONAL,
  new-U-RNTI                    U-RNTI                        OPTIONAL,
  new-C-RNTI                    C-RNTI                        OPTIONAL,
  drx-Indicator                 DRX-Indicator,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient,
  -- CN information elements
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                  URA-Identity                  OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList         RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                        OPTIONAL
}

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

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

```

END

### 11.3.3 User equipment information elements

UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

  CN-DomainIdentity,
  IMEI,
  IMSI-GSM-MAP,

```

```

LAI,
P-TMSI-GSM-MAP,
RAI,
TMSI-GSM-MAP
FROM CoreNetwork-IEs

RB-ActivationTimeInfoList
FROM RadioBearer-IEs

FrequencyInfo
FROM PhysicalChannel-IEs

InterSystemInfo
FROM Measurement-IEs

ProtocolErrorInformation
FROM Other-IEs

maxAlgoTypeCount,
maxDRAC-Classes,
maxFrequencyBandsCount,
maxNoSystemCapability,
maxRAT-Count,
pageCount
FROM Constant-definitions;

ActivationTime ::=                INTEGER (0..255)

BackoffControlParams ::=          SEQUENCE {
    n-AP-RetransMax                N-AP-RetransMax,
    n-AccessFails                  N-AccessFails,
    nf-BO-NoAICH                   NF-BO-NoAICH,
    ns-BO-Busy                      NS-BO-Busy,
    nf-BO-AllBusy                   NF-BO-AllBusy,
    nf-BO-Mismatch                  NF-BO-Mismatch,
    t-CPCH                          T-CPCH
}

C-RNTI ::=                        BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=   SEQUENCE {
    ue-RadioCapabilityUpdateRequirement BOOLEAN,
    systemSpecificCapUpdateReqList  SystemSpecificCapUpdateReqList  OPTIONAL
}

CellUpdateCause ::=              ENUMERATED {
    cellReselection,
    periodicCellUpdate,
    ul-DataTransmission,
    pagingResponse,
    rb-ControlResponse,
    spare1, spare2, spare3 }

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

CipheringAlgorithm ::=            ENUMERATED {
    standardUEA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

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-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,
    spare                 NULL
}

CompressedModeMeasCapability ::= SEQUENCE {
    fdd-Measurements      BOOLEAN,
    tdd-Measurements      BOOLEAN,
    gsm-Measurements      GSM-Measurements,
    multiCarrierMeasurements  BOOLEAN
}

ConformanceTestCompliance ::= ENUMERATED {
    r99,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

CPCH-Parameters ::= SEQUENCE {
    initialPriorityDelayList InitialPriorityDelayList OPTIONAL,
    backoffControlParams     BackoffControlParams
}

DL-PhysChCapabilityFDD ::= SEQUENCE {
    maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
    maxNoDPCH-PDSCH-Codes       INTEGER (1..8),
    maxNoPhysChBitsReceived     MaxNoPhysChBitsReceived,
    supportForSF-512            BOOLEAN,
    supportOfPDSCH              BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame              MaxTS-PerFrame,
    maxPhysChPerFrame           MaxPhysChPerFrame,
    minimumSF                   MinimumSF-DL,
    supportOfPDSCH              BOOLEAN
}

DL-TransChCapability ::= SEQUENCE {
    maxNoBitsReceived           MaxNoBits,
    maxConvCodeBitsReceived     MaxNoBits,
    turboDecodingSupport        TurboSupport,
    maxSimultaneousTransChs     MaxSimultaneousTransChsDL,
    maxReceivedTransportBlocks MaxTransportBlocksDL,
    maxNumberOfTFC-InTFCs      MaxNumberOfTFC-InTFCs-DL,
    maxNumberOfTF               MaxNumberOfTF
}

DRAC-SysInfo ::= SEQUENCE {
    transmissionProbability      TransmissionProbability,
    maximumBitRate               MaximumBitRate
}

DRAC-SysInfoList ::= SEQUENCE (SIZE(1..maxDRAC-Classes)) OF
    DRAC-SysInfo

DRX-CycleLengthCoefficient ::= INTEGER (2..12)

DRX-Indicator ::= ENUMERATED {
    noDRX,
    drxWithCellUpdating,
    drxWithURA-Updating,
    spare1 }

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

EstablishmentCause ::= ENUMERATED {
    originatingSpeechCall,
    originatingCS-DataCall,
    originatingPS-DataCall,
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    emergencyCall,
    interSystemCellReselection,
}

```

```

        locationUpdate,
        imsi-Detach,
        sms,
        callRe-establishment,
        unspecified,
        spare1, spare2, spare3 }

FailureCauseWithProtErr ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure      NULL,
    incompatibleSimultaneousReconfiguration
                                NULL,
    protocolError                ProtocolErrorInformation,
    spare                        NULL
}

GSM-Measurements ::= SEQUENCE {
    gsm900                       BOOLEAN,
    dcs1800                      BOOLEAN,
    gsm1900                      BOOLEAN
}

HyperFrameNumber ::= BIT STRING (SIZE (20))

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 (8)) OF
    NS-IP

InitialUE-Capability ::= SEQUENCE {
    maximumAM-EntityNumber      MaximumAM-EntityNumber
}

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,
    spare                        NULL
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode    MessageAuthenticationCode,
    rrc-MessageSequenceNumber    RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    standardUIA1,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15 }

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection     SEQUENCE {
        integrityProtInitNumber  IntegrityProtInitNumber
    },
    modify                       SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    },
    spare                        NULL
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    integrityProtectionModeCommand IntegrityProtectionModeCommand,

```

```

-- TABULAR: DL integrity protection activation info and Integrity
-- protection intialisation number have been nested inside
-- IntegrityProtectionModeCommand.
integrityProtectionAlgorithm      IntegrityProtectionAlgorithm      OPTIONAL
}

IntegrityProtInitNumber ::=      BIT STRING (SIZE (32))

LCS-Capability ::=
  standaloneLocMethodsSupported    BOOLEAN,
  ue-BasedOTDOA-Supported          BOOLEAN,
  networkAssistedGPS-Supported     NetworkAssistedGPS-Supported,
  gps-ReferenceTimeCapable        BOOLEAN,
  supportForIDL                    BOOLEAN
}

MaximumAM-EntityNumber ::=      ENUMERATED {
  am-2to3,
  am-4to8,
  am-16to32,
  spare1 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
  am2, am3, am4, am8, am16, am32,
  spare1, spare2 }

-- Actual value = IE value * 16
MaximumBitRate ::=              INTEGER (0..32)

MaxNoDPDCH-BitsTransmitted ::=  ENUMERATED {
  b150, b300, b600, b1200, b2400,
  b4800, b9600, b19200, b28800, b38400,
  b48000, b57600,
  spare1, spare2, spare3, spare4 }

MaxNoBits ::=                   ENUMERATED {
  b640, b1280, b2560, b3840, b5120,
  b6400, b7680, b8960, b10240,
  b20480, b40960, b81920, b163840,
  spare1, spare2, spare3 }

MaxNoPhysChBitsReceived ::=     ENUMERATED {
  b300, b600, b1200, b2400, b4800,
  b9600, b19200, b28800, b38400,
  b48000, b57600, b67200,
  spare1, spare2, spare3, spare4 }

MaxNoSCCPCH-RL ::=             ENUMERATED {
  r11, spare1, spare2, spare3,
  spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=              ENUMERATED {
  tf32, tf64, tf128, tf256,
  tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=   ENUMERATED {
  tfc16, tfc32, tfc48, tfc64, tfc96,
  tfc128, tfc256, tfc512, tfc1024,
  spare1, spare2, spare3, spare4,
  spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=   ENUMERATED {
  tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
  tfc96, tfc128, tfc256, tfc512, tfc1024,
  spare1, spare2, spare3, spare4,
  spare5 }

-- TABULAR: Used range in Release99 is 1..224
MaxPhysChPerFrame ::=          INTEGER (1..224)

MaxPhysChPerTimeslot ::=       ENUMERATED {
  ts1, ts2 }

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::=  ENUMERATED {
  e4, e8, e16, e32 }

```

```

MaxSimultaneousTransChsUL ::=      ENUMERATED {
                                     e2, e4, e8, e16, e32,
                                     spare1, spare2, spare3 }

MaxTransportBlocksDL ::=           ENUMERATED {
                                     tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5, spare6 }

MaxTransportBlocksUL ::=           ENUMERATED {
                                     tb2, tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=                 INTEGER (1..16)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=          SEQUENCE {
    downlinkCompressedMode          CompressedModeMeasCapability,
    uplinkCompressedMode            CompressedModeMeasCapability
}

MessageAuthenticationCode ::=      BIT STRING (SIZE (32))

MinimumSF-DL ::=                   ENUMERATED {
                                     sf1, sf16 }

MinimumSF-UL ::=                   ENUMERATED {
                                     sf1, sf2, sf4, sf8, sf16,
                                     spare1, spare2, spare3 }

MultiModeCapability ::=            ENUMERATED {
                                     tdd, fdd, fdd-tdd }

MultiRAT-Capability ::=            ENUMERATED {
                                     gsm, multicarrier,
                                     spare1, spare2 }

MultiRAT-CapabilityList ::=        SEQUENCE (SIZE (1..maxRAT-Count)) OF
                                     MultiRAT-Capability

N-300 ::=                           INTEGER (1..8)

N-302 ::=                           INTEGER (1..8)

N-303 ::=                           INTEGER (1..8)

N-304 ::=                           INTEGER (1..8)

N-310 ::=                           INTEGER (1..8)

N-312 ::=                           ENUMERATED {
                                     s1, s50, s100, s200, s400,
                                     s600, s800, s1000 }

N-313 ::=                           ENUMERATED {
                                     s1, s50, s100, s200, s400,
                                     s600, s800, s1000 }

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
    rai
}

PagingCause ::= ENUMERATED {
    terminatingSpeechCall,
    terminatingCS-DataCall,
    terminatingPS-DataCall,
    sms,
    unspecified,
    spare1, spare2, spare3 }

PagingRecord ::= CHOICE {
    cn-Page SEQUENCE {
        pagingCause
        cn-DomainIdentity
        cn-pagedUE-Identity
    },
    utran-Page SEQUENCE {
        u-RNTI
    }
}

PagingRecordList ::= SEQUENCE (SIZE (1..pageCount)) OF
    PagingRecord

PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport
    supportedHFC-AlgoTypeList
}

PhysicalChannelCapability ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            downlinkPhysChCapability
            uplinkPhysChCapability
        },
        tdd SEQUENCE {
            downlinkPhysChCapability
            uplinkPhysChCapability
        }
    }
}

ProtocolErrorCause ::= ENUMERATED {
    transferSyntaxError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    messageExtensionNotComprehended,
    spare1, spare2, spare3 }

ProtocolErrorIndicator ::= ENUMERATED {
    noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError NULL,
    errorOccurred ProtocolErrorInformation
}

RadioFrequencyBand ::= ENUMERATED {
    a, b, c,
    spare1 }

RadioFrequencyBandList ::= SEQUENCE (SIZE (1..maxFrequencyBandsCount)) OF
    RadioFrequencyBand

Re-EstablishmentTimer ::= CHOICE { SEQUENCE {

```

```

t314 T-314Value,
t315 T-315Value
}
timerID ENUMERATED{
t314, t315, spare1, spare2, spare3,
spare4, spare5, spare6},
timerValue ENUMERATED{
s0, s1, s2, s3, s4, s5, s6, s7, s8,
s9, s10, s15, s20, s25, s30, s60,
s120, s180, s240, s300, s600, s1200, s1800}
t-314 T-314,
t-315 T-315
}

RedirectionInfo ::= CHOICE {
    frequencyInfo FrequencyInfo,
    interSystemInfo InterSystemInfo,
    spare NULL
}

RejectionCause ::= ENUMERATED {
    congestion,
    unspecified,
    spare1, spare2 }

ReleaseCause ::= ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    spare1, spare2, spare3 }

RF-Capability ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-PowerClass UE-PowerClass,
            txRxFrequencySeparation TxRxFrequencySeparation
        },
        tdd SEQUENCE {
            ue-PowerClass UE-PowerClass,
            radioFrequencyBandList RadioFrequencyBandList,
            chipRateCapability ChipRateCapability
        }
    }
}

RFC2507 ::= SEQUENCE {
    maximumMaxHeader INTEGER (60..65535) DEFAULT 65535,
    maximumTCP-Space INTEGER (3..255) DEFAULT 255,
    maximumNonTCP-Space INTEGER (3..65535) DEFAULT 65535
}

RLC-Capability ::= SEQUENCE {
    totalRLC-AM-BufferSize TotalRLC-AM-BufferSize,
    maximumAM-EntityNumber MaximumAM-EntityNumberRLC-Cap
}

RLC-ReconfigurationIndicator ::= BOOLEAN

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (2..3)) OF
    RRC-MessageSequenceNumber

RRC-MessageSequenceNumber ::= INTEGER (0..15)

RRC-MessageTX-Count ::= INTEGER (1..8)

S-RNTI ::= BIT STRING (SIZE (20))

S-RNTI-2 ::= INTEGER (0..1023)

SecurityCapability ::= SEQUENCE {
    cipheringAlgorithm CipheringAlgorithm,
    integrityProtectionAlgorithm IntegrityProtectionAlgorithm
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported NULL,
}

```



```

    supported                               MaxNoSCCPCH-RL
}

SRNC-Identity ::=                          BIT STRING (SIZE (12))

SupportedHC-AlgoType ::=                    CHOICE {
    rfc2507                                  RFC2507,
    spare                                    NULL
}

SupportedHC-AlgoTypeList ::=                SEQUENCE (SIZE (1..maxAlgoTypeCount)) OF
SupportedHC-AlgoType

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

SystemSpecificCapUpdateReqList ::=          SEQUENCE (SIZE (1..maxNoSystemCapability)) OF
SystemSpecificCapUpdateReq

T-300 ::=                                  INTEGER (1..8)

T-301 ::=                                  INTEGER (1..8)

T-302 ::=                                  INTEGER (1..8)

T-303 ::=                                  INTEGER (1..8)

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

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

T-306 ::=                                  ENUMERATED {
    noUpdate, m5, m10, m30,
    m60, m120, m360, m720 }

T-307 ::=                                  ENUMERATED {
    s5, s10, s15, s20,
    s30, s40, s50, spare1 }

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

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

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

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

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

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

T-314 ::=                                  ENUMERATED {
    s0, s102, s204, s306, s608,
s18012, s1600, s1200, s1800 }

T-314Value ::=                             SEQUENCE{
    t-314                                     T-314 OPTIONAL
}

T-315 ::=                                  ENUMERATED {
    s0, s5010, s10030, s20060, s400180,
    s600, s8001200, s10001800 }

T-315Value ::=                             SEQUENCE{

```

```

t-315 T-315 OPTIONAL
}

T-CPCH ::= ENUMERATED {
    ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::= SEQUENCE {
    tmsi TMSI-GSM-MAP,
    lai LAI
}

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

TotalRLC-AM-BufferSize ::= ENUMERATED {
    kb2, kb10, kb50, kb100,
    kb150, kb500, kb1000,
    spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::= INTEGER (1..8)

TransportChannelCapability ::= SEQUENCE {
    dl-TransChCapability DL-TransChCapability,
    ul-TransChCapability UL-TransChCapability
}

TurboSupport ::= CHOICE {
    notSupported NULL,
    supported MaxNoBits
}

TxRxFrequencySeparation ::= ENUMERATED {
    mhz190, mhz174-8-205-2,
    mhz134-8-245-2, spare1 }

U-RNTI ::= SEQUENCE {
    srcn-Identity SRNC-Identity,
    s-RNTI S-RNTI
}

U-RNTI-Short ::= SEQUENCE {
    srcn-Identity SRNC-Identity,
    s-RNTI-2 S-RNTI-2
}

UE-ConnTimersAndConstants ::= SEQUENCE {
    t-301 T-301,
    t-302 T-302,
    n-302 N-302,
    t-303 T-303,
    n-303 N-303,
    t-304 T-304,
    n-304 N-304,
    t-305 T-305,
    t-306 T-306,
    t-307 T-307,
    t-308 T-308,
    t-309 T-309,
    t-310 T-310,
    n-310 N-310,
    t-311 T-311,
    t-312 T-312,
    n-312 N-312,
    t-313 T-313,
    n-313 N-313,
    t-314 T-314,
    t-315 T-315,
    n-315 N-315
}

UE-IdleTimersAndConstants ::= SEQUENCE {
    t-300 T-300,
    n-300 N-300,
    t-312 T-312,
    n-312 N-312
}

```

```

UE-MultiModeRAT-Capability ::=
    multiRAT-CapabilityList
    multiModeCapability
}

UE-PowerClass ::=
    INTEGER (1..4)

UE-RadioAccessCapability ::=
    conformanceTestCompliance
    pdcp-Capability
    rlc-Capability
    transportChannelCapability
    rf-Capability
    physicalChannelCapability
    ue-MultiModeRAT-Capability
    securityCapability
    lcs-Capability
    modeSpecificInfo
        fdd
            measurementCapability
        },
        tdd
    }
}

UL-PhysChCapabilityFDD ::=
    maxNoDPDCH-BitsTransmitted
    supportOfPCPCH
}

UL-PhysChCapabilityTDD ::=
    maxSimultaneousCCTrCH-Count
    maxTS-PerFrame
    maxPhysChPerTimeslot
    minimumSF
    supportOfPUSCH
}

UL-TransChCapability ::=
    maxNoBitsTransmitted
    maxConvCodeBitsTransmitted
    turboDecodingSupport
    maxSimultaneousTransChs
    maxTransmittedBlocks
    maxNumberOfTFC-InTFCS
    maxNumberOfTF
}

URA-UpdateCause ::=
    ENUMERATED {
        changeOfURA,
        periodicURAUpdate,
        re-enteredServiceArea,
        spare1, spare2, spare3,
        spare4, spare5
    }

WaitTime ::=
    INTEGER (0..15)

```

END

## 11.3.4 Radio bearer information elements

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    CN-DomainIdentity,  
    RAB-Identity  
FROM CoreNetwork-IEs

    Re-EstablishmentTimer  
FROM UserEquipment-IEs

    TransportChannelIdentity  
FROM TransportChannel-IEs

    algorithmCount,

```

maxMuxOptionsCount,
maxOtherRBcount,
maxPredefConfigCount,
maxRABcount,
maxRB-WithPDCPcount,
maxRBcount,
maxReconRBcount,
maxReconRBs,
maxRelRBcount,
maxSetupRBcount,
maxSRBcount
FROM Constant-definitions;

AlgorithmSpecificInfo ::=          CHOICE {
    rfc2507-Info                    RFC2507-Info,
    spare                            NULL
}

DL-AM-RLC-Mode ::=                SEQUENCE {
    inSequenceDelivery                BOOLEAN,
    receptionRLC-DiscardTimer        ReceptionRLC-DiscardTimer    OPTIONAL,
    -- TABULAR: The CV in the specification is unclear - which IE does
    -- it refer to?
    dl-RLC-StatusInfo                DL-RLC-StatusInfo
}

DL-LogicalChannelMapping ::=      SEQUENCE {
    dl-TransportChannelType           DL-TransportChannelType,
    transportChannelIdentity          TransportChannelIdentity    OPTIONAL,
    logicalChannelIdentity            LogicalChannelIdentity      OPTIONAL
}

DL-LogicalChannelMappingList ::=  SEQUENCE (SIZE (1..2)) OF
    DL-LogicalChannelMapping

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

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

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

DL-TransportChannelType ::=       ENUMERATED {
    dch, fach, dsch }

DL-UM-RLC-Mode ::=               SEQUENCE {
    inSequenceDelivery                BOOLEAN
}

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

ExpectReordering ::=              ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

HeaderCompressionInfo ::=         SEQUENCE {
    reconfigurationReset               BOOLEAN,
    -- TABULAR: Optional boolean values are not very efficient...
    algorithmSpecificInfo              AlgorithmSpecificInfo
}

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

```

```

LogicalChannelIdentity ::=          INTEGER (1..16)

MAC-LogicalChannelPriority ::=      INTEGER (1..8)

MaxDAT ::=                          ENUMERATED {
    dat1, dat2, dat3, dat4, dat5, dat6,
    dat7, dat8, dat9, dat10, dat15, dat20,
    dat25, dat30, dat35, dat40 }

MaxMRW ::=                          ENUMERATED {
    mm1, mm4, mm6, mm8, mm12, mm16,
    mm24, mm32, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7, spare8 }

MaxRST ::=                          ENUMERATED {
    rst1, rst4, rst6, rst8, rst12,
    rst16, rst24, rst32,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8 }

NoExplicitDiscard ::=              ENUMERATED {
    dt0-1, dt0-25, dt0-5, dt0-75, dt1,
    dt1-25, dt1-5, dt1-75, dt2, dt2-5,
    dt3, dt3-5, dt4, dt4-5, dt5, dt7-5 }

PDCP-Info ::=                      SEQUENCE {
    losslessSRNS-RelocSupport
    pdcp-PDU-Header                  OPTIONAL,
    headerCompressionInfoList       OPTIONAL
}

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

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

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

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

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

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

PollWindow ::=                   ENUMERATED {
    pw50, pw60, pw70, pw80, pw85,
    pw90, pw95, pw100,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8 }

PredefinedConfigIdentity ::=      INTEGER (0..15)

PredefinedConfigValueTag ::=      INTEGER (0..15)

PreDefRadioConfiguration ::=      SEQUENCE {
    predefinedConfigIdentity
    predefinedConfigValueTag
    predefinedRB-Configuration
}

```

```

PreDefRadioConfigurationList ::= SEQUENCE (SIZE (1..maxPredefConfigCount)) OF
    PreDefRadioConfiguration

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

RAB-Info ::= SEQUENCE {
    rab-Identity RB-Identity,
    cn-DomainIdentity CN-DomainIdentity,
    re-establishmentTimer Re-EstablishmentTimer
}

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

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

RB-ActivationTimeInfo ::= SEQUENCE {
    rb-Identity RB-Identity,
    rlc-SequenceNumber RLC-SequenceNumber
}

RB-ActivationTimeInfoList ::= SEQUENCE (SIZE (1..maxReconRBs)) OF
    RB-ActivationTimeInfo

RB-Identity ::= INTEGER (0..31)

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

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

RB-InformationList ::= SEQUENCE (SIZE (1..maxRBcount)) OF
    RB-InformationSetup

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

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

RB-InformationRelease ::= SEQUENCE {
    rb-Identity RB-Identity
}

RB-InformationReleaseList ::= SEQUENCE (SIZE (1..maxRelRBcount)) OF
    RB-InformationRelease

RB-InformationSetup ::= SEQUENCE {
    rb-Identity RB-Identity,
    pdcp-Info PDCP-Info OPTIONAL,
    rlc-Info RLC-Info,
    rb-MappingInfo RB-MappingInfo
}

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

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

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

```

```

}

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

RB-WithPDCP-Info ::=          SEQUENCE {
    rb-Identity                RB-Identity,
    pdcp-SN-Info                PDCP-SN-Info
}

RB-WithPDCP-InfoList ::=      SEQUENCE (SIZE (1..maxRB-WithPDCPcount)) OF
                                RB-WithPDCP-Info

ReceivingWindowSize ::=       ENUMERATED {
    rw1, rw8, rw16, rw32, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2048,
    rw2560, rw3072, rw3584, rw4096 }

ReceptionRLC-DiscardTimer ::= ENUMERATED {
    dt100, dt250, dt500, dt750, dt1000,
    dt1250, dt1500, dt1750, dt2000, dt2500,
    dt3000, dt3500, dt4000, dt4500,
    dt5000, dt7500 }

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

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

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

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

SRB-InformationList ::=        SEQUENCE (SIZE (1..maxSRBcount)) OF
                                SRB-InformationSetup

SRB-InformationSetup ::=       SEQUENCE {
    rb-Identity                RB-Identity,
    rlc-InfoChoice              RLC-InfoChoice,
    rb-MappingInfo              RB-MappingInfo
}

SRB-InformationSetupList2 ::=  SEQUENCE (SIZE (3..4)) OF
                                SRB-InformationSetup

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

TimerEPC ::=                   ENUMERATED {
    te50, te100, te150, te200, te250,
    te300, te350, te400, te450, te500,
    te550, te600, te700, te800,
    te900, te1000 }

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 }

TimerMRW ::=                   ENUMERATED {
    tm50, tm100, tm150, tm200, tm250,
    tm300, tm350, tm400, tm450, tm500,
    tm550, tm600, tm700, tm800, tm900, tm1000,

```

```

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

TimerPoll ::=
    ENUMERATED {
        tp50, tp100, tp150, tp200, tp250,
        tp300, tp350, tp400, tp450, tp500,
        tp550, tp600, tp700, tp800,
        tp900, tp1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

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

TimerPollProhibit ::=
    ENUMERATED {
        tpp50, tpp100, tpp150, tpp200, tpp250,
        tpp300, tpp350, tpp400, tpp450, tpp500,
        tpp550, tpp600, tpp700, tpp800,
        tpp900, tpp1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerRST ::=
    ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerStatusPeriodic ::=
    ENUMERATED {
        tsp50, tsp100, tsp150, tsp200, tsp250,
        tsp300, tsp350, tsp400, tsp450, tsp500,
        tsp550, tsp600, tsp700, tsp800,
        tsp900, tsp1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerStatusProhibit ::=
    ENUMERATED {
        tsp160, tsp320, tsp640, tsp1280 }

TransmissionRLC-Discard ::=
    timerBasedExplicit
    timerBasedNoExplicit
    maxDAT-Retransmission
    noDiscard
    }

TransmissionWindowSize ::=
    ENUMERATED {
        tw1, tw8, tw16, tw32, tw128, tw256,
        tw512, tw768, tw1024, tw1536, tw2048,
        tw2560, tw3072, tw3584, tw4096 }

UL-AM-RLC-Mode ::=
    transmissionRLC-Discard
    transmissionWindowSize
    timerRST
    max-RST
    pollingInfo
    }

UL-LogicalChannelMapping ::=
    ul-TransportChannelType
    transportChannelIdentity
    logicalChannelIdentity
    }

```



```

    mac-LogicalChannelPriority          MAC-LogicalChannelPriority          OPTIONAL
}
UL-LogicalChannelMappingList ::= SEQUENCE (SIZE (1..2)) OF
    UL-LogicalChannelMapping

UL-RLC-Mode ::= CHOICE {
    ul-AM-RLC-Mode          UL-AM-RLC-Mode,
    ul-UM-RLC-Mode          UL-UM-RLC-Mode,
    ul-TM-RLC-Mode          NULL,
    spare                    NULL
}

UL-TransportChannelType ::= ENUMERATED {
    dch, rach, cpch, usch }

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

END

```

## 13 Protocol timers, counters and other parameters

### 13.1 Timers for UE

Timer	Value Range	Relations	Start	Stop	At expiry
T300	4...8 sec		Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T301	4...8 sec		Transmission of RRC CONNECTION REESTABLISHMENT REQUEST	Reception of RRC CONNECTION REESTABLISHMENT	See subclause 8.1.5.8.
T302	4...8 sec		Transmission of CELL UPDATE	Reception of CELL UPDATE CONFIRM	Retransmit CELL UPDATE if V302 =< N302, else, go to Idle mode
T303	4...8 sec		Transmission of URA UPDATE	Reception of URA UPDATE CONFIRM	Retransmit URA UPDATE if V303 =< N303, else go to Idle mode
T304	200, 400...2000 ms		Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate RRC connection reestablishment
T305	No updating, 1, 2,...1023 sec		Entering CELL_FACH or CELL_PCH state. Reception of CELL UPDATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated.
T306	No updating, 1, 2,...1023 sec		Entering URA_PCH state. Reception of URA UPDATE CONFIRM.	Entering another state.	Transmit URA UPDATE if T307 is not activated.
T307	5, 10,...50 sec		When the timer T305 or T306 has expired and the UE detects "out of service area".	When the UE detects "in service area". Or, Initiate cell update or URA update procedure depending on state	Transit to idle mode
T308	40, 80...300 ms		Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 =< N308, else go to idle mode.
T309	4...8 sec		Upon reselection of a cell belonging to another radio access system from connected mode	Successful establishment of a connection in the new cell	Resume the connection to UTRAN
T310			Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.

Timer	Value Range	Relations	Start	Stop	At expiry
T311			Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the parameter "PUSCH Allocation Pending" set to "pending".	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with parameter "PUSCH Allocation Pending" set to "not pending".	UE may initiate a PUSCH capacity request procedure.
T312	1..16 sec		When the UE starts to establish dedicated CH	When the UE detects consecutive N312 "in sync" indication from L1.	The criteria for physical channel establishment failure is fulfilled
T313	1..16 sec		When the UE detects consecutive N313 "out of sync" indication from L1.	When the UE detects consecutive N315 "in sync" indication from L1.	The criteria for Radio Link failure is fulfilled
T314	0..128 sec		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) <a href="#">which are associated with T314 using T-r or UM RLC</a> exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.6
T315	0..4095 sec		When the UE detects that it is out of sync. The timer is started only if radio bearer(s) <a href="#">which are associated with T314 using AM RLC</a> exist.	When the RRC Connection Re-establishment procedure has been completed.	See subclause 8.1.5.7

### 13.3 UE constants and parameters

Constant	Value	Usage
N300	1..8	Maximum number of retransmissions of the RRC CONNECTION REQUEST message
N301	1..8	Maximum number of retransmissions of the RRC CONNECTION REESTABLISHMENT REQUEST message
N302	1..8	Maximum number of retransmissions of the CELL UPDATE message
N303	1..8	Maximum number of retransmissions of the URA UPDATE message
N304	1..8	Maximum number of retransmissions of the UE CAPABILITY INFORMATION message
N310		Maximum number of retransmission of the PUSCH CAPACITY REQUEST message
N312	1..1024	Maximum number of successive "in sync" received from L1.
N313	1..1024	Maximum number of successive "out of sync" received from L1.
N315	1..1024	Maximum number of successive "in sync" received from L1 during T313 is activated.

**CHANGE REQUEST**

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

**25.331 CR 286r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** CN DRX cycle coefficient

**Work item:**

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

**Reason for change:** (1) The CN domain specific DRX cycle length coefficient for PS domain is negotiated between UE and PS CN when the UE is attached. After the negotiation, the UE and UTRAN continue to use the CN domain specific DRX cycle length coefficient for PS which is stored both in UE and PS CN unless it is updated by NAS procedure. Therefore the related sentences are revised.  
(2) Since DRX indicator is the mandatory parameter, related description is modified.

**Clauses affected:** 8.5.7.1.1, 8.5.7.3.3

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

**Other comments:**



help.doc

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

## 8.5.7.1 CN information elements

### 8.5.7.1.1 CN domain specific DRX cycle length coefficient

~~UE updates CN domain specific DRX cycle length coefficient as specified in [4]. If the IE "CN domain specific DRX cycle length coefficient" is present, the~~ UE shall use it to calculate the CN domain specific DRX cycle length, according to the following:

Set  $k$  to the value of the IE "CN domain specific DRX cycle length coefficient".

Store the result of  $2^k * \text{PBP}$ , where PBP is the Paging Block Periodicity, as the CN domain specific DRX cycle length for that CN domain as indicated by the IE "CN domain identity".

The UE shall determine its idle mode paging occasions and PICH monitoring occasions for that CN domain, according to TS 25.304, based on the stored CN domain specific DRX cycle length, when using DRX in idle mode.

### 8.5.7.1.2 NAS system information

If the IE "CN related information"."CN domain identity" and the IE "CN related information"."NAS system information" are present in a message, the UE shall forward the content of the IE "NAS system information" to the non-access stratum entity of the UE indicated by the IE "CN domain identity".

## 8.5.7.2 UTRAN mobility information elements

Void.

## 8.5.7.3 UE information elements

### 8.5.7.3.1 Activation time

If the IE "Activation time" is present, the UE shall:

- activate the new configuration present in the same message as this IE at the indicated time.

NOTE: The new configuration is typically a dedicated physical channel present in the same message as the "Activation time" IE.

### 8.5.7.3.2 UTRAN DRX Cycle length coefficient

If the IE "UTRAN DRX cycle length coefficient" is present, the UE shall use it to calculate the UTRAN DRX cycle length, according to the following:

Set  $k$  to the value of the IE "UTRAN DRX cycle length coefficient".

Store the result of  $2^k * \text{PBP}$ , where PBP is the Paging Block Periodicity, as the DRX cycle length.

The UE shall determine its connected mode paging occasions and PICH monitoring occasions in the same way as for idle mode, according to TS 25.304.

The DRX cycle length to use in connected mode is the shortest of the following:

- UTRAN DRX cycle length;
- CN domain specific DRX cycle length stored for any CN domain, when using Discontinuous Reception (DRX) in CELL\_PCH and URA\_PCH state.

The CN domain specific DRX cycle length stored for any CN domain is only used in Cell\_PCH state and URA\_PCH state if the UE is registered to that CN domain and no signalling connection exist to that CN domain.

### 8.5.7.3.3 DRX Indicator

If the IE "DRX Indicator" is ~~included and~~ set to 'DRX with cell updating', the UE shall:

- if the IE "UTRAN DRX cycle length coefficient" is ~~also~~ included in the same message, use the IE "UTRAN DRX Cycle length coefficient" for calculating Paging Occasion and PICH Monitoring Occasion as specified in 8.5.7.3.2 in CELL\_PCH state.

If the IE "DRX Indicator" is ~~included and~~ set to 'DRX with URA updating', the UE shall:

- if the IE "UTRAN DRX cycle length coefficient" is ~~also~~ included in the same message, use the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in 8.7.3.2 in URA\_PCH state.

If the IE "DRX Indicator" is ~~included and is~~ set to 'no DRX' the UE shall:

- if the IE "UTRAN DRX cycle length coefficient" is ~~also~~ included in the same message, ignore that IE;
- stop using DRX.

**CHANGE REQUEST**

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

**TS25.331 CR 287r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN\_#8**  
list expected approval meeting # here

for approval   
For information

strategic   
non-strategic  (for SMG use only)

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

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

**Source:** **NTT-DoCoMoTSG-RAN WG2** **Date:** 2000-4-10

**Subject:** Cell Access Restriction

**Work item:**

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

**Reason for change:**

- (1) IE "T<sub>barred</sub>" was missing in by the editorial problem.
- (2) Value range for IE "T<sub>barred</sub>" is modified in order to allow larger barred time (It was 0 to 63 sec previously).
- (3) Currently, when the UE selects the neighbouring cell, the increase of UL interference in barred serving cell is not acceptable for cell selection and re-selection. However there is a case that the increase of UL interference in the barred serving cell can be accepted such as in the cell maintenance. Therefore, in the cell restriction mechanism, the function to indicate whether UTRAN accepts the increased UL interference in barred cell or not is proposed as IE "Intra-frequency cell re-selection indicator".
- (4) Need column of IE "Access Class Barred list" is changed from "MP" to "MD" to save bits in case of Access classes are not barred.

**Clauses affected:** 10.3.2.1, 11.3.2

**Other specs Affected:**

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

**Other comments:**



help.doc

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



## 10.3.2 UTRAN mobility Information elements

### 10.3.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Barred	MP		Enumerated( not barred, barred)	
<a href="#">Intra-frequency cell re-selection indicator</a>	<a href="#">CV-Barred</a>		<a href="#">Enumerated( not allowed, allowed)</a>	
<a href="#">T<sub>barred</sub></a>	<a href="#">CV-Barred</a>		<a href="#">Enumerated (10,20,40,80,160,320,640,1280)</a>	<a href="#">[s]</a> <a href="#">TS25.304</a>
<a href="#">Access Class Barred list</a>	MP	16		The first instance of the parameter corresponds to Access Class 0, the second to Access Class 1 and so on up to Access Class 15. UE reads this IE of its access class stored in SIM.
<a href="#">&gt;Access Class Barred</a>	MP		<a href="#">Enumerated( not barred, barred)</a>	
Cell Reserved for operator use	MP		Enumerated( reserved, not reserved)	
Cell Reserved for SoLSA exclusive use	MP		Enumerated( reserved, not reserved)	
<a href="#">Access Class Barred list</a>	<a href="#">MD</a>	<a href="#">16</a>		<a href="#">Default is no access class barred is applied.</a> <a href="#">The first instance of the parameter corresponds to Access Class 0, the second to Access Class 1 and so on up to Access Class 15. UE reads this IE of its access class stored in SIM.</a>
<a href="#">&gt;Access Class Barred</a>	<a href="#">MP</a>		<a href="#">Enumerated( not barred, barred)</a>	

Condition	Explanation
<i>Barred</i>	Presence is mandatory if the IE "Cell Barred" has the value "Barred"; otherwise the element is not needed in the message.

## 11.3.2 UTRAN mobility information elements

UTRANMobility-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

maxIntervals,  
maxRAT,  
maxURAccount

FROM Constant-definitions;

AccessClassBarred ::= ENUMERATED {  
barred, notBarred }

AccessClassBarredList ::= SEQUENCE (SIZE (16)) OF  
AccessClassBarred

```

CellAccessRestriction ::= SEQUENCE {
    cellBarred CellBarred,
    intraFreqCellReSelectionIndicator ENUMERATED{notAllowed, allowed},
    t-Barred T-Barred OPTIONAL,
    intraFreqCellReSelectionIndicator ENUMERATED{notAllowed, allowed},
    cellReservedForOperatorUse ReservedIndicator,
    cellReservedForSOLSA ReservedIndicator,
    accessClassBarredList AccessClassBarredList OPTIONAL,
    cellReservedForOperatorUse ReservedIndicator,
    cellReservedForSOLSA ReservedIndicator
}

CellBarred ::= CHOICE {
    barred T-Barred,
    notBarred NULL
}

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

CellSelectQualityMeasure ::= ENUMERATED {
    cpich-Ec-N0, cpich-SIR }

CellSelectReselectInfo ::= SEQUENCE {
    mappingInfo MappingInfo,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            cellSelectQualityMeasure CellSelectQualityMeasure,
            s-Intrasearch S-SearchFDD OPTIONAL,
            s-Intersearch S-SearchFDD OPTIONAL,
            s-SearchHCS S-SearchFDD OPTIONAL,
            rat-List RAT-FDD-InfoList OPTIONAL
        },
        tdd SEQUENCE {
            s-Intrasearch S-SearchTDD OPTIONAL,
            s-Intersearch S-SearchTDD OPTIONAL,
            s-SearchHCS S-SearchTDD OPTIONAL,
            rat-List RAT-TDD-InfoList OPTIONAL
        }
    },
    q-Hyst-S Q-Hyst-S,
    t-Reselection-S T-Reselection-S,
    hcs-ServingCellInformation HCS-ServingCellInformation OPTIONAL,
    cellSelectReselectParams CellSelectReselectParams OPTIONAL
}

CellSelectReselectParams ::= SEQUENCE {
    decodingRange DecodingRange OPTIONAL,
    q-Offset Q-Offset OPTIONAL
}

-- **TODO**, not defined
DecodingRange ::= SEQUENCE {
}

-- **TODO**, not defined yet
HCS-ServingCellInformation ::= SEQUENCE {
}

MapParameter1 ::= INTEGER (0..15)

MapParameter2 ::= INTEGER (0..15)

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

MappingFunctionParameter ::= SEQUENCE {
    functionType MappingFunctionType,
    mapParameter1 MapParameter1,
    mapParameter2 MapParameter2,
    upperLimit UpperLimit
}

MappingFunctionParameterList ::= SEQUENCE (SIZE (1..maxIntervals)) OF MappingFunctionParameter

MappingFunctionType ::= ENUMERATED {
    linear,
    functionType2,
}

```

```

functionType3,
functionType4 }

MappingInfo ::=
mappingList
}

MappingList ::=
SEQUENCE (SIZE (1..maxRAT)) OF
Mapping

-- **TODO**, not defined
OffsetExp ::=
SEQUENCE {
}

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

Q-Offset ::=
SEQUENCE {
q-Offset-S,
offsetExp
}

-- **TODO**, not defined
Q-Offset-S ::=
SEQUENCE {}

RAT ::=
ENUMERATED {
ultra-FDD,
ultra-TDD,
gsm,
cdma2000 }

RAT-FDD-Info ::=
SEQUENCE {
rat-Identifier,
s-SearchRAT,
s-HCS-RAT
}
OPTIONAL

RAT-FDD-InfoList ::=
SEQUENCE (SIZE (1..maxRAT)) OF
RAT-FDD-Info

RAT-Identifier ::=
ENUMERATED {
gsm, cdma2000 }

RAT-TDD-Info ::=
SEQUENCE {
rat-Identifier,
s-SearchRAT,
s-HCS-RAT
}
OPTIONAL,
OPTIONAL

RAT-TDD-InfoList ::=
SEQUENCE (SIZE (1..maxRAT)) OF
RAT-TDD-Info

ReservedIndicator ::=
ENUMERATED {
reserved,
notReserved }

-- Actual value = IE value * 2
S-SearchFDD ::=
INTEGER (-16..10)

-- Actual value = IE value * 5
S-SearchTDD ::=
INTEGER (-24..18)

T-Barred ::=
INTEGER (0..63)ENUMERATED(s10, s20, s40, s80,
s160, s320, s640, s1280)

T-Reselection-S ::=
INTEGER (0..31)

UpperLimit ::=
INTEGER (0..15)

URA-Identity ::=
BIT STRING (SIZE (16))

URA-IdentityList ::=
SEQUENCE (SIZE (1..maxURAcnt)) OF
URA-Identity

END

```

**CHANGE REQUEST**

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**TS25.331 CR 288r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN#8**  
 list expected approval meeting # here ↑

for approval   
 for information

strategic   
 non-strategic  (for SMG use only)

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

**Proposed change affects:**

(at least one should be marked with an X)

(U)SIM  ME  UTRAN / Radio  Core Network

**Source:**

**NTT DoCoMo TSG-RAN WG2**

**Date:**

**2000-4-10**

**Subject:**

**Cell selection and re-selection parameters**

**Work item:**

**Category:**

(only one category shall be marked with an X)

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

**Release:**

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

**Reason for change:**

- (1) IE "Cell selection and re-selection info" is clearly divided into 2 IEs; IE "Cell selection and re-selection info for SIB3/4" and IE "Cell selection and re-selection info for SIB11/12"
- (2) IE "Mapping info" is changed from MP to OP since it is only used if inter-mode measurement is required.
- (3) A note is added to clarify that IE "Cell individual offset" is used to offset measured quantity value.
- (4) Added note that IE "Reference time difference to cell" is absent for serving cell.
- (5) Added note that IE "Primary CPICH info" is absent only if measuring RSSI only (broadband measurement.).
- (6) Semantics description for IE "Primary CPICH TX power" ("Required if calculating pathloss.) is added.
- (7) A note is added that IE "Cell Selection and Re-selection Info" is absent for serving cell. Also following note is added to minimize the size of SIB11/12. "For neighbouring cell, if HCS is not used and all the paramters in cell selection and re-selection info are default value, Cell Selection and Re-selection Info in SIB11/12 is absent."

**Clauses affected:**

10.2.49.4.5, 10.2.49.4.6, 10.3.2.3, 10.3.2.3.A, 10.3.7.2, ~~10.3.2.3.A~~ 11.3.2, 11.3.7, 11.3.8

**Other specs affected:**

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

**Other comments:**



help.doc

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

-

#### 10.2.49.4.5 System Information Block type 3

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
<b>UTRAN mobility information elements</b>				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection-info <a href="#">for SIB3/4</a> 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

#### 10.2.49.4.6 System Information Block type 4

The system information block type 4 contains parameters for cell selection and re-selection to be used in connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
<b>UTRAN mobility information elements</b>				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info <a href="#">for SIB3/4</a> 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

### 10.3.2.3 Cell selection and re-selection info for SIB3/4

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	<a href="#">MPOP</a>		Mapping info 10.3.2.4	Contains mapping function for quality measurements
CHOICE <i>mode</i>	MP			
>FDD				
>>Cell_selection_and_reselection_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH SIR)	Choice of measurement (CPICH Ec/N0 or CPICH SIR) to use as quality measure Q. Note 1.
>>>S <sub>intrasearch</sub>	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S <sub>intersearch</sub>	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>S <sub>searchHCS</sub>	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>RAT List	OP	1 to <MaxRAT>		
>>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>>S <sub>search,RAT</sub>	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>>S <sub>HCS,RAT</sub>	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>>S <sub>intrasearch</sub>	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]

>>S <sub>intersearch</sub>	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>S <sub>searchHCS</sub>	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>RAT List	OP	1 to <MaxRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>S <sub>search,RAT</sub>	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>>S <sub>HCS,RAT</sub>	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
Qhyst <sub>s</sub>	MP		Real (0..40 by step of 2)	[dB]
Treselection <sub>s</sub>	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
<a href="#">Maximum allowed UL TX power</a>	<a href="#">MP</a>		<a href="#">Maximum allowed UL TX power 10.3.6.27</a>	<a href="#">[dBm] UE_TXPWR_MAX_RACH in 25.304.</a>
<a href="#">CHOICE mode</a>	<a href="#">MP</a>			
<a href="#">&gt;FDD</a>				
<a href="#">&gt;&gt;Qmin</a>	<a href="#">MP</a>		<a href="#">Integer (-20..0)</a>	<a href="#">Ec/N0, [dB]</a>
<a href="#">&gt;TDD</a>				
<a href="#">&gt;&gt;Qmin</a>	<a href="#">MP</a>		<a href="#">Integer (-115..-25 by step of 2)</a>	<a href="#">RSCP, [dBm]</a>
<a href="#">Cell Selection and Reselection parameters</a>	OP			Used in Alternative 2 in TS 25.304
<a href="#">&gt;Decoding range</a>	OP			<del>Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.</del>
<a href="#">&gt;Qoffset<sub>s</sub></a>	OP			<del>Offset for UEs decoding this cell for cell reselection measurement</del>
<a href="#">&gt;OffsetExp</a>	<del>CV—if Qoffset</del>			<del>Expiration timer for UEs decoding the Qoffset<sub>s</sub></del>

NOTE 1: The work in order to support the CPICH SIR measurement is in progress in RAN WG4 and may impact the use of that measurement in this document

Multi bound	Explanation
MaxRAT	Maximum number of Radio Access Technologies that have to be considered. Maximum number is 4

### 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 <a href="#">Used to offset measured quantity value</a>
Reference time difference to cell	OP		Integer (-153088 ..153088 by step of 512)	In chips. <a href="#">This IE is absent for serving cell.</a>
<i>CHOICE mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.43	<a href="#">This IE is absent only Not required</a> if measuring RSSI only ( <a href="#">broadband measurement.</a> )
>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.44	<a href="#">Required if calculating pathloss.</a>
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.42	
>>DL CCTrCH info	OP			List of TFCS ID's to measure
>>DL Timeslot info	OP			List of timeslots to measure
Cell Selection and Re-selection Info	CV- <a href="#">BCHopt</a>		Cell Selection and Re-selection Info for SIB11/12 <a href="#">10.3.2.3.A</a>	Only when sent in system information <a href="#">This IE is absent for serving cell.</a> <a href="#">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.</a>
> <i>CHOICE mode</i>	MP			
>>FDD				
>>>Qmin	MD		Integer (-20..0)	Ec/NO, [dB] Default value is Qmin for the serving cell
>>TDD				
>>>Qmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell
>Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
> <i>CHOICE signalling option</i>	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be

				signalled
>>>Qoffset <sub>s,n</sub>	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.
>>Alternative 2				(no data) Used when Alternative 2 according to TS 25.304 of how offset parameters should be signalled
>HCS neighbouring cell information	OP		HCS Neighbourin g cell information 10.3.7.11	

### 10.3.2.3.A Cell selection and re-selection info for SIB11/12

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Qoffset<sub>s,n</sub></u>	<u>MD</u>		Real(-50.0..50.0 by step of 1)	Default value is 0.
<u>Maximum allowed UL TX power</u>	<u>MD</u>		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
<u>HCS neighbouring cell information</u>	<u>OP</u>		HCS Neighbourin g cell information 10.3.7.11	
<u>CHOICE mode</u>	<u>MP</u>			
<u>&gt;FDD</u>				
<u>&gt;&gt;Qmin</u>	<u>MD</u>		Integer (-20..0)	Ec/N0, [dB] Default value is Qmin for the serving cell
<u>&gt;TDD</u>				
<u>&gt;&gt;Qmin</u>	<u>MD</u>		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell

## 11.3.2 UTRAN mobility information elements

UTRANMobility-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

maxIntervals,  
maxRAT,  
maxURAccount  
FROM Constant-definitions;

MaxAllowedUL-TX-Power  
FROM PhysicalChannel-IEss

AccessClassBarred ::= ENUMERATED {  
barred, notBarred }

AccessClassBarredList ::= SEQUENCE (SIZE (16)) OF  
AccessClassBarred

```

CellAccessRestriction ::=
    cellBarred
    accessClassBarredList
    cellReservedForOperatorUse
    cellReservedForSOLSA
}

CellBarred ::=
    barred
    notBarred
}

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

CellSelectQualityMeasure ::=
    ENUMERATED {
        cpich-Ec-NO, cpich-SIR }

CellSelectReselectInfo ::=
    mappingInfo
    modeSpecificInfo
        fdd
            cellSelectQualityMeasure
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
        },
        tdd
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
    },
    q-Hyst-S
    t-Reselection-S
    hcs-ServingCellInformation
    cellSelectReselectParams
}

CellSelectReselectInfoForSIB3and4 ::=
    mappingInfo
    modeSpecificInfo
        fdd
            cellSelectQualityMeasure
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
        },
        tdd
            s-Intrasearch
            s-Intersearch
            s-SearchHCS
            rat-List
    },
    q-Hyst-S
    t-Reselection-S
    hcs-ServingCellInformation
    maxAllowedUL-TX-Power
    modeSpecificInfo
        fdd
        tdd
    },
    cellSelectReselectParams
}

CellSelectReselectParams ::=
    decodingRange
    q-Offset
}

```

SEQUENCE {	CellBarred,	
	AccessClassBarredList,	
	ReservedIndicator,	
	ReservedIndicator	
CHOICE {	T-Barred,	
	NULL	
BIT STRING (SIZE (28))		
ENUMERATED {	cpich-Ec-NO, cpich-SIR }	
SEQUENCE {	MappingInfo,	
	CHOICE {	
	SEQUENCE {	
	CellSelectQualityMeasure,	
	S-SearchFDD	OPTIONAL,
	S-SearchFDD	OPTIONAL,
	S-SearchFDD	OPTIONAL,
	RAT-FDD-InfoList	OPTIONAL
	},	
	SEQUENCE {	
	S-SearchTDD	OPTIONAL,
	S-SearchTDD	OPTIONAL,
	S-SearchTDD	OPTIONAL,
	RAT-TDD-InfoList	OPTIONAL
	},	
	Q-Hyst-S,	
	T-Reselection-S,	
	HCS-ServingCellInformation	OPTIONAL,
	CellSelectReselectParams	OPTIONAL

SEQUENCE {	MappingInfo	OPTIONAL,
	CHOICE {	
	SEQUENCE {	
	CellSelectQualityMeasure,	
	S-SearchFDD	OPTIONAL,
	S-SearchFDD	OPTIONAL,
	S-SearchFDD	OPTIONAL,
	RAT-FDD-InfoList	OPTIONAL
	},	
	SEQUENCE {	
	S-SearchTDD	OPTIONAL,
	S-SearchTDD	OPTIONAL,
	S-SearchTDD	OPTIONAL,
	RAT-TDD-InfoList	OPTIONAL
	},	
	Q-Hyst-S,	
	T-Reselection-S,	
	HCS-ServingCellInformation	OPTIONAL,
	MaxAllowedUL-TX-Power,	
	CHOICE {	
	Qmin-FDD,	
	Qmin-TDD	
	},	OPTIONAL,
	CellSelectReselectParams	OPTIONAL

SEQUENCE {	DecodingRange	OPTIONAL,
	Q-Offset	OPTIONAL

```

}

-- **TODO**, not defined
DecodingRange ::= SEQUENCE {
}

-- **TODO**, not defined yet
HCS-ServingCellInformation ::= SEQUENCE {
}

MapParameter1 ::= INTEGER (0..15)

MapParameter2 ::= INTEGER (0..15)

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

MappingFunctionParameter ::= SEQUENCE {
    functionType
        MappingFunctionType,
    mapParameter1
        MapParameter1,
    mapParameter2
        MapParameter2,
    upperLimit
        UpperLimit
}

MappingFunctionParameterList ::= SEQUENCE (SIZE (1..maxIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::= ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::= SEQUENCE {
    mappingList
        MappingList
}

MappingList ::= SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping


-- **TODO**, not defined
-- Actual value = IE value * 10
OffsetExp ::= SEQUENCE {
}
INTEGER(1..256)

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

Q-Offset ::= SEQUENCE {
    q-Offset-S
        Q-Offset-S DEFAULT 0,
    offsetExp
        OffsetExp OPTIONAL
}


-- **TODO**, not defined
Q-Offset-S ::= SEQUENCE { } INTEGER (-50..50)


RAT ::= ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::= SEQUENCE {
    rat-Identifier
        RAT-Identifier,
    s-SearchRAT
        S-SearchFDD,
    s-HCS-RAT
        S-SearchFDD
}
OPTIONAL

RAT-FDD-InfoList ::= SEQUENCE (SIZE (1..maxRAT)) OF
    RAT-FDD-Info

```

```

RAT-Identifier ::=
    ENUMERATED {
        gsm, cdma2000 }

RAT-TDD-Info ::=
    SEQUENCE {
        rat-Identifier
        s-SearchRAT
        s-HCS-RAT
    }
    OPTIONAL,
    OPTIONAL

RAT-TDD-InfoList ::=
    SEQUENCE (SIZE (1..maxRAT)) OF
        RAT-TDD-Info

ReservedIndicator ::=
    ENUMERATED {
        reserved,
        notReserved }

-- Actual value = IE value * 2
S-SearchFDD ::=
    INTEGER (-16..10)

-- Actual value = IE value * 5
S-SearchTDD ::=
    INTEGER (-24..18)

T-Barred ::=
    INTEGER (0..63)

T-Reselection-S ::=
    INTEGER (0..31)

UpperLimit ::=
    INTEGER (0..15)

URA-Identity ::=
    BIT STRING (SIZE (16))

URA-IdentityList ::=
    SEQUENCE (SIZE (1..maxURAccount)) OF
        URA-Identity

END

```

## 11.3.7 Measurement information elements

```

Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

```

```

BEGIN

```

```

IMPORTS

```

```

    CellIdentity
    FROM UTRANMobility-IEs

```

```

    DRX-CycleLengthCoefficient
    FROM UserEquipment-IEs

```

```

    RB-Identity
    FROM RadioBearer-IEs

```

```

    TransportChannelIdentity
    FROM TransportChannel-IEs

```

```

    FrequencyInfo,
    MaxAllowedUL-TX-Power,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PrimaryCPICH-Info,
    PrimaryCPICH-TX-Power,
    Timeslot
    FROM PhysicalChannel-IEs

```

```

    BSIC
    FROM Other-IEs

```

```

    maxAdditionalMeas,
    maxAddRLcount,
    maxBLER,
    maxCCTrCHcount,

```

```

maxCellCount,
maxCellsForbidden,
maxDelRLcount,
maxEventCount,
maxFreqCount,
maxInterCells,
maxInterRAT,
maxInterSys,
maxInterSysCells,
maxIntraCells,
maxN-BadSAT,
maxN-SAT,
maxNoCells,
maxNonUsedFrequency,
maxNumFreq,
maxTraf,
maxTrCHcount,
maxTSperCCTrCHcount,
maxTStoMeasureCount,
maxUsedRLcount,
maxUsedUplTScout
FROM Constant-definitions;

AcquisitionSatInfo ::=          SEQUENCE {
    satID                        INTEGER (0..63),
    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..maxN-SAT)) OF
    AcquisitionSatInfo

ActiveSetCellReport ::=        ENUMERATED {
    includeAll,
    excludeAll,
    other }

-- **TODO**, definition to be checked from TS 09.31
AdditionalAssistanceData ::=   SEQUENCE {
}

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasurementIdentityNumber

AlmanacSatInfo ::=            SEQUENCE {
    satID                        INTEGER (0..63),
    deltaI                       BIT STRING (SIZE (16)),
    e                            BIT STRING (SIZE (16)),
    m0                           BIT STRING (SIZE (24)),
    a-Sqrt                       BIT STRING (SIZE (24)),
    omega0                       BIT STRING (SIZE (24)),
    omegaDot                     BIT STRING (SIZE (16)),
    omega                        BIT STRING (SIZE (24)),
    af0                          BIT STRING (SIZE (11)),
    af1                          BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=        SEQUENCE (SIZE (1..maxN-SAT)) OF
    AlmanacSatInfo

AverageRLC-BufferPayload ::=   ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k }

AzimuthAndElevation ::=       SEQUENCE {
    azimuth                      INTEGER (0..31),

```

```

    elevation                INTEGER (0..7)
}
BadSatList ::=               SEQUENCE (SIZE (1..maxN-BadSAT)) OF
                              INTEGER (0..63)
BCCH-ARFCN ::=              INTEGER (0..1023)
BLER-MeasurementResults ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    dl-TransportChannelBLER  DL-TransportChannelBLER
}
BLER-MeasurementResultsList ::= SEQUENCE (SIZE(1..maxBLER)) OF
    BLER-MeasurementResults
BLER-TransChIdList ::=      SEQUENCE (SIZE (1..maxBLER)) OF
    TransportChannelIdentity
-- IE value 0 = true value -0.05, IE value 16 = true value -0.003125,
-- IE value 17 = true value 0.003125, IE value 32 = true value 0.05
BTS-ClockDrift ::=          INTEGER (0..31)
BurstModeParameters ::=     SEQUENCE {
    burstStart                INTEGER (0..15),
    burstLength               INTEGER (10..25),
    burstFreq                 INTEGER (1..16)
}
CCTrCH-Timeslot ::=         SEQUENCE {
    iscp                       DL-TimeslotISCP
    rscp                       RSCP
}
CCTrCH-TimeslotList ::=     SEQUENCE (SIZE(1..maxTSperCCTrCHcount)) OF
    CCTrCH-Timeslot
CellDCH-ReportCriteria ::=  CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria
}
-- Actual value = IE value * 0.5
CellIndividualOffset ::=    INTEGER (-20..20)
CellInfo ::=                SEQUENCE {
    cellIndividualOffset      CellIndividualOffset
    referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell
    modeSpecificInfo         CHOICE {
        fdd                   SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
            primaryCPICH-TX-Power PrimaryCPICH-TX-Power
            readSFN-Indicator  BOOLEAN,
            tx-DiversityIndicator BOOLEAN
        },
        tdd                   SEQUENCE {
            primaryCCPCH-Info PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power,
            dl-CCTrCH-Info DL-CCTrCH-Info
            dl-TimeslotInfo DL-TimeslotInfo
        }
    }
}
CellInfoSI ::=              SEQUENCE {
    cellIndividualOffset      CellIndividualOffset
    referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell
    modeSpecificInfo         CHOICE {
        fdd                   SEQUENCE {
            primaryCPICH-Info PrimaryCPICH-Info
            primaryCPICH-TX-Power PrimaryCPICH-TX-Power
            readSFN-Indicator  BOOLEAN,

```

```

        tx-DiversityIndicator          BOOLEAN
    },
    tdd                                SEQUENCE {
        primaryCCPCH-Info              PrimaryCCPCH-Info,
        primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power,
        dl-CCTrCH-Info                 DL-CCTrCH-Info                OPTIONAL,
        dl-TimeslotInfo                DL-TimeslotInfo                OPTIONAL
    }
},
cellSelectReselectInfoForSIB1and12  CellSelectReselectInfoForSIB1and12
OPTIONAL
cellSelectionReselectionInfo       CellSelectionReselectionInfo,
signallingOption                   SignallingOption
}

CellMeasuredResults ::=              SEQUENCE {
    cellIdentity                       CellIdentity                OPTIONAL,
    sfn-SFN-ObsTimeDifference          SFN-SFN-ObsTimeDifference    OPTIONAL,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            primaryCPICH-Info          PrimaryCPICH-Info,
            cpich-Ec-N0                 CPICH-Ec-N0                OPTIONAL,
            cpich-RSCP                  CPICH-RSCP                  OPTIONAL,
            cpich-SIR                   CPICH-SIR                   OPTIONAL,
            pathloss                    Pathloss                     OPTIONAL,
            cfn-SFN-ObsTimeDifference    CFN-SFN-ObsTimeDifference    OPTIONAL
        },
        tdd                            SEQUENCE {
            primaryCCPCH-Info          PrimaryCCPCH-Info,
            dl-CCTrCH-SIR-List         DL-CCTrCH-SIR-List         OPTIONAL,
            dl-TimeslotISCP-List       DL-TimeslotISCP-List       OPTIONAL
        }
    }
}

CellMeasurementEventResults ::=      CHOICE {
    fdd                                SEQUENCE (SIZE (1..maxCellCount)) OF
        PrimaryCPICH-Info,
    tdd                                SEQUENCE (SIZE (1..maxCellCount)) OF
        PrimaryCCPCH-Info
}

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

CellReportingQuantities ::=          SEQUENCE {
    sfn-SFN-OTD-Type                   SFN-SFN-OTD-Type,
    cellIdentity                       CellIdentity,
    modeSpecificInfo                   CHOICE {
        fdd                            SEQUENCE {
            cpich-Ec-N0                BOOLEAN,
            cpich-RSCP                  BOOLEAN,
            cpich-SIR                   BOOLEAN,
            pathloss                    BOOLEAN,
            cfn-SFN-ObsTimeDifference    BOOLEAN
        },
        tdd                            SEQUENCE {
            dl-CCTrCH-SIR               BOOLEAN,
            timeslotISCP                BOOLEAN,
            primaryCCPCH-RSCP            BOOLEAN,
            pathloss                     BOOLEAN
        }
    }
}

CellSelectionReselectionInfoForSIB1and12 ::= SEQUENCE {
maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power                OPTIONAL,
hcs-NeighbouringCellInformation    HCS-NeighbouringCellInformation    OPTIONAL,
    modeSpecificInfo                   CHOICE {

```



```

        fdd
        tdd
    }
    | maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    signallingOption SignallingOption OPTIONAL,
}

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

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

CellToReport ::= SEQUENCE {
    frequency Frequency,
    bsic BSIC
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellCount)) OF
    CellToReport

CFN-SFN-ObsTimeDifference ::= INTEGER (0..9830399)

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
    w12, w16, w24, w32, w48, w64,
    w96, w128, w192 }

CompressedNavModel ::= SEQUENCE {
    iode BIT STRING (SIZE (4)),
    t-oe BIT STRING (SIZE (7)),
    c-rc BIT STRING (SIZE (12)),
    c-rs BIT STRING (SIZE (12)),
    c-ic BIT STRING (SIZE (9)),
    c-is BIT STRING (SIZE (9)),
    c-uc BIT STRING (SIZE (11)),
    c-us BIT STRING (SIZE (11)),
    e BIT STRING (SIZE (16)),
    m0 BIT STRING (SIZE (22)),
    a-Sqrt BIT STRING (SIZE (13)),
    delta-n BIT STRING (SIZE (11)),
    omega0 BIT STRING (SIZE (14)),
    omegaDot BIT STRING (SIZE (12)),
    i0 BIT STRING (SIZE (15)),
    iDot BIT STRING (SIZE (11)),
    omega BIT STRING (SIZE (21)),
    t-oc BIT STRING (SIZE (7)),
    af0 BIT STRING (SIZE (7)),
    af1 BIT STRING (SIZE (3)),
    af2 BIT STRING (SIZE (1))
}

CPICH-Ec-N0 ::= INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::= INTEGER (0..26)

CPICH-RSCP ::= INTEGER (-115..-40)

CPICH-SIR ::= INTEGER (-10..20)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID INTEGER (0..63),
    iode BIT STRING (SIZE (8)),
    udre UDRE,
    prc INTEGER (-2048..2048),
}

```

```

    rrc                INTEGER (-125..125),
    deltaPRC2          INTEGER (-127..127),
    deltaRRC2          INTEGER (-7..7),
    deltaPRC3          INTEGER (-127..127),
    deltaRRC3          INTEGER (-7..7)
}

DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-CorrectionSatInfo

DGPS-Information ::= SEQUENCE {
    satID              SatID,
    iode               IODE,
    udre               UDRE,
    scaleFactor        ScaleFactor,
    prc                PRC,
    rrc                RRC
}

DGPS-InformationList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-Information

DiffCorrectionStatus ::= ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- **TODO**, not defined yet
DL-CCTrCH-Info ::= SEQUENCE {
}

DL-CCTrCH-SIR ::= SEQUENCE {
    ccTrCH-TimeslotList CCTrCH-TimeslotList
}

DL-CCTrCH-SIR-List ::= SEQUENCE (SIZE(1..maxCCTrCHcount)) OF
    DL-CCTrCH-SIR

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

-- **TODO**, not defined yet
DL-TimeslotInfo ::= SEQUENCE {
}

-- **TODO**, not defined yet
DL-TimeslotISCP ::= SEQUENCE {
}

DL-TimeslotISCP-List ::= SEQUENCE (SIZE(1..maxTStoMeasureCount)) OF
    DL-TimeslotISCP

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

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

EnvironmentCharacterization ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined }

Eventla ::= SEQUENCE {
    triggeringCondition TriggeringCondition,
    reportingRange      ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList,
    w                   W,
    hysteresis          Hysteresis
}
reportDeactivationThreshold ReportDeactivationThreshold OPTIONAL,
}

Eventlb ::= SEQUENCE {

```

<pre> triggeringCondition reportingRange forbiddenAffectCellList w hysteresis } </pre>	<pre> TriggeringCondition, ReportingRange, ForbiddenAffectCellList, W, Hysteresis </pre>	<pre> OPTIONAL </pre>
<pre> Event1c ::= hysteresis replacementActivationThreshold } </pre>	<pre> SEQUENCE { Hysteresis ReplacementActivationThreshold </pre>	<pre> OPTIONAL, </pre>
<pre> Event2a ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, NonUsedFreqParameterList </pre>	<pre> OPTIONAL </pre>
<pre> Event2b ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, NonUsedFreqParameterList </pre>	<pre> OPTIONAL </pre>
<pre> Event2c ::= hysteresis timeToTrigger reportingAmount reportingInterval nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, NonUsedFreqParameterList </pre>	<pre> OPTIONAL </pre>
<pre> Event2d ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval </pre>	
<pre> Event2e ::= hysteresis timeToTrigger reportingAmount reportingInterval nonUsedFreqParameterList } </pre>	<pre> SEQUENCE { HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval, NonUsedFreqParameterList </pre>	<pre> OPTIONAL </pre>
<pre> Event2f ::= usedFreqThreshold usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval } </pre>	<pre> SEQUENCE { Threshold, W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval </pre>	
<pre> Event3a ::= thresholdOwnSystem w thresholdOtherSystem hysteresis timeToTrigger } </pre>	<pre> SEQUENCE { Threshold, W, Threshold, Hysteresis, TimeToTrigger, </pre>	

<pre> reportingAmount reportingInterval } </pre>	<pre> ReportingAmount, ReportingInterval </pre>
<pre> Event3b ::=   thresholdOtherSystem   hysteresis   timeToTrigger   reportingAmount   reportingInterval } </pre>	<pre> SEQUENCE {   Threshold,   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } </pre>
<pre> Event3c ::=   thresholdOtherSystem   hysteresis   timeToTrigger   reportingAmount   reportingInterval } </pre>	<pre> SEQUENCE {   Threshold,   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } </pre>
<pre> Event3d ::=   hysteresis   timeToTrigger   reportingAmount   reportingInterval } </pre>	<pre> SEQUENCE {   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } </pre>
<pre> EventIDInterFreq ::= </pre>	<pre> ENUMERATED {   e2a, e2b, e2c, e2d, e2e, e2f } </pre>
<pre> EventIDInterSystem ::= </pre>	<pre> ENUMERATED {   e3a, e3b, e3c, e3d } </pre>
<pre> EventIDIntraFreq ::= </pre>	<pre> ENUMERATED {   e1a, e1b, e1c, e1d, e1e,   e1f, e1g, e1h, e1i, e1j } </pre>
<pre> EventIDTrafficVolume ::= </pre>	<pre> ENUMERATED {   e4a, e4b } </pre>
<pre> EventResults ::=   intraFreqEventResults   interFreqEventResults   interSystemEventResults   trafficVolumeEventResults   qualityEventResults   ue-InternalEventResults   lcs-MeasurementEventResults } </pre>	<pre> CHOICE {   IntraFreqEventResults,   InterFreqEventResults,   InterSystemEventResults,   TrafficVolumeEventResults,   QualityEventResults,   UE-InternalEventResults,   LCS-MeasurementEventResults } </pre>
<pre> ExtraDopplerInfo ::=   doppler1stOrder   dopplerUncertainty } </pre>	<pre> SEQUENCE {   INTEGER (-42..21),   DopplerUncertainty } </pre>
<pre> FACH-MeasurementOccasionInfo ::=   k-UTRA   otherRAT-InSysInfoList } </pre>	<pre> SEQUENCE {   DRX-CycleLengthCoefficient,   OtherRAT-InSysInfoList } </pre>
<pre> FilterCoefficient ::= </pre>	<pre> ENUMERATED {   fc1, fc2, fc3, fc4, fc6, fc8,   fc12, fc16, fc24, fc32, fc64,   fc128, fc256, fc512, fc1024,   spare1 } </pre>
<pre> FineSFN-SFN ::= </pre>	<pre> ENUMERATED {   fs0, fs0-25, fs0-5, fs0-75 } </pre>
<pre> ForbiddenAffectCell ::=   modeSpecificInfo   fdd </pre>	<pre> SEQUENCE {   CHOICE {     SEQUENCE { </pre>

```

        primaryCPICH-Info          PrimaryCPICH-Info
    },
    tdd                            SEQUENCE {
        primaryCCPCH-Info          PrimaryCCPCH-Info
    }
}

ForbiddenAffectCellList ::=          SEQUENCE (SIZE(1..maxCellsForbidden)) OF
                                      ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
                                      cpich-Ec-NO,
                                      cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
                                      primaryCCPCH-RSCP }

-- **TODO**, not defined yet
Frequency ::=                          SEQUENCE {
}

GPS-MeasurementParam ::=              SEQUENCE {
    satelliteID                       INTEGER (0..63),
    c-NO                               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..maxN-SAT)) OF
                                      GPS-MeasurementParam

GPS-TOW-lmsec ::=                     INTEGER (0..604700000)

GPS-TOW-Assist ::=                    SEQUENCE {
    satID                              INTEGER (0..63),
    tlm-Message                        BIT STRING (SIZE (14)),
    antiSpoof                          BOOLEAN,
    alert                              BOOLEAN,
    tlm-Reserved                       BIT STRING (SIZE (2))
}

GPS-TOW-AssistList ::=                SEQUENCE (SIZE (1..maxN-SAT)) OF
                                      GPS-TOW-Assist

GPS-TOW-HighResolution ::=            INTEGER (0..999)

GSM-CarrierRSSI ::=                   BIT STRING (SIZE (6))

-- **TODO**, not defined yet
GSM-OutputPower ::=                   SEQUENCE {
}

HCS-CellReselectInformation ::=       SEQUENCE {
    penaltyTime                        PenaltyTime
}

HCS-NeighbouringCellInformation ::=   SEQUENCE {
    hcs-PRIO                           HCS-PRIO                                OPTIONAL,
    q-HCS                               Q-HCS                                OPTIONAL,
    hcs-CellReselectInformation         HCS-CellReselectInformation           OPTIONAL
}

HCS-PRIO ::=                          INTEGER (0..7)

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

-- Actual value = IE value * 0.5

```

```

HysteresisInterFreq ::=                INTEGER (0..29)

InterFreqCell ::=                       SEQUENCE {
    frequencyInfo                        FrequencyInfo,
    nonFreqRelatedEventResults          CellMeasurementEventResults
}

InterFreqCellID ::=                     INTEGER (0..maxInterCells)

InterFreqCellInfoList ::=               SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList           OPTIONAL,
    newInterFreqCellList                 NewInterFreqCellList               OPTIONAL
}

InterFreqCellInfoSI-List ::=            SEQUENCE {
    removedInterFreqCellList            RemovedInterFreqCellList           OPTIONAL,
    newInterFreqCellSI-List             NewInterFreqCellSI-List           OPTIONAL
}

InterFreqCellList ::=                   SEQUENCE (SIZE (1..maxFreqCount)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxInterCells)) OF
    CellMeasuredResults

InterFreqEvent ::=                      CHOICE {
    event2a                              Event2a,
    event2b                              Event2b,
    event2c                              Event2c,
    event2d                              Event2d,
    event2e                              Event2e,
    event2f                              Event2f
}

InterFreqEventList ::=                  SEQUENCE (SIZE(1..maxEventCount)) OF
    InterFreqEvent

InterFreqEventResults ::=               SEQUENCE {
    eventID                              EventIDInterFreq,
    interFreqCellList                    InterFreqCellList
}

InterFreqMeasQuantity ::=               SEQUENCE {
    reportingCriteria                    CHOICE {
        intraFreqReportingCriteria      SEQUENCE {
            intraFreqMeasQuantity       IntraFreqMeasQuantity,
        },
        interFreqReportingCriteria       SEQUENCE {
            filterCoefficient            FilterCoefficient,
            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..maxNumFreq)) OF
    InterFreqMeasuredResults

InterFreqMeasurementSysInfo ::=         SEQUENCE {
    interFreqMeasurementID               MeasurementIdentityNumber           OPTIONAL,
}

```

```

interFreqCellInfoSI-List          InterFreqCellInfoSI-List          OPTIONAL,
interFreqMeasQuantity             InterFreqMeasQuantity             OPTIONAL
}

InterFreqReportCriteria ::=
  intraFreqReportingCriteria
  interFreqReportingCriteria
  periodicalReportingCriteria
  noReporting
CHOICE {
  IntraFreqReportingCriteria,
  InterFreqReportingCriteria,
  PeriodicalReportingCriteria,
  NULL
}

InterFreqReportingCriteria ::=
  interFreqEventList
SEQUENCE {
  InterFreqEventList
} OPTIONAL

InterFreqReportingQuantity ::=
  ultra-Carrier-RSSI
  frequencyQualityEstimate
  nonFreqRelatedQuantities
SEQUENCE {
  BOOLEAN,
  BOOLEAN,
  CellReportingQuantities
}

InterFreqSetUpdate ::=
  ue-AutonomousUpdateMode
SEQUENCE {
  UE-AutonomousUpdateMode
}

InterFrequencyMeasurement ::=
  interFreqCellInfoList
  interFreqMeasQuantity
  interFreqReportingQuantity
  reportingCellStatus
  measurementValidity
  interFreqSetUpdate
  reportCriteria
SEQUENCE {
  InterFreqCellInfoList,
  InterFreqMeasQuantity
  InterFreqReportingQuantity
  ReportingCellStatus
  MeasurementValidity
  InterFreqSetUpdate
  InterFreqReportCriteria
} OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,

InterSystemCellID ::=
  INTEGER (0..maxInterSysCells)

InterSystemCellInfoList ::=
  removedInterSystemCellList
  newInterSystemCellList
SEQUENCE {
  RemovedInterSystemCellList,
  NewInterSystemCellList
}

InterSystemEvent ::=
  event3a
  event3b
  event3c
  event3d
CHOICE {
  Event3a,
  Event3b,
  Event3c,
  Event3d
}

InterSystemEventList ::=
  SEQUENCE (SIZE(1..maxEventCount)) OF
  InterSystemEvent

InterSystemEventResults ::=
  eventID
  cellToReportList
SEQUENCE {
  EventIDInterSystem,
  CellToReportList
}

InterSystemInfo ::=
  ENUMERATED {
    gsm, spare1 }

InterSystemMeasQuantity ::=
  measQuantityUTRAN-QualityEstimate
  systemSpecificInfo
  gsm
  measurementQuantity
  filterCoefficient
  bsic-VerificationRequired
  },
  is-2000
  tadd-EcIo
  tcomp-EcIo
  softSlope
SEQUENCE {
  IntraFreqMeasQuantity,
  CHOICE {
    SEQUENCE {
      MeasurementQuantityGSM,
      FilterCoefficient,
      BOOLEAN
    },
    SEQUENCE {
      INTEGER (0..63),
      INTEGER (0..15),
      INTEGER (0..63)
    }
  }
} OPTIONAL,

```

```

        addIntercept                INTEGER (0..63)                OPTIONAL
    }
}

InterSystemMeasuredResults ::= CHOICE {
    gsm SEQUENCE {
        frequency                Frequency,
        gsm-CarrierRSSI          GSM-CarrierRSSI                OPTIONAL,
        pathloss                  Pathloss                    OPTIONAL,
        bsic                      BSIC                        OPTIONAL,
        observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
    },
    other NULL
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterSys)) OF
    InterSystemMeasuredResults

InterSystemMeasurement ::= SEQUENCE {
    interSystemCellInfoList      InterSystemCellInfoList      OPTIONAL,
    interSystemMeasQuantity      InterSystemMeasQuantity      OPTIONAL,
    interSystemReportingQuantity InterSystemReportingQuantity      OPTIONAL,
    reportingCellStatus          ReportingCellStatus              OPTIONAL,
    reportCriteria                InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::= SEQUENCE {
    interSystemMeasurementID      MeasurementIdentityNumber    OPTIONAL,
    interSystemCellInfoList      InterSystemCellInfoList      OPTIONAL,
    interSystemMeasQuantity      InterSystemMeasQuantity      OPTIONAL
}

InterSystemReportCriteria ::= CHOICE {
    interSystemReportingCriteria  InterSystemReportingCriteria,
    periodicalReportingCriteria  PeriodicalReportingCriteria,
    noReporting                   NULL
}

InterSystemReportingCriteria ::= SEQUENCE {
    interSystemEventList          InterSystemEventList          OPTIONAL
}

InterSystemReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality        BOOLEAN,
    systemSpecificInfo            CHOICE {
        gsm SEQUENCE {
            pathloss                BOOLEAN,
            observedTimeDifferenceGSM BOOLEAN,
            gsm-Carrier-RSSI        BOOLEAN,
            bsic                    BOOLEAN
        },
        spare1 SEQUENCE {}
    }
}

IntraFreqCellID ::= INTEGER (0..maxIntraCells)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList      RemovedIntraFreqCellList      OPTIONAL,
    newIntraFreqCellList          NewIntraFreqCellList          OPTIONAL
}

IntraFreqCellInfoSI ::= SEQUENCE {
    cellInfo                      CellInfoSI
}

IntraFreqCellInfoSI-List ::= SEQUENCE {
    removedIntraFreqCellList      RemovedIntraFreqCellList      OPTIONAL,
    newIntraFreqCellList          NewIntraFreqCellSI-List      OPTIONAL
}

```



```

IntraFreqEvent ::= CHOICE {
    ela          Event1a,
    elb          Event1b,
    elc          Event1c,
    eld          Hysteresis,
    ele          TriggeringCondition,
    elf          TriggeringCondition,
    elg          Hysteresis,
    elh          Hysteresis,
    eli          Hysteresis,
    elj          Hysteresis
}

IntraFreqEventCriteria ::= SEQUENCE {
    event          IntraFreqEvent,
    timeToTrigger TimeToTrigger,
    reportingAmount ReportingAmount,
    reportingInterval ReportingInterval
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID          EventIDIntraFreq,
    cellMeasurementEventResults CellMeasurementEventResults
}

IntraFreqMeasQuantity ::= SEQUENCE {
    filterCoefficient FilterCoefficient,
    modeSpecificInfo CHOICE {
        fdd          SEQUENCE {
            intraFreqMeasQuantity-FDD
        },
        tdd          SEQUENCE {
            intraFreqMeasQuantity-TDD
        }
    }
}

IntraFreqMeasQuantity-FDD ::= ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    cpich-SIRP,
    pathloss,
    ultra-CarrierRSSI }

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

IntraFreqMeasuredResults ::= SEQUENCE {
    cellMeasuredResults CellMeasuredResults
}

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    IntraFreqMeasuredResults

IntraFreqMeasurementSysInfo ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentityNumber OPTIONAL,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
}

```

```

    noReporting                NULL
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList          IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    unlistedSetReportingQuantities CellReportingQuantities OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference    SFN-SFN-ObsTimeDifference,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            intraFreqRepQuantityRACH-FDD IntraFreqRepQuantityRACH-FDD
        },
        tdd                       SEQUENCE {
            intraFreqRepQuantityRACH-TDD IntraFreqRepQuantityRACH-TDD
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    cpich-SIR, pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList        IntraFreqCellInfoList OPTIONAL,
    intraFreqMeasQuantity        IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantity   IntraFreqReportingQuantity OPTIONAL,
    reportingCellStatus          ReportingCellStatus OPTIONAL,
    measurementValidity          MeasurementValidity OPTIONAL,
    reportCriteria               IntraFreqReportCriteria
}

IODD ::= INTEGER (0..255)

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

K-InterRAT ::= INTEGER (0..12)

LCS-Accuracy ::= BIT STRING (SIZE (7))

LCS-CipherParameters ::= SEQUENCE {
    cipheringKeyFlag             BIT STRING (SIZE (1)),
    cipheringSerialNumber        INTEGER (0..65535)
}

LCS-Error ::= SEQUENCE {
    errorReason                  LCS-ErrorCause,
    additionalAssistanceData     AdditionalAssistanceData
    -- The IE above is defined in GSM 09.31, the actual definition
    -- will have to be checked
}

```

```

}

LCS-ErrorCause ::=                               ENUMERATED {
                                                notEnoughOTDOA-Cells,
                                                notEnoughGPS-Satellites,
                                                assistanceDataMissing,
                                                methodNotSupported,
                                                undefinedError,
                                                requestDeniedByUser,
                                                notProcessedAndTimeout }

LCS-EventID ::=                                  ENUMERATED {
                                                e7a, e7b, e7c }

LCS-EventParam ::=                               SEQUENCE {
    eventID                                       LCS-EventID,
    reportingAmount                              ReportingAmount,
    reportFirstFix                              BOOLEAN,
    measurementInterval                         LCS-MeasurementInterval,
    eventSpecificInfo                           LCS-EventSpecificInfo
}

LCS-EventParamList ::=                          SEQUENCE (SIZE (1..maxEventCount)) OF
                                                LCS-EventParam

LCS-EventSpecificInfo ::=                       CHOICE {
    e7a                                          ThresholdPositionChange,
    e7b                                          ThresholdSFN-SFN-Change,
    e7c                                          ThresholdSFN-GPS-TOW
}

LCS-GPS-AcquisitionAssistance ::=              SEQUENCE {
    referenceTime                               CHOICE {
        utran-ReferenceTime                   UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly                 INTEGER (0..604700000)
    },
    satelliteInformationList                   AcquisitionSatInfoList
}

LCS-GPS-Almanac ::=                             SEQUENCE {
    almanacSatInfoList                        AlmanacSatInfoList
}

LCS-GPS-AssistanceSIB ::=                      SEQUENCE {
    lcs-CipherParameters                       LCS-CipherParameters                OPTIONAL,
    referenceGPS-TOW                           ReferenceGPS-TOW,                    OPTIONAL,
    status                                      DiffCorrectionStatus,                OPTIONAL,
    btsClockDrift                             BTS-ClockDrift                       OPTIONAL,
    timeOffset                                 LCS-TimeOffset                       OPTIONAL,
    iodd                                       IODD                                  OPTIONAL,
    dgps-InformationList                       DGPS-InformationList                 OPTIONAL
}

LCS-GPS-AssistanceData ::=                     SEQUENCE {
    lcs-GPS-ReferenceTime                     LCS-GPS-ReferenceTime                OPTIONAL,
    lcs-GPS-ReferenceLocation                 LCS-GPS-ReferenceLocation            OPTIONAL,
    lcs-GPS-DGPS-Corrections                 LCS-GPS-DGPS-Corrections             OPTIONAL,
    lcs-GPS-NavigationModel                   LCS-GPS-NavigationModel              OPTIONAL,
    lcs-GPS-IonosphericModel                 LCS-GPS-IonosphericModel             OPTIONAL,
    lcs-GPS-UTC-Model                         LCS-GPS-UTC-Model                    OPTIONAL,
    lcs-GPS-Almanac                           LCS-GPS-Almanac                      OPTIONAL,
    lcs-GPS-AcquisitionAssistance             LCS-GPS-AcquisitionAssistance        OPTIONAL,
    lcs-GPS-Real-timeIntegrity                LCS-GPS-Real-timeIntegrity           OPTIONAL
}

LCS-GPS-DGPS-Corrections ::=                  SEQUENCE {
    gps-TOW                                    INTEGER (0..604799),
    statusHealth                              DiffCorrectionStatus,
    dgps-CorrectionSatInfoList               DGPS-CorrectionSatInfoList
}

LCS-GPS-IonosphericModel ::=                  SEQUENCE {

```

```

    alfa0                BIT STRING (SIZE (8)),
    alfa1                BIT STRING (SIZE (8)),
    alfa2                BIT STRING (SIZE (8)),
    alfa3                BIT STRING (SIZE (8)),
    beta0                BIT STRING (SIZE (8)),
    beta1                BIT STRING (SIZE (8)),
    beta2                BIT STRING (SIZE (8)),
    beta3                BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::=
    referenceSFN          SEQUENCE {
    gps-TOW-lmsec         ReferenceSFN          OPTIONAL,
    gps-TOW-HighResolution GPS-TOW-lmsec,
    gps-MeasurementParamList GPS-TOW-HighResolution OPTIONAL,
    GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::=
    n-SAT                SEQUENCE {
    navigationModelSatInfoList INTEGER (1..16),
    NavigationModelSatInfoList
}

-- **TODO**, definition in 23.032
LCS-GPS-ReferenceLocation ::=
}

LCS-GPS-Real-timeIntegrity ::=
    badSatList          SEQUENCE {
    BadSatList
}

LCS-GPS-ReferenceTime ::=
    gps-Week            SEQUENCE {
    gps-TOW              INTEGER (0..1023),
    sfn                  INTEGER (0..604700000000),
    gps-TOW-AssistList  INTEGER (0..4095),
    GPS-TOW-AssistList  OPTIONAL
}

LCS-GPS-UTC-Model ::=
    a0                  SEQUENCE {
    a1                    BIT STRING (SIZE (32)),
    delta-t-LS           BIT STRING (SIZE (24)),
    t-ot                 BIT STRING (SIZE (8)),
    wn-t                 BIT STRING (SIZE (8)),
    wn-lsf               BIT STRING (SIZE (8)),
    dn                   BIT STRING (SIZE (8)),
    delta-t-LSF         BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::=
    ip-Spacing          SEQUENCE {
    ip-Length            IP-Spacing,
    ip-Offset            IP-Length,
    seed                 INTEGER (0..9),
    burstModeParameters INTEGER (0..63),
    BurstModeParameters
}

LCS-MeasuredResults ::=
    lcs-MultipleSets    SEQUENCE {
    lcs-ReferenceCellIdentity LCS-MultipleSets          OPTIONAL,
    lcs-OTDOA-Measurement   PrimaryCPICH-Info    OPTIONAL,
    lcs-Position            LCS-OTDOA-Measurement    OPTIONAL,
    lcs-GPS-Measurement     LCS-Position          OPTIONAL,
    lcs-Error               LCS-GPS-Measurement    OPTIONAL,
    LCS-Error               LCS-Error              OPTIONAL
}

LCS-Measurement ::=
    lcs-ReportingQuantity SEQUENCE {
    reportCriteria        LCS-ReportingQuantity,
    lcs-OTDOA-AssistanceData LCS-ReportCriteria,
    lcs-GPS-AssistanceData LCS-OTDOA-AssistanceData OPTIONAL,
    LCS-GPS-AssistanceData
}

```

```

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a          LCS-Position,
    event7b          LCS-OTDOA-Measurement,
    event7c          LCS-GPS-Measurement
}

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets    INTEGER (2..3),
    numberOfReferenceCells        INTEGER (1..3),
    referenceCellRelation          ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell          LCS-OTDOA-ReferenceCell          OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters              LCS-IPDL-Parameters              OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters              LCS-CipherParameters              OPTIONAL,
    searchWindowSize                  OTDOA-SearchWindowSize,
    referenceCellPosition              ReferenceCellPosition,
    lcs-IPDL-Parameters              LCS-IPDL-Parameters              OPTIONAL,
    cellToMeasureInfoList              CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {
    sfn                                INTEGER (0..4095),
    -- Actual value = IE value * 0.25 + 876
    ue-Rx-Tx-TimeDifference            INTEGER (0..1184),
    qualityType                        QualityType,
    qualityChoice                      CHOICE {
        std-10                          ReferenceQuality10,
        std-50                          ReferenceQuality50,
        cpich-EcN0                       CPICH-Ec-N0-OTDOA,
        defaultQuality                   ReferenceQuality
    },
    neighborList                       NeighborList                      OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    frequencyInfo                     FrequencyInfo                      OPTIONAL,
    sfn-SFN-ObsTimeDifference          SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                       FineSFN-SFN                      OPTIONAL,
    searchWindowSize                  OTDOA-SearchWindowSize,
    relativeNorth                     INTEGER (-20000..20000)          OPTIONAL,
    relativeEast                      INTEGER (-20000..20000)          OPTIONAL,
    relativeAltitude                  INTEGER (-4000..4000)          OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..15)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    frequencyInfo                     FrequencyInfo                      OPTIONAL,
    cellPosition                      ReferenceCellPosition              OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN                      ReferenceSFN,

```

```

        gps-TOW                                INTEGER (0..604700000000),
        positionEstimate                        PositionEstimate
    }

LCS-ReportCriteria ::=
    lcs-ReportingCriteria
    periodicalReportingCriteria
    noReporting
    CHOICE {
        LCS-ReportingCriteria,
        PeriodicalReportingCriteria,
        NULL
    }

LCS-ReportingCriteria ::=
    eventParameterList
    SEQUENCE {
        LCS-EventParamList
    }
    OPTIONAL

LCS-ReportingQuantity ::=
    methodType
    positioningMethod
    responseTime
    accuracy
    gps-TimingOfCellWanted
    multipleSets
    environmentCharacterization
    SEQUENCE {
        LCS-MethodType,
        PositioningMethod,
        LCS-ResponseTime,
        LCS-Accuracy
    }
    OPTIONAL,
    BOOLEAN,
    BOOLEAN,
    EnvironmentCharacterization
    OPTIONAL

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

LCS-TimeOffset ::=
    INTEGER (0..4095)

MaxNumberOfReportingCells ::=
    ENUMERATED {
        mandatoryCellsOnly,
        mandatoryCellsPlus1,
        mandatoryCellsPlus2,
        mandatoryCellsPlus3,
        mandatoryCellsPlus4,
        mandatoryCellsPlus5,
        mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::=
    ENUMERATED {
        noReport,
        currentCell,
        currentAnd-1-BestNeighbour,
        currentAnd-2-BestNeighbour,
        currentAnd-3-BestNeighbour,
        currentAnd-4-BestNeighbour,
        currentAnd-5-BestNeighbour,
        currentAnd-6-BestNeighbour }

MeasuredResults ::=
    intraFreqMeasuredResultsList
    interFreqMeasuredResultsList
    interSystemMeasuredResultsList
    trafficVolumeMeasuredResultsList
    qualityMeasuredResults
    ue-InternalMeasuredResults
    lcs-MeasuredResults
    CHOICE {
        IntraFreqMeasuredResultsList,
        InterFreqMeasuredResultsList,
        InterSystemMeasuredResultsList,
        TrafficVolumeMeasuredResultsList,
        QualityMeasuredResults,
        UE-InternalMeasuredResults,
        LCS-MeasuredResults
    }

MeasuredResultsList ::=
    SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasuredResults

MeasuredResultsOnRACH ::=
    currentCell
    modeSpecificInfo
    fdd
    measurementQuantity
    cpich-Ec-NO
    cpich-RSCP
    cpich-SIR
    pathloss
    SEQUENCE {
        SEQUENCE {
            CHOICE {
                SEQUENCE {
                    CHOICE {
                        CPICH-Ec-NO,
                        CPICH-RSCP,
                        CPICH-SIR,
                        Pathloss
                    }
                }
            }
        }
    }

```

```

        },
        tdd
            timeslotISCP
            primaryCCPCH-RSCP
        }
    },
    monitoredCells
        MonitoredCellRACH-List
    }
}

MeasurementCommand ::=
    setup
    modify
        measurementType
    },
    release
}

MeasurementControlSysInfo ::=
    intraFreqMeasurementSysInfo
    interFreqMeasurementSysInfo
    interSystemMeasurementSysInfo
    trafficVolumeMeasSysInfo
    ue-InternalMeasurementSysInfo
}

-- **TODO**, not defined yet
MeasurementIdentityNumber ::=
}

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

MeasurementReportingMode ::=
    measurementReportTransferMode
    periodicalOrEventTrigger
}

MeasurementType ::=
    intraFrequencyMeasurement
    interFrequencyMeasurement
    interSystemMeasurement
    lcs-Measurement
    trafficVolumeMeasurement
    qualityMeasurement
    ue-InternalMeasurement
}

MeasurementValidity ::=
    resume-Release
}

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

MonitoredCellRACH-Result ::=
    sfn-SFN-ObsTimeDifference
    modeSpecificInfo
        fdd
            primaryCPICH-Info
            measurementQuantity
                cpich-Ec-NO
                cpich-RSCP
                cpich-SIR
                pathloss
            }
        },
        tdd
            primaryCCPCH-Info
            primaryCCPCH-RSCP
        }
}
SEQUENCE {
    TimeslotISCP,
    PrimaryCCPCH-RSCP
}
OPTIONAL
CHOICE {
    MeasurementType,
    SEQUENCE {
        MeasurementType
    }
}
OPTIONAL
SEQUENCE {
    IntraFreqMeasurementSysInfo
    InterFreqMeasurementSysInfo
    InterSystemMeasurementSysInfo
    TrafficVolumeMeasSysInfo
    UE-InternalMeasurementSysInfo
}
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL,
OPTIONAL
SEQUENCE {
}
ENUMERATED {
    gsm-CarrierRSSI,
    pathloss
}
SEQUENCE {
    TransferMode,
    PeriodicalOrEventTrigger
}
CHOICE {
    IntraFrequencyMeasurement,
    InterFrequencyMeasurement,
    InterSystemMeasurement,
    LCS-Measurement,
    TrafficVolumeMeasurement,
    QualityMeasurement,
    UE-InternalMeasurement
}
SEQUENCE {
    Resume-Release
}
SEQUENCE (SIZE(1..7)) OF
    MonitoredCellRACH-Result
SEQUENCE {
    SFN-SFN-ObsTimeDifference
    CHOICE {
        SEQUENCE {
            PrimaryCPICH-Info,
            CHOICE {
                CPICH-Ec-NO,
                CPICH-RSCP,
                CPICH-SIR,
                Pathloss
            }
        }
    }
}
OPTIONAL
SEQUENCE {
    PrimaryCCPCH-Info,
    PrimaryCCPCH-RSCP
}
OPTIONAL

```

```

    }
}

MonitoredSetCellReport ::=          ENUMERATED {
                                     excludeAll,
                                     other }

MultipathIndicator ::=              ENUMERATED {
                                     nm,
                                     low,
                                     medium,
                                     high }

NavigationModelSatInfo ::=          SEQUENCE {
    satID                             INTEGER (0..63),
    satelliteStatus                    SatelliteStatus,
    compression                        CHOICE {
        uncompressed                  UncompressedNavModel,
        compressed                    CompressedNavModel
    }
}

NavigationModelSatInfoList ::=      SEQUENCE (SIZE (1..maxN-SAT)) OF
    NavigationModelSatInfo

Neighbor ::=                         SEQUENCE {
    neighborIdentity                   PrimaryCPICH-Info                OPTIONAL,
    neighborQuantity                  NeighborQuantity,
    sfn-SFN-ObsTimeDifference2        SFN-SFN-ObsTimeDifference2
}

NeighborList ::=                    SEQUENCE (SIZE (1..15)) OF
    Neighbor

-- **TODO**, to be defined fully
NeighborQuantity ::=                SEQUENCE {
}

NewInterFreqCell ::=                SEQUENCE {
    interFreqCellID                   InterFreqCellID                OPTIONAL,
    frequencyInfo                     FrequencyInfo                  OPTIONAL,
    cellInfo                           CellInfo
}

NewInterFreqCellList ::=            SEQUENCE (SIZE (1..maxInterCells)) OF
    NewInterFreqCell

NewInterFreqCellSI ::=              SEQUENCE {
    interFreqCellID                   InterFreqCellID                OPTIONAL,
    frequencyInfo                     FrequencyInfo                  OPTIONAL,
    cellInfo                           CellInfoSI
}

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

NewInterSystemCell ::=              SEQUENCE {
    technologySpecificInfo             CHOICE {
        gsm                            SEQUENCE {
            q-Offset                    Q-Offset                OPTIONAL,
            hcs-NeighbouringCellInformation HCS-NeighbouringCellInformation OPTIONAL,
            q-Min                        Q-Min,
            maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power,
            bsic                          BSIC,
            bch-ARFCN                    BCCH-ARFCN,
            gsm-OutputPower              GSM-OutputPower        OPTIONAL
        },
        is-2000                          SEQUENCE {
            is-2000SpecificMeasInfo      IS-2000SpecificMeasInfo
        }
    }
}

```



```

}

NewInterSystemCellList ::=          SEQUENCE (SIZE (1..maxInterSysCells)) OF
                                      NewInterSystemCell

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

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

NewIntraFreqCellSI ::=              SEQUENCE {
    intraFreqCellID                  OPTIONAL,
    cellInfoSI                         CellInfoSI
}

NewIntraFreqCellSI-List ::=         SEQUENCE (SIZE (1..maxIntraCells)) OF
                                      NewIntraFreqCell

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

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

ObservedTimeDifferenceToGSM ::=      INTEGER (0..4095)

OtherRAT-InSysInfo ::=              SEQUENCE {
    rat-Type                           RAT-Type,
    k-InterRAT                          K-InterRAT
}

OtherRAT-InSysInfoList ::=          SEQUENCE (SIZE (1..maxInterRAT)) OF
                                      OtherRAT-InSysInfo

OTDOA-SearchWindowSize ::=          ENUMERATED {
    c10, c20, c30, c40, c50,
    c60, c70, moreThan70 }

Pathloss ::=                         INTEGER (46..158)

PenaltyTime ::=                     CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffset,
    pt20                                TemporaryOffset,
    pt30                                TemporaryOffset,
    pt40                                TemporaryOffset,
    pt50                                TemporaryOffset,
    pt60                                TemporaryOffset
}

PendingTimeAfterTrigger ::=          ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=         ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::=      SEQUENCE {
    reportingAmount                    ReportingAmount                OPTIONAL,
    reportingInterval                  ReportingIntervalLong          OPTIONAL
}

-- **TODO**, contents to be defined, source 23.032
PositionEstimate ::=                 CHOICE {
    ellipsoidPoint                      SEQUENCE {}
}

```

```

    ellipsoidPointUncertCircle          SEQUENCE {},
    ellipsoidPointUncertEllipse         SEQUENCE {},
    ellipsoidPointAltitude              SEQUENCE {},
    ellipsoidPointAltitudeEllipse       SEQUENCE {}
}

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

PRC ::=                                  INTEGER (-32767..32767)

-- **TODO**, not defined yet
PrimaryCCPCH-RSCP ::=                     SEQUENCE {
}

Q-Accept-s-n ::=                          INTEGER (0..63)

Q-HCS ::=                                 INTEGER (0..99)

Q-Offset ::=                              INTEGER (-50..50)

-- Actual value = IE value * 0.5
Q-OffsetS-N ::=                           INTEGER (-4050..4050)

-- **TODO**, not defined yet
Q-Min ::=                                 SEQUENCE {
}

Qmin-FDD ::=                              INTEGER (-20..0)

-- Actual value = IE value * 2 - 115
Qmin-TDD ::=                              INTEGER (0..45)

-- **TODO**, not defined yet
QualityEventResults ::=                   SEQUENCE {
}

-- **TODO**, not defined yet
QualityMeasQuantity ::=                   SEQUENCE {
}

QualityMeasuredResults ::=                SEQUENCE {
    blerMeasurementResultsList           BLER-MeasurementResultsList           OPTIONAL,
    dl-PhysicalChannelBER                 DL-PhysicalChannelBER                 OPTIONAL,
    sir                                    SIR                                    OPTIONAL
}

QualityMeasurement ::=                    SEQUENCE {
    qualityMeasurementObject              QualityMeasurementObject              OPTIONAL,
    qualityMeasQuantity                   QualityMeasQuantity                   OPTIONAL,
    qualityReportingQuantity              QualityReportingQuantity              OPTIONAL,
    reportCriteria                         QualityReportCriteria
}

-- **TODO**, not defined yet
QualityMeasurementObject ::=              SEQUENCE {
}

QualityReportCriteria ::=                  CHOICE {
    qualityReportingCriteria              QualityReportingCriteria,
    periodicalReportingCriteria           PeriodicalReportingCriteria,
    noReporting                            NULL
}

-- **TODO**, not defined yet
QualityReportingCriteria ::=              SEQUENCE {
}

QualityReportingQuantity ::=              SEQUENCE {
    dl-TransChBLER                        BOOLEAN,

```

```

    bler-TransChIdList          BLER-TransChIdList          OPTIONAL,
    sir                          BOOLEAN
}

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

RAT-Type ::=                   ENUMERATED {
                                gsm, is2000, spare1, spare2,
                                spare3, spare4, spare5, spare6,
                                spare7, spare8, spare9, spare10,
                                spare11, spare12, spare13, spare14 }

-- **TODO**, definition to be checked from 23.032
ReferenceCellPosition ::=      SEQUENCE {
}

ReferenceCellRelation ::=      ENUMERATED {
                                first-12-second-3,
                                first-13-second-2,
                                first-1-second-23 }

ReferenceGPS-TOW ::=           INTEGER (0..604700000000)

ReferenceQuality ::=           ENUMERATED {
                                m0-19, m20-39, m40-79,
                                m80-159, m160-319, m320-639,
                                m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::=         INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::=         INTEGER (1..32)

ReferenceSFN ::=               INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::= CHOICE {
    -- Actual value = IE value * 40
    accuracy40                  INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256                 INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560                INTEGER (0..15)
}

RemovedInterFreqCell ::=      SEQUENCE {
    interFreqCellID             InterFreqCellID
}

RemovedInterFreqCellList ::=  SEQUENCE (SIZE (1..maxInterCells)) OF
    RemovedInterFreqCell

RemovedInterSystemCell ::=    SEQUENCE {
    interSystemCellID           InterSystemCellID
}

RemovedInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
    RemovedInterSystemCell

RemovedIntraFreqCell ::=      SEQUENCE {
    intraFreqCellID             IntraFreqCellID
}

RemovedIntraFreqCellList ::=  SEQUENCE (SIZE (1..maxIntraCells)) OF
    RemovedIntraFreqCell

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 ::=              SEQUENCE {
    maxNumberOfReportingCells        MaxNumberOfReportingCells,
    measurement                       CHOICE {
        intraFreq                    ReportingCellStatusIntraFreq,
        otherMeasurement              NULL
    }
}

ReportingCellStatusIntraFreq ::=     SEQUENCE {
    activeSetCellReport              ActiveSetCellReport,
    monitoredSetCellReport           MonitoredSetCellReport
}

ReportingInfoForCellDCH ::=          SEQUENCE {
    intraFreqReportingQuantity       IntraFreqReportingQuantity,
    reportCriteria                   CellDCH-ReportCriteria
}

ReportingInterval ::=                ENUMERATED {
                                        noPeriodicalreporting, ri0-25,
                                        ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::=            ENUMERATED {
                                        ril0, ril0-25, ril0-5, ril1,
                                        ril2, ril3, ril4, ril6, ril8,
                                        ril12, ril16, ril20, ril24,
                                        ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::=                   INTEGER (0..29)

Resume-Release ::=                   CHOICE {
    resume                            UE-State,
    release                            NULL
}

RL-AdditionInfo ::=                  SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info
}

RL-AdditionInfoList ::=              SEQUENCE (SIZE(1..maxAddRLcount)) OF
                                        RL-AdditionInfo

RL-InformationLists ::=              SEQUENCE {
    rl-AdditionInfoList              RL-AdditionInfoList                OPTIONAL,
    rl-RemovalInfoList              RL-RemovalInfoList                OPTIONAL
}

RL-RemovalInfo ::=                   SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info
}

RL-RemovalInfoList ::=               SEQUENCE (SIZE(1..maxDelRLcount)) OF
                                        RL-RemovalInfo

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

RRC ::=                               INTEGER (-127..127)

-- **TODO**, not defined yet

```

```

RSCP ::=
}

SatelliteStatus ::=
    ENUMERATED {
        ns-NN-U,
        es-SN,
        es-NN-U,
        es-NN-C }

SatID ::=
    INTEGER (0..31)

ScaleFactor ::=
    ENUMERATED {
        prc0-02-rrc0-002,
        prc0-32-rrc0-032 }

SFN-SFN-ObsTimeDifference ::=
    CHOICE {
        type1
            SFN-SFN-ObsTimeDifference1,
        -- Actual value for type2 = IE value * 0.25
        type2
            SFN-SFN-ObsTimeDifference2
    }

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

SFN-SFN-ObsTimeDifference2 ::=
    INTEGER (-5119..5120)

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

SignallingOption ::=
    alternative1
        q-OffsetS-N
    },
    alternative2
}
NULL
OPTIONAL

SIR ::=
    INTEGER (-10..20)

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

-- **TODO**, not defined yet
Threshold ::=
}

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 }

-- **TODO**, not defined yet
TimeslotISCP ::=
}

TimeslotListWithISCP ::=
    SEQUENCE (SIZE (1..14)) OF
        TimeslotWithISCP

TimeslotWithISCP ::=
    SEQUENCE {
        timeslot
            Timeslot,
        timeslotISCP
            TimeslotISCP
    }

```

```

}

TimeToTrigger ::=
    ENUMERATED {
        ttt0, ttt10, ttt20, ttt40, ttt60,
        ttt80, ttt100, ttt120, ttt160,
        ttt200, ttt240, ttt320, ttt640,
        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=
    SEQUENCE {
        eventID
        reportingThreshold
    }

TrafficVolumeEventResults ::=
    SEQUENCE {
        transportChannelCausingEvent
        trafficVolumeEventIdentity
    }

TrafficVolumeEventType ::=
    ENUMERATED {
        e4a,
        e4b }

TrafficVolumeMeasObject ::=
    SEQUENCE {
        targetTransportChannelID
    }

TrafficVolumeMeasObjectList ::=
    SEQUENCE (SIZE (1..maxTrCHcount)) OF
        TrafficVolumeMeasObject

TrafficVolumeMeasQuantity ::=
    ENUMERATED {
        rlc-BufferPayload,
        averageRLC-BufferPayload,
        varianceOfRLC-BufferPayload }

TrafficVolumeMeasSysInfo ::=
    SEQUENCE {
        trafficVolumeMeasurementID
        trafficVolumeMeasObjectList
        trafficVolumeMeasQuantity
    }
    MeasurementIdentityNumber OPTIONAL,
    TrafficVolumeMeasObjectList OPTIONAL,
    TrafficVolumeMeasQuantity OPTIONAL

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

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

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

TrafficVolumeMeasurementObject ::= SEQUENCE {
    targetTransportChannelID
    TransportChannelIdentity
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasurementObject

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

TrafficVolumeReportingCriteria ::= SEQUENCE {

```

```

    transChCriteriaList          TransChCriteriaList          OPTIONAL,
    timeToTrigger                TimeToTrigger                OPTIONAL,
    pendingTimeAfterTrigger      PendingTimeAfterTrigger    OPTIONAL,
    tx-InterruptionAfterTrigger  TX-InterruptionAfterTrigger OPTIONAL,
    reportingAmount              ReportingAmount            OPTIONAL,
    reportingInterval            ReportingInterval          OPTIONAL
}

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

TrafficVolumeThreshold ::=
    ENUMERATED {
        th8, th16, th32, th64, th128,
        th256, th512, th1024, th1536,
        th2048, th3072, th4096, th6144,
        th8192 }

TransChCriteria ::=
    SEQUENCE {
        transportChannelID        TransportChannelIdentity,
        eventSpecificParameters    SEQUENCE (SIZE (1..2)) OF
            TrafficVolumeEventParam    OPTIONAL
    }

TransChCriteriaList ::=
    SEQUENCE (SIZE (1..maxTrCHcount)) OF
        TransChCriteria

TransferMode ::=
    ENUMERATED {
        acknowledgedModeRLC,
        unacknowledgedModeRLC }

TransmittedPowerThreshold ::=
    INTEGER (-50..33)

TriggeringCondition ::=
    ENUMERATED {
        activeSetCellsOnly,
        monitoredCellsOnly,
        activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::=
    ENUMERATED {
        txiat0-25, txiat0-5, txiat1,
        txiat2, txiat4, txiat8, txiat16 }

UDRE ::=
    ENUMERATED {
        lessThan1,
        between1-and-4,
        between4-and-8,
        over8 }

UE-6AB-Event ::=
    SEQUENCE {
        timeToTrigger            TimeToTrigger,
        transmittedPowerThreshold TransmittedPowerThreshold
    }

UE-6FG-Event ::=
    SEQUENCE {
        timeToTrigger            TimeToTrigger,
        ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
    }

UE-AutonomousUpdateMode ::=
    CHOICE {
        on                        NULL,
        onWithNoReporting        NULL,
        off                       RL-InformationLists
    }

UE-InternalEventParam ::=
    CHOICE {
        event6a                  UE-6AB-Event,
        event6b                  UE-6AB-Event,
        event6c                  TimeToTrigger,
        event6d                  TimeToTrigger,
    }

```

```

    event6e                TimeToTrigger,
    event6f                UE-6FG-Event,
    event6g                UE-6FG-Event
}

UE-InternalEventParamList ::= SEQUENCE (SIZE (1..maxEventCount)) 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
}

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            ue-TransmittedPowerFDD    UE-TransmittedPowerFDD    OPTIONAL,
            ue-RX-TX-ReportEntryList  UE-RX-TX-ReportEntryList  OPTIONAL
        },
        tdd                SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List  OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity    UE-InternalMeasQuantity    OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity  OPTIONAL,
    reportCriteria             UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID    MeasurementIdentityNumber    OPTIONAL,
    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,
    ue-RX-TX-TimeDifference        BOOLEAN,
    ue-Position                    BOOLEAN
}

UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info             PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference        UE-RX-TX-TimeDifference
}

```



```

UE-RX-TX-ReportEntryList ::=          SEQUENCE (SIZE (1..maxUsedRLcount)) OF
                                         UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::=            INTEGER (876..1172)

UE-RX-TX-TimeDifferenceThreshold ::=   INTEGER (769..1280)

UE-State ::=                           ENUMERATED {
                                         cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPowerFDD ::=            INTEGER (-50..33)

-- **TODO**, not defined yet
UE-TransmittedPowerTDD ::=            SEQUENCE {
}

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

UncompressedNavModel ::=              SEQUENCE {
  iode                                 BIT STRING (SIZE (8)),
  t-oe                                 BIT STRING (SIZE (16)),
  c-rc                                 BIT STRING (SIZE (16)),
  c-rs                                 BIT STRING (SIZE (16)),
  c-ic                                 BIT STRING (SIZE (16)),
  c-is                                 BIT STRING (SIZE (16)),
  c-uc                                 BIT STRING (SIZE (16)),
  c-us                                 BIT STRING (SIZE (16)),
  e                                    BIT STRING (SIZE (32)),
  m0                                    BIT STRING (SIZE (32)),
  a-Sqrt                               BIT STRING (SIZE (32)),
  delta-n                              BIT STRING (SIZE (16)),
  omega0                               BIT STRING (SIZE (32)),
  omegaDot                             BIT STRING (SIZE (24)),
  i0                                    BIT STRING (SIZE (32)),
  iDot                                 BIT STRING (SIZE (14)),
  omega                                BIT STRING (SIZE (32)),
  t-oc                                 BIT STRING (SIZE (16)),
  af0                                  BIT STRING (SIZE (22)),
  af1                                  BIT STRING (SIZE (16)),
  af2                                  BIT STRING (SIZE (8))
}

UTRA-CarrierRSSI ::=                  INTEGER (-95..-30)

UTRAN-ReferenceTime ::=                SEQUENCE {
  gps-TOW                              INTEGER (0..604700000000),
  sfn                                   INTEGER (0..4095)
}

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

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

END

```

## 11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

  CN-DomainSysInfoList,
  NAS-SystemInformationGSM-MAP,
  PLMN-Type

```

```

FROM CoreNetwork-IEs

    CellAccessRestriction,
    CellIdentity,
    CellSelectReselectInfo, CellSelectReselectInfoForSIB3and4,
    URA-IdentityList
FROM UTRANMobility-IEs

    CapabilityUpdateRequirement,
    CPCH-Parameters,
    DRAC-SysInfoList,
    ProtocolErrorCause,
    UE-ConnTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

    PreDefRadioConfigurationList
FROM RadioBearer-IEs

    PreDefTransChConfiguration
FROM TransportChannel-IEs

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    DynamicPersistenceLevelList,
    FrequencyInfo,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PreDefPhyChConfiguration,
    PrimaryCCPCH-InfoSI,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

    FACH-MeasurementOccasionInfo,
    LCS-GPS-AssistanceSIB,
    LCS-OTDOA-AssistanceSIB,
    MeasurementControlSysInfo
FROM Measurement-IEs

    ANSI-41-GlobalServiceRedirectInfo,
    ANSI-41-PrivateNeighborListInfo,
    ANSI-41-RAND-Information,
    ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

    maxDataLength,
    maxInterSysMessages,
    maxNoOfErrors,
    maxSysInfoBlockCount,
    maxSysInfoBlockFACHcount
FROM Constant-definitions;

BCC ::= INTEGER (0..7)

BCCH-ModificationInfo ::= SEQUENCE {
    mib-ValueTag MIB-ValueTag,
    bcch-ModificationTime BCCH-ModificationTime OPTIONAL
}

-- Actual value = IE value * 2
BCCH-ModificationTime ::= INTEGER (0..2047)

BSIC ::= SEQUENCE {

```

```

ncc                NCC,
bcc                BCC
}

CBS-DRX-Level1Information ::= SEQUENCE {
    ctch-AllocationPeriod    INTEGER (1..256),
    cbs-FrameOffset          INTEGER (0..255)
}

CDMA2000-Message ::= SEQUENCE {
    msg-Type                BIT STRING (SIZE (8)),
    payload                 BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    CDMA2000-Message

CellValueTag ::= INTEGER (1..4)

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

InterSystemHO-Failure ::= SEQUENCE {
    interSystemHO-FailureCause    OPTIONAL,
    interSystemMessage            OPTIONAL
}

InterSystemHO-FailureCause ::= CHOICE {
    configurationUnacceptable      NULL,
    physicalChannelFailure         NULL,
    protocolError                  ProtocolErrorInformation,
    unspecified                    NULL,
    spare                          NULL
}

InterSystemMessage ::= SEQUENCE {
    systemType                SystemType,
    systemSpecificMessage     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.
    modeSpecificInfo         CHOICE {
        fdd                     NULL,
        tdd                     SEQUENCE {
            sfn-prime            SFN-Prime
        }
    },
    sib-ReferenceList         SIB-ReferenceList,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {} OPTIONAL
}

MIB-ValueTag ::= INTEGER (1..8)

NCC ::= INTEGER (0..7)

PLMN-ValueTag ::= INTEGER (1..256)

ProtocolErrorInformation ::= SEQUENCE {
    diagnosticsType          CHOICE {
        type1                 SEQUENCE {

```

```

        protocolErrorCause          ProtocolErrorCause
    },
    spare                            NULL
}
}

ProtocolErrorInformationList ::= SEQUENCE (SIZE (1..maxNoOfErrors)) OF
    ProtocolErrorInformation

SchedulingInformation ::= SEQUENCE {
    sib-Type          SIB-TypeAndTag,
    scheduling        SEQUENCE {
        segCount      SegCount          DEFAULT 1,
        sib-Pos       CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4       INTEGER (0..1),
            rep8       INTEGER (0..3),
            rep16      INTEGER (0..7),
            rep32      INTEGER (0..15),
            rep64      INTEGER (0..31),
            rep128     INTEGER (0..63),
            rep256     INTEGER (0..127),
            rep512     INTEGER (0..255),
            rep1024    INTEGER (0..511),
            rep2048    INTEGER (0..1023)
        }
    },
    sib-PosOffsetInfo SibOFF-List          OPTIONAL
}
OPTIONAL

SegCount ::= INTEGER (1..16)

SegmentIndex ::= INTEGER (0..15)

-- Actual value = 2 * IE value
SFN-Prime ::= INTEGER (0..2047)

SIB-Content ::= CHOICE {
    masterInformationBlock      MasterInformationBlock,
    sysInfoType1               SysInfoType1,
    sysInfoType2               SysInfoType2,
    sysInfoType3               SysInfoType3,
    sysInfoType4               SysInfoType4,
    sysInfoType5               SysInfoType5,
    sysInfoType6               SysInfoType6,
    sysInfoType7               SysInfoType7,
    sysInfoType8               SysInfoType8,
    sysInfoType9               SysInfoType9,
    sysInfoType10              SysInfoType10,
    sysInfoType11              SysInfoType11,
    sysInfoType12              SysInfoType12,
    sysInfoType13              SysInfoType13,
    sysInfoType13-1            SysInfoType13-1,
    sysInfoType13-2            SysInfoType13-2,
    sysInfoType13-3            SysInfoType13-3,
    sysInfoType13-4            SysInfoType13-4,
    sysInfoType14              SysInfoType14,
    sysInfoType15              SysInfoType15,
    sysInfoType16              SysInfoType16,
    spare                       SEQUENCE {}
}

SIB-Data ::= BIT STRING (SIZE (1..maxDataLength))

SIB-Reference ::= SEQUENCE {
    schedulingInformation      SchedulingInformation
}

SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSysInfoBlockCount)) OF
    SIB-Reference

```

```

SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSysInfoBlockFACHcount)) OF
                           SIB-Reference

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,
                systemInformationBlockType16,
                spare1, spare2, spare3 }

SIB-TypeAndTag ::= CHOICE {
    sysInfoType1      PLMN-ValueTag,
    sysInfoType2      PLMN-ValueTag,
    sysInfoType3      CellValueTag,
    sysInfoType4      CellValueTag,
    sysInfoType5      CellValueTag,
    sysInfoType6      CellValueTag,
    sysInfoType7      NULL,
    sysInfoType8      NULL,
    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     NULL,
    sysInfoType16     NULL
}

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

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

SysInfoType1 ::= SEQUENCE {
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
    cn-DomainSysInfoList          CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants     UE-IdleTimersAndConstants,
    -- Extension mechanism
    non-Release99-Information     SEQUENCE { } OPTIONAL
}

SysInfoType2 ::= SEQUENCE {
    -- UTRAN mobility IEs
    ura-IdentityList              URA-IdentityList,

```

```

-- User equipment IEs
  ue-ConnTimersAndConstants      UE-ConnTimersAndConstants,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType3 ::=
-- Other IEs
  sib-ReferenceList              SIB-ReferenceList                        OPTIONAL,
-- UTRAN mobility IEs
  cellIdentity                   CellIdentity,
  cellSelectReselectInfo         CellSelectReselectInfo,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType4 ::=
-- Other IEs
  sib-ReferenceList              SIB-ReferenceList                        OPTIONAL,
-- UTRAN mobility IEs
  cellIdentity                   CellIdentity,
  cellSelectReselectInfo         CellSelectReselectInfo,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType5 ::=
-- Other IEs
  sib-ReferenceList              SIB-ReferenceList                        OPTIONAL,
-- Physical channel IEs
  frequencyInfo                  FrequencyInfo                          OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power                OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                           NULL,
    tdd                           SEQUENCE {
      midambleConfiguration      MidambleConfiguration                OPTIONAL
    }
  },
  primaryCCPCH-Info              PrimaryCCPCH-InfoSI                      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
  non-Release99-Information      SEQUENCE {}                                OPTIONAL
}

SysInfoType6 ::=
-- Other IEs
  sib-ReferenceList              SIB-ReferenceList                        OPTIONAL,
-- Physical channel IEs
  frequencyInfo                  FrequencyInfo                          OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power                OPTIONAL,
  primaryCCPCH-Info              PrimaryCCPCH-InfoSI                      OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                           SEQUENCE {
      pich-PowerOffset           PICH-PowerOffset,
      aich-PowerOffset           AICH-PowerOffset
    },
    tdd                           SEQUENCE {
      pusch-SysInfo              PUSCH-SysInfoList                OPTIONAL,
      pdsch-SysInfo              PDSCH-SysInfoList                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
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType7 ::= SEQUENCE {
-- Physical channel IEs
modeSpecificInfo CHOICE {
fdd SEQUENCE {
ul-Interference UL-Interference
},
tdd NULL
},
prach-Information-SIB5-List DynamicPersistenceLevelList,
prach-Information-SIB6-List DynamicPersistenceLevelList OPTIONAL,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType8 ::= SEQUENCE {
-- User equipment IEs
cpch-Parameters CPCH-Parameters,
-- Physical channel IEs
cpch-SetInfoList CPCH-SetInfoList,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType9 ::= SEQUENCE {
-- Physical channel IEs
cpch-PersistenceLevelsList CPCH-PersistenceLevelsList,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType10 ::= SEQUENCE {
-- User equipment IEs
drac-SysInfoList DRAC-SysInfoList,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType11 ::= SEQUENCE {
-- Other IEs
sib-ReferenceList SIB-ReferenceList OPTIONAL,
-- Measurement IEs
fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo OPTIONAL,
measurementControlSysInfo MeasurementControlSysInfo,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType12 ::= SEQUENCE {
-- Other IEs
sib-ReferenceList SIB-ReferenceList OPTIONAL,
-- Measurement IEs
fach-MeasurementOccasionInfo FACH-MeasurementOccasionInfo OPTIONAL,
measurementControlSysInfo MeasurementControlSysInfo,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

SysInfoType13 ::= SEQUENCE {
-- Other IEs
sib-ReferenceList SIB-ReferenceList OPTIONAL,
-- Core network IEs
cn-DomainSysInfoList CN-DomainSysInfoList,
-- User equipment IEs
ue-IdleTimersAndConstants UE-IdleTimersAndConstants OPTIONAL,
capabilityUpdateRequirement CapabilityUpdateRequirement OPTIONAL,
-- Extension mechanism
non-Release99-Information SEQUENCE {} OPTIONAL
}

```

```

SysInfoType13-1 ::=                               SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-RAND-Information      ANSI-41-RAND-Information,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType13-2 ::=                               SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType13-3 ::=                               SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType13-4 ::=                               SEQUENCE {
  -- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo ANSI-41-GlobalServiceRedirectInfo,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType14 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList             SIB-ReferenceList     OPTIONAL,
  -- Physical channel IEs
  primaryCCPCH-TX-Power        PrimaryCCPCH-TX-Power   OPTIONAL,
  individualTS-InterferenceList IndividualTS-InterferenceList,
  rach-ConstantValue           ConstantValue         OPTIONAL,
  dpch-ConstantValue           ConstantValue         OPTIONAL,
  usch-ConstantValue           ConstantValue         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType15 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList             SIB-ReferenceList     OPTIONAL,
  -- Measurement IEs
  lcs-GPS-Assistance           LCS-GPS-AssistanceSIB  OPTIONAL,
  lcs-OTDOA-Assistance         LCS-OTDOA-AssistanceSIB  OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SysInfoType16 ::=                               SEQUENCE {
  -- Other IEs
  sib-ReferenceList             SIB-ReferenceList     OPTIONAL,
  -- Radio bearer IEs
  preDefinedRadioConfigurations PreDefRadioConfigurationList,
  -- Transport channel IEs
  preDefTransChConfiguration   PreDefTransChConfiguration,
  -- Physical channel IEs
  preDefPhyChConfiguration     PreDefPhyChConfiguration,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}           OPTIONAL
}

SystemType ::=                                  ENUMERATED {
  gsm, cdma2000,
  spare1, spare2, spare3, spare4,
  spare5, spare6, spare7, spare8,
  spare9, spare10, spare11,
  spare12, spare13, spare14 }

```



END

<b>CHANGE REQUEST</b>				Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
<b>25.331</b>		<b>CR</b>	<b>289r2</b>		Current Version: <b>3.2.0</b>
GSM (AA.BB) or 3G (AA.BBB) specification number ↑			↑ CR number as allocated by MCC support team		
For submission to:	<b>TSG-RAN #8</b>	for approval	<input checked="" type="checkbox"/>	strategic	<input type="checkbox"/>
list expected approval meeting # here ↑		for information	<input type="checkbox"/>	non-strategic	<input type="checkbox"/>
				(for SMG use only)	

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

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

**Source:** TSG-RAN WG2 **Date:** 22<sup>nd</sup> May, 2000

**Subject:** Modification on Measurement IE

**Work item:**

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

**Reason for change:**

Description for UE behaviour when traffic volume measurement whose measurement object is no longer present (due to RB Release, for example) is added.

Description is added to allow same measurement type to share measurement object information.

“Need” column of “Inter-frequency cell info” in “Inter-frequency measurement event results” is changed, since this information is not necessary for event 2d and 2f.

“Inter-frequency measurement reporting criteria” is added to “Inter-frequency measurement system information”

Another conditional clause is proposed for “Intra-frequency measurement reporting criteria”, since “W” and “Reporting Range” must be mandatory for event 1a and 1b.

Threshold for event 1e, 1f is proposed, since it was missing. The values are taken from the absolute minimum and absolute maximum value of FDD parameters reported in “Cell measured results”

The value range of measurement ID is proposed, since it is undefined.

Time Interval to compute average or variance of RLC buffer size is added.

Changes made in Revision 1: the maximum number of measurement ID was changed from 32 to 16. Also, the comments regarding “Removed” measurement object was removed from CR.

Changes made in Revision 2: Changes made in Revision 1 was not correctedly reflected to ASN.1. The value ranges for “Threshold used frequency” and “Threshold non used frequency” is proposed, since it is undefined. Proposed change to add

threshold to "Intra-frequency measurement reporting criteria" is removed, because the value range was conflicting with the threshold proposed in CR324.

**Clauses affected:** 8.4.1.X, 8.5.7.7.X, 10.3.7.19, 10.3.7.20, 10.3.7.33, 10.3.7.39, 10.3.7.73, 10.3.7.97, 11.3.7

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

**Other comments:**



help.doc

<----- [double-click here for help and instructions on how to create a CR.](#)

#### 8.4.1.10 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:

##### **Intra-frequency measurement**

The UE shall begin monitoring neighbouring cells listed in the "intra-frequency cell info" received in "System Information Block 12" (or "System Information Block 11").

If the UE receives "intra-frequency measurement reporting criteria", from "System Information Block 12" (or "System Information Block 11"), the UE shall store this information to use after a subsequent transition to CELL\_DCH state.

If the UE receives the "Intra-frequency reporting quantity for RACH Reporting" and "Maximum number of Reported cells on RACH" IEs from "System Information Block 12" (or "System Information Block 11"), the UE use this information for reporting measured results in RACH messages.

##### **Inter-frequency measurement**

The UE shall begin monitoring neighbouring cells listed in the "inter-frequency cell info" received in "System Information Block 12" (or "System Information Block 11").

The UE shall not measure on other frequencies except at the measurement occasions given in 8.5.12.

##### **Inter-system measurement**

The UE shall begin monitoring neighbouring cells listed in the "inter-system" cell info" received in "System Information Block 12" (or "System Information Block 11").

The UE shall not measure on other systems except at the measurement occasions given in 8.5.12.

##### **Traffic volume measurement**

The UE shall begin a traffic volume type measurement according to traffic volume measurement type information received in "System Information Block 12" (or "System Information Block 11").

#### 8.4.1.11 Measurements when measurement object is no longer valid

##### Traffic Volume Measurement

If UE is no longer using the transport channel that is specified in "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 that particular measurement and its measurement ID.

#### 8.5.7.7.2 Filter coefficient

If the IE "Filter coefficient" is received the UE shall apply filtering of the measurements for that measurement quantity according to the formula below. This filtering shall be performed by the UE before UE event evaluation. The UE shall also filter the measurements reported in the IE "Measured results" or the IE "Measurement results on RACH". The filtering shall not be performed for cell-reselection in connected or idle mode.

The filtering shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows:

$F_n$  is the updated filtered measurement result

$F_{n-1}$  is the old filtered measurement result

$M_n$  is the latest received measurement result from physical layer measurements, the unit used for  $M_n$  is the same unit as the reported unit in the MEASUREMENT REPORT message or the unit used in the event evaluation.

$a$  = one divided by the parameter received in the IE "Filter coefficient". Note that if  $a$  is set to 1 that will mean no layer 3 filtering.

In order to initialize the averaging filter,  $F_0$  is set to  $M_1$  when the first measurement result from the physical layer measurement is received.

The physical layer measurement results are sampled once every measurement period. The measurement period and the accuracy for a certain measurement is defined in 3G TS 25.133.

#### 8.5.7.7.3 Intra-frequency/Inter-frequency/Inter-system cell info list

If one of these IEs is received, and “Removed \*\*\*\*\* cells” or/and “New \*\*\*\*\* cells” is present in the received IE, UE shall update measurement objects for that measurement accordingly.

If one of these IEs is included, but neither “Removed \*\*\*\*\* cells” nor “New \*\*\*\*\* cells” is included, UE shall not change the information on that measurement object. (This case is applied only when Measurement Command = “Modify”.)

If one of these IEs is not received when IE is absent, UE shall re-order same measurement type by measurement ID in ascending order, and use the preceding ID’s measurement object information. (For example, suppose UE is assigned 3 measurement IDs (suppose they were ID10, 11, and 15) for intra-frequency measurement, and UE did not receive “Intra-frequency cell info” for Measurement ID 15. When performing the measurement assigned with 15, UE shall use the measurement object information associated with Measurement ID 11).

## 10.3.7 Measurement Information elements

### 10.3.7.1 Additional measurements list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Additional measurements	MP	1 to <MaxAdditionalMeas>		
>Additional measurement identity	MP		Measurement identity number 10.3.73	

Multi Bound	Explanation
<i>MaxAdditionalMeas</i>	Maximum number of additional measurements for a given measurement identity

### 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
Reference time difference to cell	OP		Integer (-153088 ..153088 by step of 512)	In chips.
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.43	Not required if measuring RSSI only
>>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.44	
>>Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.42	
>>DL CCTrCH info	OP			List of TFCS ID's to measure
>>DL Timeslot info	OP			List of timeslots to measure
Cell Selection and Re-selection Info	CV		Cell Selection and Re-selection Info 10.3.2.3	Only when sent in system information
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Qmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qmin for the serving cell
>>TDD				
>>> Qmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qmin for the serving cell
>Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.27	[dBm] UE_TXPWR_MAX_RACH in 25.304. Default is the Maximum allowed UL TX power for the serving cell
>CHOICE <i>signalling option</i>	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>Qoffset <sub>s,n</sub>	MD		Real(-50.0..50.0 by step of 1)	Default value is 0.
>>Alternative 2				(no data) Used when Alternative 2 according to TS 25.304 of how offset parameters should be signalled
>HCS neighbouring cell information	OP		HCS Neighbourin	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			g cell information 10.3.7.11	

### 10.3.7.3 Cell measured results

Includes non frequency related measured results for a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Identity	OP		Cell Identity 10.3.2.2	
SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>CPICH Ec/N0	OP		Enumerated(-20..0)	In dB
>>CPICH RSCP	OP		Enumerated(-115..-40)	In dBm
>>CPICH SIR	OP		Enumerated(-10..20)	In dB Note 1
>>Pathloss	OP		Enumerated(46..158)	In dB
>>CFN-SFN observed time difference	OP		CFN-SFN observed time difference 10.3.7.6	Note 2
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>Primary CCPCH RSCP	OP			
>>DL CCTrCH SIR	OP	1 to <maxCCTrCHcount>		SIR measurements for each DL CCTrCH
>>>Timeslot	OP	1 to <maxTSperCCTrCH count>		All timeslots on which the CCTrCH is mapped on
>>>>ISCP	OP			
>>>>RSCP	OP			
>>DL Timeslot ISCP	OP	1 to <maxTS toMEASURE count>		ISCP measurements for each timeslot indicated by the UTRAN
>>>ISCP	OP			

Multi Bound	Explanation
<i>MaxCCTrCHcount</i>	Maximum number of DL CCTrCH allocated to an UE
<i>MaxTSperCCTrCHcount</i>	Maximum number of TS on which a single DL CCTrCH is mapped on
<i>MaxTStoMEASUREcount</i>	Maximum number of TS on which the UE has to measure

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

NOTE 2: Feasibility of performing these measurements with compressed mode is unclear.

### 10.3.7.4 Cell measurement event results

Includes non frequency related cell reporting quantities.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP	1 to <maxCellCount>	Primary CPICH info 10.3.6.43	
>TDD				
>>Primary CCPCH info	MP	1 to <maxCellCount>	Primary CCPCH info 10.3.6.41	

Multi Bound	Explanation
<i>MaxCellCount</i>	Maximum number of cells to report

### 10.3.7.5 Cell reporting quantities

Includes non frequency related cell reporting quantities.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
Cell Identity	MP		Boolean	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPICH Ec/N0	MP		Boolean	
>>CPICH RSCP	MP		Boolean	
>>CPICH SIR	MP		Boolean	Note 1
>>Pathloss	MP		Boolean	
>>CFN-SFN observed time difference	MP		Boolean	
>TDD				
>>DL CcTrCH SIR	MP		Boolean	
>>Timeslot ISCP	MP		Boolean	
>>Primary CCPCH RSCP	MP		Boolean	
>>Pathloss	MP		Boolean	

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

### 10.3.7.6 CFN-SFN observed time difference

NOTE: Only for FDD.

The measured time difference to cell indicates the time difference that is measured by UE between CFN in the UE and the SFN of the target neighbouring cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CFN-SFN observed time difference	MP		Enumerated(0..9830399)	Number of chip



### 10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<b>CHOICE event result</b>	MP			
>Intra-frequency measurement event results			Intra-frequency measurement event results 10.3.7.37	
>Inter-frequency measurement event results			Inter-frequency measurement event results 10.3.7.17	
>Inter-system measurement event results			Inter-system measurement event results 10.3.7.28	For IS-2000 results, include fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.95	
>Quality measurement event results			Quality measurement event results 10.3.7.81	This IE is FFS
>UE internal measurement event results			UE internal measurement event results 10.3.7.104	
>LCS measurement event results			LCS measurement event results 10.3.7.58	

<b>CHOICE event result</b>	<b>Condition under which the given event result is chosen</b>
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-system measurement event results	If measurement type = inter-system measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
LCS measurement event results	If measurement type = LCS measurement

### 10.3.7.8 FACH measurement occasion info

This IE is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
k_UTRA	MP		DRX cycle length coefficient 10.3.3.9	
Other RAT present in inter-system cell info	OP	1 to <MaxInterRat>		
>RAT type	MP		Enumerated(GSM, IS2000)	At least 14 spare values, Criticality: Reject, are needed
>k_Inter_Rat	MP		Integer(0..12)	

<b>Multi Bound</b>	<b>Explanation</b>
<i>MaxInterRat</i>	Maximum number of other radio access technologies that can be present in the inter-system cell info

### 10.3.7.9 Filter coefficient

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Filter coefficient	MD		Enumerated(1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 64, 128, 256, 512, 1024)	Default value is 1 At least one, criticality: reject, spare value needed for future extension

### 10.3.7.10 HCS Cell re-selection information

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Penalty_time	MD		Enumerated(not used, 10, 20, 30, 40, 50, 60)	Default value = not used
Temporary_offset	<i>CV-Penalty used</i>		Enumerated(10, 20, 30, 40, 50, 60, 70, infinity)	

<b>Condition</b>	<b>Explanation</b>
<i>Penalty used</i>	Not allowed if IE Penalty time equals 'not used' else MP

### 10.3.7.11 HCS neighbouring cell information

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q <sub>HCS</sub>	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information 10.3.7.10	

### 10.3.7.12 HCS Serving cell information

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q <sub>HCS</sub>	MD		Integer(0..99)	Default value = 0
T <sub>CRmax</sub>	MD		Enumerated(not used, 30, 60, 120, 180, 240)	[s] Default value = not used
N <sub>CR</sub>	CV-UE speed detector		Integer(1..16)	Default value = 8
T <sub>CRmaxHyst</sub>	CV-UE speed detector		Enumerated(not used, 10, 20..70)	[s] Default value = not used

Condition	Explanation
UE Speed detector	Not allowed if T <sub>CRmax</sub> equals 'not used' else MP

### 10.3.7.13 Inter-frequency cell info list

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed inter-frequency cells	OP	1 .. <MaxInterCells>		
>Inter-frequency cell id	MP		Integer(0 .. MaxInterCells)	
New inter-frequency cells	OP	1 to <MaxInterCells>		
>Inter-frequency cell id	MD		Integer(0 .. MaxInterCells)	The first inter-frequency cell in the list corresponds to inter-frequency cell id 0, the second corresponds to inter-frequency cell id 1 etc
>Frequency info	MD		Frequency info 10.3.6.24	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	

Multi Bound	Explanation
MaxInterCells	Maximum number of Inter-frequency cells in a measurement control

### 10.3.7.14 Inter-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Enumerated(2a, 2b, 2c, 2d, 2e, 2f)	

### 10.3.7.15 Inter-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement results	OP	1 to <maxNumFreq>		
>Frequency info	MD		Frequency info 10.3.6.24	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>UTRA carrier RSSI	OP		Enumerated(-95..-30)	In dBm
>Inter-frequency cell measurement results	OP	1 to <maxInterCells>		
>>Cell measured results	MP		Cell measured results 10.3.7.3	

Multi Bound	Explanation
<i>maxNumFreq</i>	Maximum number of frequencies with inter-frequency cells that can be included in a measurement report
<i>maxInterCells</i>	Maximum number of inter-frequency cells for one frequency that can be included in a measurement report

### 10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
Inter-frequency set update	OP		Inter-frequency set update 10.3.7.22	
<b>CHOICE report criteria</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 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.17 Inter-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.34	
Inter-frequency cells	<u>MPOP</u>	1 to <maxFreq Count>		
>Frequency info	MP		Frequency info 10.3.6.24	
>Non frequency related measurement event results	MP		Cell measurement event results 10.3.7.4	

Multi Bound	Explanation
<i>MaxFreqCount</i>	Maximum number of frequencies to report.

### 10.3.7.18 Inter-frequency measurement quantity

The quantity the UE shall measure in case of inter-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>reporting criteria</i>	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement quantity	MP		Intra-frequency measurement quantity 10.3.7.38	
>Inter-frequency reporting criteria				
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(CPICH Ec/N0, CPICH RSCP)	
>>>TDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(Primary CCPCH RSCP)	

### 10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold.

Event 2d: The estimated quality of the currently used frequency is below a certain threshold.

Event 2e: The estimated quality of a non-used frequency is below a certain threshold.

Event 2f: The estimated quality of the currently used frequency is above a certain threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0		<a href="#">Integer(-115..0)</a>	<a href="#">Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm</a>
>W used frequency	CV – clause 0		Real(0, 0.1..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0, 0.5..14.5 by step of 0.5)	In event 2a, 2b, 2c, 2d, 2e, 2f
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms.
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64, infinity)	
>Reporting interval	MP		Enumerated(0, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. Interval in seconds
>Parameters required for each non-used frequency	OP	1 to <maxNonusedfrequency>		
>>Threshold non used frequency	CV – clause 1		<a href="#">Integer(-115..0)</a>	<a href="#">Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm</a>
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	2a,2b, 2d, or 2f, otherwise the IE is not needed
Clause 1	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2 <sup>e</sup> , otherwise the IE is not needed

Multi Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria
<i>maxNonusedfrequency</i>	Maximum number of non used frequencies that can be listed in measurement reporting criteria

### 10.3.7.20 Inter-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement identity number	MD		Measurement identity number 10.3.7.73	The inter-frequency measurement identity number has default value 2.
Inter-frequency cell info list	OP		Inter-frequency cell info list 10.3.7.13	
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
<a href="#">Inter-frequency measurement reporting criteria</a>	<a href="#">OP</a>		<a href="#">Inter-frequency measurement reporting criteria</a> 10.3.7.19	

### 10.3.7.21 Inter-frequency reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRA Carrier RSSI	MP		Boolean	TRUE means report is requested
Frequency quality estimate	MP		Boolean	TRUE means that report is requested
Non frequency related cell reporting quantities	MP		Cell reporting quantities 10.3.7.5	

### 10.3.7.22 Inter-frequency SET UPDATE

NOTE: Only for FDD.

Contains the changes of the active set associated with a non-used frequency. This information makes it possible to use events defined for Intra-frequency measurement within the same non-used frequency for Inter-frequency measurement reporting criteria. This information also controls if the UE should use autonomous updating of the active set associated with a non-used frequency.



Information Element/group name	Need	Multi	Type and reference	Semantics description
UE autonomous update mode	MP		Enumerated (On, On with no reporting, Off)	
Non autonomous update mode	CV-Update			
>Radio link addition information	OP	1 to <MaxAddRLcount>		Radio link addition information required for each RL to add
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Note 1
>Radio link removal information	OP	1 to <MaxDelRLcount>		Radio link removal information required for each RL to remove
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Note 1

Condition	Explanation
<i>Update</i>	The IE is mandatory if IE"UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

Multi bound	Explanation
<i>MaxAddRLcount</i>	Maximum number of radio links which can be added
<i>MaxDelRLcount</i>	Maximum number of radio links which can be removed/deleted

NOTE 1: If it is assumed that CPICH downlink scrambling code is always allocated with sufficient reuse distances, CPICH downlink scrambling code will be enough for designating the different radio links.

### 10.3.7.23 Inter-system cell info list

Contains the measurement object information for an inter-system measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed inter-system cells	OP	1 .. <MaxInterSysCells>		
>Inter-system cell id	MP		Integer(0 .. MaxInterSysCells)	
New inter-system cells	OP	1 to <MaxInterSysCells>		
>Inter-system cell id	MD		Integer(0 .. MaxInterSysCells)	The first inter-system cell in the list corresponds to inter-system cell id 0, the second corresponds to inter-system cell id 1 etc.
>CHOICE <i>Radio Access Technology</i>	MP			At least one spare choice, Criticality: Reject, is needed.
>>GSM				
>>>Qoffset <sub>s,n</sub>	MD		Integer (-50..50)	Default value if the value of the previous Qoffset <sub>s,n</sub> in the list (NOTE: the first occurrence is then MP)
>>>HCS Neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
>>>Qmin	MP			
>>>Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.27	
>>>BSIC	MP		BSIC 10.3.8.2	
>>>BCCH ARFCN	MP		Integer (0..1023)	GSM TS 04.18
>>>Output power	OP			
>>IS-2000				
>>>System specific measurement info			enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3. 7.3.3.2.27, <i>Candidate Frequency Neighbor List Message</i>

Multi Bound	Explanation
<i>MaxInterSysCells</i>	Maximum number of Inter-System cells in a inter-system cell info list

### 10.3.7.24 Inter-system event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Enumerated (3a, 3b, 3c, 3d)	

### 10.3.7.25 Inter-system info

Inter-system info defines the target system for redirected cell selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system info	MP		Enumerated (GSM)	At least 1 spare value, criticality = reject, required

### 10.3.7.26 Inter-system measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system measurement results	OP	1 to <maxInter Sys>		
CHOICE system				At least one spare value, criticality = reject, required
>GSM				
>>Frequency	MP			
>>GSM carrier RSSI	OP		bit string(6)	RXLEV GSM TS 05.08
>>Pathloss	OP		Integer(46..158)	In dB
>>BSIC	OP		BSIC 10.3.8.2	
>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.77	

Multi Bound	Explanation
<i>MaxInterSys</i>	Maximum number of Inter-System cells in a measurement report

### 10.3.7.27 Inter-system measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	Measurement object
Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	
Inter-system reporting quantity	OP		Inter-system reporting quantity 10.3.7.32	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
<b>CHOICE report criteria</b>	MP			
>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.28 Inter-system measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-system measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
Cells to report	MP	1 to <maxCellCount>		
>Frequency	MP			
>BSIC	MP		BSIC 10.3.8.2	

Multi Bound	Explanation
<i>MaxCellCount</i>	Maximum number of cells to report.

### 10.3.7.29 Inter-system measurement quantity

The quantity the UE shall measure in case of inter-system measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity for UTRAN quality estimate	MP		Intra-frequency measurement quantity 10.3.7.38	
CHOICE <i>system</i>	MP			
>GSM				
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		Boolean	TRUE means verification is required Note 1
>IS2000				
>>TADD $E_c/I_0$	MP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.6 of TIA/EIA/IS-2000.5
>>TCOMP $E_c/I_0$	MP		Integer(0..15)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>SOFT SLOPE	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.3 and 2.6.6.2.5.2 of TIA/EIA/IS-2000.5
>>ADD_INTERCEPT	OP		Integer(0..63)	Admission criteria for neighbours, see subclause 2.6.6.2.5.2 of TIA/EIA/IS-2000.5

NOTE 1: The possibility to use this IE is dependant on comments from SMG2.

Also, this IE must be set to "true" if IE "Observed time difference to GSM cell" in IE "Inter-system reporting quantity" is set to "true".

### 10.3.7.30 Inter-system measurement reporting criteria

The triggering of the event-triggered reporting for an inter-system measurement. All events concerning inter-system measurements are labelled 3x where x is a,b,c..

Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

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

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

Event 3d: Change of best cell in other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
>Inter-system event identity	MP		Inter-system event identity 10.3.7.24	
>Threshold own system	CV – clause 0			
>W	CV – clause 0			In event 3a
>Threshold other system	CV – clause 1			In event 3a, 3b, 3c
>Hysteresis	MP			
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>Amount of reporting	MP			
>Reporting interval	MP			Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.

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

Multi Bound	Explanation
<i>maxEventcount</i>	Maximum number of events that can be listed in measurement reporting criteria

### 10.3.7.31 Inter-system measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-system measurement identity number	MD		Measurement identity number 10.3.7.73	The inter-system measurement identity number has default value 3.
Inter-system cell info list	OP		Inter-system cell info list 10.3.7.23	
Inter-system measurement quantity	OP		Inter-system measurement quantity 10.3.7.29	

### 10.3.7.32 Inter-system reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRAN estimated quality	MP		Boolean	
CHOICE <i>system</i>	MP			At least one spare choice, criticality = reject, required
>GSM				
>>Pathloss	MP		Boolean	
>>Observed time difference to GSM cell	MP		Boolean	
>>GSM Carrier RSSI	MP		Boolean	
>>BSIC	MP		Boolean	

### 10.3.7.33 Intra-frequency cell info list

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed intra-frequency cells	OP	1 .. <MaxIntraCells>		
>Intra-frequency cell id	MP		Integer(0 .. MaxIntraCells >	
New intra-frequency cell	OP	1 to <MaxIntraCells>		<u>This information element must be present when "Intra-frequency cell info list" is included in the system information</u>
>Intra-frequency cell id	MD		Integer(0 .. MaxIntraCells >	The first intra-frequency cell in the list corresponds to intra-frequency cell id 0, the second corresponds to intra-frequency cell id 1 etc.
>Cell info	MP		Cell info 10.3.7.2	

Multi Bound	Explanation
<i>MaxIntraCells</i>	Maximum number of intra-frequency cells in a measurement control

### 10.3.7.34 Intra-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Enumerated (1a,1b,1c,1d,1e,1f,1g,1h,1i,1j)	

### 10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measured results	OP	1 to <maxIntraCells>		
>Cell measured results	MP		Cell measured results 10.3.7.3	

Multi Bound	Explanation
<i>MaxIntraCells</i>	Maximum number of intra-frequency cells that can be included in a measurement report



### 10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object Not included for measurement of unlisted set.
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
Reporting cell status	OP		Reporting cell status 10.3.7.88	
Measurement validity	OP		Measurement validity 10.3.7.76	
<b>CHOICE report criteria</b>	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.37 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
Cell measured event results	MP		Cell measured event results 10.3.7.4	

### 10.3.7.38 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE <i>mode</i>	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(C PICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP  If used in Inter system measurement quantity only Ec/N0 an RSCP is allowed. If used in inter-frequency measurement quantity RSSI is not allowed. Note 1
>TDD				
>>Measurement quantity	MP		Enumerated(Pr imary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP  If used in inter-frequency measurement quantity RSSI is not allowed.

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

### 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: DL CCTrCH below a certain threshold (TDD only).

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

Event 1j: 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 <maxEvent count>		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition	CV - clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells that can trigger the event
>Reporting Range	CV - clause 42		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 <maxCells Forbidden>		In event 1a,1b
>>CHOICE mode	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>W	CV - clause 42		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	CV - clause 23		Real(0..7.5 by step of 0.5)	In dB. In event 1a, 1b, 1c,1d, 1g, 1h, 1i or 1j.
>Reporting deactivation threshold	CV - clause 34		Enumerated(not applicable,	In event 1a Indicates the maximum number of cells allowed in the

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			1, 2, 3, 4, 5, 6, 7)	active set in order for event 1a to occur.
>Replacement activation threshold	CV - clause 45		Enumerated( not applicable, 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.
>Reporting Threshold	CV - clause 6		Integer(-115..125)	In the same unit as specified in "Intra-frequency measurement quantity" At least 15 spare values. Criticality: reject, is needed
>Time to trigger	MP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	MP		Enumerated( 1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
>Reporting interval	MP		Enumerated( no periodical reporting, 0.25, 0.5, 1, 2, 4, 8, 16)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in seconds

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1e" or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 23	The IE is mandatory if "Intra-frequency event identity" is set to "1a", "1b", "1c", "1d", "1g", "1h", "1i" or "1j", otherwise the IE is not needed
Clause 34	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 45	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 "1e" or "1f".

Multi Bound	Explanation
MaxEventCount	Maximum number of events that can be listed in measurement reporting criteria
MaxCellsForbidden	Maximum number of cells that can be forbidden to affect reporting range

NOTE 1: When best PCCPCH in active set changes, all active cells are reported.

### 10.3.7.40 Intra-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement identity number	MD		Measurement identity number 10.3.7.73	The intra-frequency measurement identity number has default value 1.
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity for RACH Reporting	OP		Intra-frequency reporting quantity for RACH Reporting 10.3.7.42	
Maximum number of reported cells on RACH	OP		Maximum number of reported cells on RACH 10.3.7.68	
Reporting information for state CELL_DCH	OP		Reporting information for state CELL_DCH 10.3.7.89	Note 1

NOTE 1: The reporting of intra-frequency measurements is activated when state CELL\_DCH is entered.

### 10.3.7.41 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Reporting quantities for active set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for monitored set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for unlisted set cells	OP		Cell reporting quantities 10.3.7.5	

### 10.3.7.42 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated( No report, type 1, type 2)	
CHOICE <i>mode</i>	MP			
>FDD				
>>Reporting quantity	MP		Enumerated( CPICH Ec/N0, CPICH RSCP, CPICH SIR, Pathloss, No report)	Note 1
>TDD				
>>Reporting quantity	MP		Enumerated( Timeslot ISCP, Primary CCPCH RSCP, No report)	

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

### 10.3.7.43 LCS Error

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Error reason	MP		Enumerated(There were not enough cells to be received when performing mobile based OTDOA-IPDL. There were not enough GPS satellites to be received, when performing UE-based GPS location. Location calculation assistance data missing. Requested method not supported. Undefined error. Location request denied by the user. Location request not processed by the user and timeout.	
Additional Assistance Data	OP		structure and encoding as for the GPS Assistance Data IE in GSM 09.31 excluding the IEI and length octets	This field is optional. Its presence indicates that the target UE will retain assistance data already sent by the SRNC. The SRNC may send further assistance data for any new location attempt but need not resend previous assistance data. The field may contain the following: GPS Assistance Data necessary additional GPS assistance data

### 10.3.7.44 LCS GPS acquisition assistance

The Acquisition Assistance field of the GPS Assistance Data Information Element contains parameters that enable fast acquisition of the GPS signals in network-based GPS positioning. Essentially, these parameters describe the range and derivatives from respective satellites to the Reference Location at the Reference Time.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Reference Time				
>UTRAN reference time				
>>GPS TOW	MP		Integer(0..6.047*10 <sup>11</sup> )	GPS Time of Week with scaling factor of 1 usec
>>SFN	MP		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	MP		Integer(0..6.047*10 <sup>8</sup> )	GPS Time of Week with scaling factor of 1 msec
Satellite information	MP	1 to <MAX_N_SAT>		
>SatID	MP		Enumerated(0..63)	Identifies the satellites
>Doppler (0 <sup>th</sup> order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1 <sup>st</sup> order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100,200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..19)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Enumerated(1023,1,2,3,4,6,8,12,16,24,32,48,64,96,128,192)	Specifies the width of the search window.
>Azimuth and Elevation	OP			
>>Azimuth	MP		Integer(0..31)	Degrees, scale factor 11.25
>>Elevation	MP		Integer(0..7)	Degrees, scale factor 11.25

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

CHOICE Reference time	Condition under which the given reference time is chosen
UTRAN reference time	The reference time is relating GPS time to UTRAN time (SFN)
GPS reference time only	The time gives the time for which the location estimate is valid

### 10.3.7.45 LCS GPS almanac

These fields specify the coarse, long-term model of the satellite positions and clocks. With one exception ( $\delta i$ ), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.



Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <MAX_N_SA T>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>δi	MP		Bit string(16)	
>e	MP		Bit string(16)	
>M <sub>0</sub>	MP		Bit string(24)	
>A <sup>1/2</sup>	MP		Bit string(24)	
>OMEGA <sub>0</sub>	MP		Bit string(24)	
>OMEGADOT	MP		Bit string(16)	
>ω	MP		Bit string(24)	
>af <sub>0</sub>	MP		Bit string(11)	
>af <sub>1</sub>	MP		Bit string(11)	

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=32

### 10.3.7.46 LCS GPS assistance data

The GPS Assistance Data element contains a single GPS assistance message that supports both UE-assisted and UE-based GPS methods. An Integrity Monitor (IM) shall detect unhealthy (e.g., failed/failing) satellites and also shall inform users of measurement quality in DGPS modes when satellites are healthy. Excessively large pseudo range errors, as evidenced by the magnitude of the corresponding DGPS correction, shall be used to detect failed satellites. Unhealthy satellites should be detected within 10 seconds of the occurrence of the satellite failure. When unhealthy (e.g., failed/failing) satellites are detected, the assistance and/or DGPS correction data shall not be supplied for these satellites. When the error in the IM computed position is excessive for solutions based upon healthy satellites only, DGPS users shall be informed of measurement quality through the supplied UDRE values.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS GPS reference time	OP		LCS GPS reference time 10.3.7.53	
LCS GPS reference location	OP		Ellipsoid point with altitude defined in 23.032	The Reference Location field contains a 3-D location without uncertainty specified as per 23.032. The purpose of this field is to provide the UE with a priori knowledge of its location in order to improve GPS receiver performance.
LCS GPS DGPS corrections	OP		LCS GPS DGPS corrections 10.3.7.48	
LCS GPS navigation model	OP		LCS GPS navigation model 10.3.7.51	
LCS GPS ionospheric model	OP		LCS GPS ionospheric model 10.3.7.49	
LCS GPS UTC model	OP		LCS GPS UTC model 10.3.7.54	
LCS GPS almanac	OP		LCS GPS almanac 10.3.7.45	
LCS GPS acquisition assistance	OP		LCS GPS acquisition assistance 10.3.7.44	
LCS GPS real-time integrity	OP		LCS GPS real-time integrity 10.3.7.52	

### 10.3.7.47 LCS GPS assistance for SIB

The LCS GPS Assistance for SIB IE contains information for GPS differential corrections. The message contents are

based on a Type-1 message of version 2.2 of the RTCM-SC-104 recommendation for differential service. This format is a standard of the navigation industry and is supported by all DGPS receivers.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Cipher parameters	OP			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Reference GPS TOW	MP		Integer(0..6.047*10 <sup>11</sup> )	GPS Time of Week with scaling factor of 1 usec. This field time-stamps the start of the frame with SFN=0.
Status	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections.
BTS Clock Drift	OP		Enumerated(-0.05..-0.003125 by step of 0.003125, 0.003125..0.05 by step of 0.003125)	This IE provides an estimate of the drift rate of the Node B clock relative to GPS time. It has units of $\mu\text{sec}/\text{sec}$ (ppm) and a range of $\pm 0.05$ . This IE aids the UE in maintaining the relation between GPS and cell timing over a period of time. A positive value for BTS Clock Drift indicates that the BTS clock is running at a greater frequency than desired. If the field is not present the UE shall assume the value 0.
Time Offset ( $\Delta T$ )	CV-status		Integer(0..4095)	Scaling factor 0.25. This IE indicates how old the measurements are when the IE is transmitted.
IODD	CV-status		Integer(0..255)	This IE is a cyclical counter that indicates the sequence number of the correction data. The value of IODD is initialised to zero when the IODE IE for one or more satellites has changed, or when the visible constellation changes. IODD is incremented each time new differential corrections are issued for the same visible constellation having the same set of IODE values.
DPGS information	CV-Status	1..MAX _N_SA T		The following fields contain the DPGS corrections. If the Cipher information is included these fields are ciphered.
>SatID	MP		Integer(0..31)	The satellite ID number.
>IODE	MP		Integer(0..255)	This IE is the sequence number for the ephemeris for the particular satellite. The MS can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	MP		Enumerated(UDRE $\leq$ 1.0 m, 1.0m < UDRE $\leq$ 4.0m, 4.0m < UDRE $\leq$ 8.0m,	User Differential Range Error. This field provides an estimate of the uncertainty ( $1-\sigma$ ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the Status field to determine the final UDRE estimate for the particular

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			8.0m < UDRE)	satellite.
>Scale factor	MP		Enumerated(0.02 for PRC and 0.002 for RRC, 0.32 for PRC and 0.032 for RRC)	The scaling factor for the PRC and RRC fields
>PRC	MP		Integer(-32767..32767)	Scaling given by the scale factor field.
>RRC	MP		Integer(-127..127)	Scaling given by the scale factor field.

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

Condition	Explanation
Status	This IE is mandatory if "status" is not equal to "no data" or "invalid data", otherwise the IE is not needed

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

### 10.3.7.48 LCS GPS DGPS corrections

These fields specify the DGPS corrections to be used by the UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS TOW	MP		Integer(0..604799)	Seconds. This field indicates the baseline time for which the corrections are valid.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections
Satellite information	MP	1 to <MAX_N_SAT>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>IODE	MP		Bit string(8)	This IE is the sequence number for the ephemeris for the particular satellite. The UE can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations. See [13] for details
>UDRE	MP		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the common Corrections Status/Health field to determine the final UDRE estimate for the particular satellite. See [13] for details
>PRC	MP		Integer(-2048..2048)	Scaling factor 0.32 meters See [13] for details
>RRC	MP		Integer(-125.. 125)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC2	MP		Integer(-127..127)	Meters. See [13] for details
>Delta RRC2	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details
>Delta PRC3	MP		Enumerated(-127..127)	Meters. See [13] for details
>Delta RRC3	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. See [13] for details

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

### 10.3.7.49 LCS GPS ionospheric model

The Ionospheric Model contains fields needed to model the propagation delays of the GPS signals through the ionosphere. Proper use of these fields allows a single-frequency GPS receiver to remove approximately 50% of the ionospheric delay from the range measurements. The Ionospheric Model is valid for the entire constellation and changes slowly relative to the Navigation Model.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
$\alpha_0$	MP		Bit string(8)	
$\alpha_1$	MP		Bit string(8)	
$\alpha_2$	MP		Bit string(8)	
$\alpha_3$	MP		Bit string(8)	
$\beta_0$	MP		Bit string(8)	
$\beta_1$	MP		Bit string(8)	
$\beta_2$	MP		Bit string(8)	
$\beta_3$	MP		Bit string(8)	

### 10.3.7.50 LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	MP		Integer(0..6.047*10 <sup>8</sup> )	GPS Time of Week with scaling factor of 1 msec. This time is the GPS TOW measured by the UE. If the Reference SFN field is present it is the ms flank closest to the beginning of that frame.
GPS TOW high resolution	CV-capability and request		Integer(0..999)	Gives higher resolution of the previous field.
Measurement Parameters	MP	1 to <MAX_N_SA_T>		
>Satellite ID	MP		Enumerated(0..63)	
>C/N <sub>0</sub>	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2 <sup>10</sup> -1))	Scale factor 2 <sup>-10</sup>
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

Condition	Explanation
Capability and request	This field is included only if the UE has this capability and if it was requested in the LCS reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, $x_i$	Pseudorange value, P
0	000	000	0.5	$P < 0.5$
1	001	000	0.5625	$0.5 \leq P < 0.5625$
I	X	Y	$0.5 * (1 + x/8) * 2^y$	$x_{i-1} \leq P < x_i$
62	110	111	112	$104 \leq P < 112$
63	111	111	--	$112 \leq P$

### 10.3.7.51 LCS GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
N_SAT	MP		Enumerated(1..16)	The number of satellites included in this IE
Satellite information	MP	1 to <MAX_N_SAT>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN_U ES_SN ES_NN_U ES_NN_C)	See note 1
>CHOICE Compressed	CV-Satellite Status			
>>uncompressed				Standard formats as defined in [12]
>>>IODE	MP		Bit string(8 <sup>(1)</sup> )	
>>>t <sub>oe</sub>	MP		Bit string(16 <sup>(1)</sup> )	
>>>C <sub>rc</sub>	MP		Bit string(16)	
>>>C <sub>rs</sub>	MP		Bit string(16)	
>>>C <sub>ic</sub>	MP		Bit string(16)	
>>>C <sub>is</sub>	MP		Bit string(16)	
>>>C <sub>uc</sub>	MP		Bit string(16)	
>>>C <sub>us</sub>	MP		Bit string(16)	
>>>e	MP		Bit string(32 <sup>(1)</sup> )	
>>>M <sub>0</sub>	MP		Bit string(32)	
>>>(A) <sup>1/2</sup>	MP		Bit string(32 <sup>(1)</sup> )	
>>>Δn	MP		Bit string(16)	
>>>OMEGA <sub>0</sub>	MP		Bit string(32)	
>>>OMEGAdot	MP		Bit string(24)	
>>>l <sub>0</sub>	MP		Bit string(32)	
>>>ldot	MP		Bit string(14)	
>>>ω	MP		Bit string(32)	
>>>t <sub>oc</sub>	MP		Bit string(16 <sup>(1)</sup> )	
>>>Af <sub>0</sub>	MP		Bit string(22)	
>>>Af <sub>1</sub>	MP		Bit string(16)	
>>>Af <sub>2</sub>	MP		Bit string(8)	
>>compressed				Compressed format as defined in 14.11.1
>>>IODE	MP		Bit string(4)	
>>>t <sub>oe</sub>	MP		Bit string(7)	
>>>C <sub>rc</sub>	MP		Bit string(12)	
>>>C <sub>rs</sub>	MP		Bit string(12)	
>>>C <sub>ic</sub>	MP		Bit string(9)	
>>>C <sub>is</sub>	MP		Bit string(9)	
>>>C <sub>uc</sub>	MP		Bit string(11)	
>>>C <sub>us</sub>	MP		Bit string(11)	
>>>e	MP		Bit string(16)	
>>>M <sub>0</sub>	MP		Bit string(22)	
>>>(A) <sup>1/2</sup>	MP		Bit string(13)	
>>>Δn	MP		Bit string(11)	
>>>OMEGA <sub>0</sub>	MP		Bit string(14)	
>>>OMEGAdot	MP		Bit string(12)	
>>>l <sub>0</sub>	MP		Bit string(15)	
>>>ldot	MP		Bit string(11)	
>>>ω	MP		Bit string(21)	
>>>t <sub>oc</sub>	MP		Bit string(7)	
>>>Af <sub>0</sub>	MP		Bit string(7)	
>>>Af <sub>1</sub>	MP		Bit string(3)	
>>>Af <sub>2</sub>	MP		Bit string(1)	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Symbol	Interpretation
NS_NN_U	New satellite, new Navigation Model - uncompressed
ES_SN	Existing satellite, same Navigation Model
ES_NN_U	Existing satellite, new Navigation Model - uncompressed
ES_NN_C	Existing satellite, new Navigation Model - compressed

CHOICE Compression	Explanation
Uncompressed	The parameters are not compressed. This is standard GPS format, as specified in [12].
Compressed	The parameters are compressed with the algorithm in the 14.11.1.

Condition	Explanation
<i>status</i>	Group Included unless status is ES_SN

Multi Bound	Explanation
<i>N_SAT</i>	Number of satellites included in the IE

### 10.3.7.52 LCS GPS real-time integrity

Contains parameters that describe the real-time status of the GPS constellation. Primarily intended for non-differential applications, the real-time integrity of the satellite constellation is of importance as there is no differential correction data by which the mobile can determine the soundness of each satellite signal. The Real-Time GPS Satellite Integrity data communicates the health of the constellation to the mobile in real-time. The satellites identified in this IE should not be used for position fixes at the moment.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	OP	1 to <MAX_N_BAD_SAT>		N_BAD_SAT=the number of bad satellites included in this IE
>BadSatID	MP		Enumerated(0..63)	Satellite ID

Multi Bound	Explanation
<i>MAX_BAD_N_SAT</i>	Maximum number of satellites included in the IE



### 10.3.7.53 LCS GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW	MP		Integer(0..6.047*10 <sup>11</sup> )	GPS Time of Week with scaling factor of 1 usec
SFN	MP		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	OP	1 to <MAX_N_SAT>		Fields to help the UE with time-recovery (needed to predict satellite signal)
>SatID	MP		Enumerated(0..63)	Identifies the satellite for which the corrections are applicable
>TLM Message	MP		Bit string(14)	A 14-bit value representing the Telemetry Message (TLM) being broadcast by the GPS satellite identified by the particular SatID, with the MSB occurring first in the satellite transmission.
>Anti-Spoof	MP		Boolean	The Anti-Spoof and Alert flags that are being broadcast by the GPS satellite identified by SatID.
>Alert	MP		Boolean	
>TLM Reserved	MP		Bit string(2)	Two reserved bits in the TLM Word being broadcast by the GPS satellite identified by SatID, with the MSB occurring first in the satellite transmission.

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

### 10.3.7.54 LCS GPS UTC model

The UTC Model field contains a set of parameters needed to relate GPS time to Universal Time Coordinate (UTC).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
A <sub>0</sub>	MP		Bit string(32)	
A <sub>1</sub>	MP		Bit string(24)	
Δt <sub>LS</sub>	MP		Bit string(8)	
t <sub>tot</sub>	MP		Bit string(8)	
WN <sub>t</sub>	MP		Bit string(8)	
WN <sub>LSF</sub>	MP		Bit string(8)	
DN	MP		Bit string(8)	
Δt <sub>LSF</sub>	MP		Bit string(8)	

### 10.3.7.55 LCS IPDL parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Enumerated(5,7,10,15,20,30,40,50)	The IPs are repeated every IP spacing frame.
IP length	MP		Enumerated(5,10)	The length in symbols of the idle periods
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T_cell defined in 25.402
Seed	MP		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	The frame number where the 1 <sup>st</sup> Idle Period Burst occurs within an SFN cycle. Scaling factor 256.
>Burst Length	MP		Integer(10..25)	Number of Idle Periods in a 'burst' of Idle Periods
>Burst freq	MP		Integer(1..16)	Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.

The function IP\_position(x) described below yields the position of the x<sup>th</sup> Idle Period relative to a) the start of the SFN cycle when continuous mode or b) the start of a burst when in burst mode. The operator "%" denotes the modulo operator. Regardless of mode of operation, the Idle Period pattern is reset at the start of every SFN cycle. Continuous mode can be considered as a specific case of the burst mode with just one burst spanning the whole SFN cycle. Note also that x will be reset to x=1 for the first idle period in a SFN cycle for both continuous and burst modes and will also, in the case of burst mode, be reset for the first Idle Period in every burst.

Max\_dev=150-IP length

rand(x)= (106.rand(x-1) + 1283)mod6075,

rand(0)=seed

IP\_position(x) = x\*IP\_spacing\*150 + rand(xmod64)modMax\_dev+IP\_offset

### 10.3.7.56 LCS measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS Multiple Sets	OP		LCS Multiple Sets 10.3.7.59	
LCS reference cell Identity	OP		Primary CPICH Info 10.3.6.43	
LCS OTDOA measurement	OP		LCS OTDOA measurement 10.3.7.62	
LCS Position	OP		LCS Position 10.3.7.65	
LCS GPS measurement	OP		LCS GPS measurement 10.3.7.50	
LCS error	OP		LCS error 10.3.7.43	Included if LCS error occurred

### 10.3.7.57 LCS measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS reporting quantity	MP		LCS reporting quantity 10.3.7.67	
<b>CHOICE reporting criteria</b>	MP			
>LCS reporting criteria			LCS reporting criteria 10.3.7.66	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement
LCS OTDOA assistance data	OP		LCS OTDOA assistance data 10.3.7.60	
LCS GPS assistance data	OP		LCS GPS assistance data 10.3.7.46	

### 10.3.7.58 LCS measurement event results

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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Event ID	MP			
>7a				
>>LCS Position	MP		LCS Position 10.3.7.65	
>7b				
>> LCS OTDOA measurement	MP		LCS OTDOA measurement 10.3.7.62	
>7c				
>> LCS GPS measurement	MP		LCS GPS measurement 10.3.7.50	

### 10.3.7.59 LCS multiple sets

This element indicates how many OTDOA Measurement Information sets or GPS Measurement Information sets, and Reference cells are included in this element. This element is optional. If this element is absent, a single measurement set is included.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Number of OTDOA-IPDL/GPS Measurement Information Sets	MP		Integer(2..3)	
Number of Reference Cells	MP		Integer(1..3)	
Reference Cell relation to Measurement Elements	OP		Enumerated( First reference cell is related to first and second OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to third OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first and third OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second OTDOA-IPDL/GPS Measurement Information Sets. First reference cell is related to first OTDOA-IPDL/GPS Measurement Information Sets, and second reference cell is related to second and third OTDOA/GPS Measurement Information Sets.)	This field indicates how the reference cells listed in this element relate to measurement sets later in this component. This field is conditional and included only if Number of OTDOA-IPDL/GPS Measurement Information Sets is '3' and Number of Reference cells is '2'. If this field is not included, the relation between reference cell and Number of OTDOA-IPDL/GPS Measurement Information Sets is as follows: If there are three sets and three reference cells -> First reference cell relates to first set, second reference cell relates to second set, and third reference cell relates to third set. If there are two sets and two reference cells -> First reference cell relates to first set, and second reference cell relates to second set. If there is only one reference cell and 1-3 sets -> this reference cell relates to all sets.

### 10.3.7.60 LCS OTDOA assistance data

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
LCS OTDOA reference cell for assistance data	OP		LCS OTDOA reference cell for assistance data 10.3.7.64	
LCS OTDOA measurement assistance data	OP	1..15	LCS OTDOA measurement assistance data 10.3.7.63	
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present

### 10.3.7.61 LCS OTDOA assistance for SIB

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering parameters	OP			Determines if DGPS correction fields are ciphered
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm
Search Window Size	MP		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Reference Cell Position	MP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present
Cells to measure on	MP	1 to <MAX NoCells>		
>SFN-SFN drift	OP		Enumerated(0,+0.33,+0.66,+1,+1.33,+1.66,+2,+2.5,+3,+4,+5,+7,+9,+11,+13,+15,-0.33,-0.66,-1,-1.33,-1.66,-2,-2.5,-3,-4,-5,-7,-9,-11,-13,-15)	The SFN-SFN drift value indicate the relative time drift in meters per second. Positive and negative values can be indicated as well as no drift value.
>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.90	Gives the relative timing compared to the reference cell
>Fine SFN-SFN	MP		Enumerated(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based
>Cell Position	MD			Default = Same as previous cell
>>Relative North	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative East	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative Altitude	MP		Integer(-4095..4095)	Relative altitude in meters compared to ref. cell.

Multi Bound	Explanation
MaxNoCells	The max number of cells included in this IE=16

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

### 10.3.7.62 LCS OTDOA measurement

The purpose of the OTDOA Measurement Information element is to provide OTDOA measurements of signals sent from the reference and neighbor cells.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	MP		Integer(0..4095)	SFN during which the last measurement was performed
UE Rx-Tx time difference	MP		Real(876..1172 by step of 0.25)	The UE Rx-Tx timing can be used to determine the propagation delay
Quality type	OP		Enumerated(STD_10,STD_50,CPICH Ec/N0)	Type of quality in the quality field, default=DEFAULT_QUALITY
CHOICE Quality type	MP			
>STD_10				
>>Reference Quality 10	MP		Enumerated(10..320 by step of 10)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	MP		Enumerated(50..1600 by step of 50)	Std of TOA measurements from the cell
>CPICH Ec/N0				
>>CPICH Ec/N0	MP		Enumerated(<-24, -24 dB ≤ CPICH Ec/No < -23 dB,... -1 dB ≤ CPICH Ec/No < -0 dB, >=0 dB)	CPICH Ec/N0 for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	MP		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.
Neighbors	MP	0..15		Number of neighbors included in this IE
>Neighbor Identity	OP		Primary CPICH info 10.3.6.43	If this field is left out it the identity is the same as in the first set of multiple sets.
>Neighbor Quality	MP		Bit string(depends on Quality type)	Quality of the OTDOA from the neighbor cell.
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference 10.3.7.90	Gives the timing relative to the reference cell. Only type 2 is allowed. Type 2 means that only the slot timing is accounted for

CHOICE Quality type	Condition under which the given quality type is chosen
STD_10	Chosen when the quality type is standard deviation with a step-size of 10 m
STD_50	Chosen when the quality type is standard deviation with a step-size of 50 m
CPICH Ec/N0	Chosen when the quality type is CPICH Ec/N0
Default	Chosen if the quality type field is not included.

### 10.3.7.63 LCS OTDOA measurement assistance data

This IE gives approximate cell timing in order to decrease the search window.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
SFN-SFN observed time difference	MP		SFN-SFN observed time difference type 1. 10.3.7.90	Gives the relative timing compared to the reference cell
Fine SFN-SFN	OP		Real(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based
Search Window Size	MP		Enumerated(10, 20, 30, 40, 50, 60,70, more)	Specifies the maximum size of the search window in chips.
Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

#### 10.3.7.64 LCS OTDOA reference cell for assistance data

This IE defines the cell used for time references in all OTDOA measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
Frequency info	OP		Frequency info 10.3.6.24	Default the same. Included if different
Cell Position	OP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the cell. Can be used for the UE based method.

#### 10.3.7.65 LCS position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	CV-Capability and request		Integer(0..6.047*10 <sup>11</sup> )	GPS Time of Week with scaling factor of 1 usec. This time-stamps the beginning of the frame defined in Reference SFN
Position estimate	MP		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
<i>Capability and request</i>	This field is included only if the UE has this capability <i>and</i> if it was requested in the LCS reporting quantity and if the method was UE-based GPS

### 10.3.7.66 LCS reporting criteria

The triggering of the event-triggered reporting for an LCS measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assisted methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <maxEvent count>		
>Event ID	MP		Enumerated (7a,7b,7c)	7a=Position change 7b=SFN-SFN change, 7c=SFN-GPS TOW change
>Amount of reporting	MP		Enumerated(1, 2, 4, 8, 16, 32, 64,infinite)	
>Report first fix	MP		Boolean	If true the UE reports the position once the measurement control is received, and then each time an event is triggered.
>Measurement interval	MP		Enumerated(5,15,60,300,900,1800,3600,7200)	Indicates how often the UE should make the measurement
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	MP		Enumerated(10,20,30,40,50,100,200,300,500,1000,2000,5000,10000,20000,50000,100000)	Indicated how much the position should change compared to last reported position fix in order to trigger the event.
>>7b				
>>>Threshold SFN-SFN change	MP		Real(0.25,0.5,1,2,3,4,5,10,20,50,100,200,500,1000,2000,5000)	Chips. Indicates how much the SFN-SFN measurement of ANY measured cell is allowed to change before the event is triggered.
>>7c				
>>>Threshold SFN-GPS TOW	MP		Enumerated(1,2,3,5,10,20,50,100)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

### 10.3.7.67 LCS reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information required QoS.



Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Method Type	MP		Enumerated(UE assisted, UE based, UE based is preferred but UE assisted is allowed, UE assisted is preferred but UE based is allowed)	
Positioning Methods	MP		Enumerated(OTDOA, GPS, OTDOA or GPS)	Indicates which location method or methods should be used. The third option means that both can be reported. OTDOA includes IPDL if idle periods are present.
Response Time	MP		Integer(1,2,4, 8, 16, 32, 64, 128)	Indicates the desired response time in seconds
Accuracy	CV		Bit string(7)	Mandatory in all cases except when Method Type is UE assisted, then it is optional. 23.032
GPS timing of Cell wanted	MP		Boolean	If true the SRNC wants the UE to report the SFN-GPS timing of the reference cell. This is however optional in the UE.
Multiple Sets	MP		Boolean	This field indicates whether UE is requested to send multiple <i>OTDOA/GPS Measurement Information Sets</i> . The maximum number of measurement sets is three. This field is mandatory. UE is expected to include the current measurement set.
Environment Characterisation	OP		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	The first category correspond to e.g. Urban or Bad Urban channels.  The second category corresponds to Rural or Suburban channels

Multi Bound	Explanation
<i>N_SAT</i>	Number of satellites included in the IE

### 10.3.7.68 Maximum number of reported cells on RACH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reported cells	MP		Enumerated (no report, current cell, current cell + best neighbour, current cell+2 best neighbours, ..., current cell+6 best neighbours)	

### 10.3.7.69 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Measurement	MP			
>Intra-frequency measured results list			Intra-frequency measured results list 10.3.7.35	
>Inter-frequency measured results list			Inter-frequency measured results list 10.3.7.15	
>Inter-system measured results list			Inter-system measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.93	
>Quality measured results list			Quality measured results list 10.3.7.79	
>UE Internal measured results			UE Internal measured results 10.3.7.102	
>LCS measured results			LCS measured results 10.3.7.56	

### 10.3.7.70 Measured results on RACH

Contains the measured results on RACH of the quantity indicated optionally by Reporting Quantity in the system information broadcast on BCH. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" cell has the largest value when the measurement quantity is "Ec/No", "RSCP" or "SIR". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE <i>mode</i>	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot ISCP	OP			
>>Primary CCPCH RSCP	OP			
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.90	It is absent for current cell
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>>CHOICE measurement quantity	OP			It is absent for current cell
>>>>CPICH Ec/N0			Integer(-20..0)	In dB
>>>>CPICH RSCP			Integer(-115..-40)	In dBm
>>>>CPICH SIR			Integer(-10..20)	In dB Note 1
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.41	
>>>Primary CCPCH RSCP	OP			It is absent for current cell

NOTE 1: If CPICH SIR can be used has not been concluded in WG4.

NOTE 2: Monitored cells consist of current cell and neighbouring cells.

### 10.3.7.71 Measurement Command

Information Element	Need	Multi	Type and reference	Semantics description
Measurement command	MP		Enumerated(Setup,Modify,Release)	

### 10.3.7.72 Measurement control system information

Information element	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement system information	OP		Intra-frequency measurement system information 10.3.7.40	
Inter-frequency measurement system information	OP		Inter-frequency measurement system information 10.3.7.20	
Inter-system measurement system information	OP		Inter-system measurement system information 10.3.7.31	
Traffic volume measurement system information	OP		Traffic volume measurement system information 10.3.7.99	
UE Internal measurement system information	OP		UE Internal measurement system information 10.3.7.107	

NOTE1: The reporting of intra-frequency measurements is activated when state CELL\_DCH is entered.

Multi Bound	Explanation
<i>MaxMeasTypeCount</i>	Maximum number of measurement types
<i>MaxSysInfoBlockcount</i>	Maximum number of references to other system information blocks.
<i>MaxIntraCells</i>	Maximum number of intra-frequency cells in a measurement control.
<i>MaxInterCells</i>	Maximum number of inter-frequency cells in a measurement control
<i>MaxInterSysCells</i>	Maximum number of inter-system cells in a measurement control.

### 10.3.7.73 Measurement Identity Number

A reference number that is used by the UTRAN at modification and release of the measurement, and by the UE in the measurement report.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement identity number	MP		Integer(1..16)	

### 10.3.7.74 Measurement reporting mode

Contains the type of Measurement Report transfer mode and the indication of periodical/event trigger.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Report Transfer Mode	MP		enumerated (Acknowledged mode RLC, Unacknowledged mode RLC)	
Periodical Reporting / Event Trigger Reporting Mode	MP		Enumerated (Periodical reporting, Event trigger)	

NOTE 1: The work in order to support the CPICH Rx SIR measurement is in progress in RAN WG4 and may impact the use of that measurement in this document.

### 10.3.7.75 Measurement Type

Information Element	Need	Multi	Type and reference	Semantics description
Measurement Type	MP		Enumerated(Intra-frequency, Inter-frequency, Inter-system, Traffic volume, Quality, UE internal, LCS)	

### 10.3.7.76 Measurement validity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Resume/release	MP		Enumerated('resume', 'release')	Indicates whether a given measurement identifier should be released after transitions to CELL_DCH and/or transitions from CELL_DCH state.
UE state	CV – Resume		Enumerated(CELL_DCH, all states except CELL_DCH, all states)	Indicates the states, in which measurement reporting shall be conducted. The values 'all states except CELL_DCH' and 'all states' are used for measurement type 'traffic volume reporting'.

Condition	Explanation
<i>Resume</i>	This IE is mandatory if "Resume/Release" = Resume, otherwise the IE is not needed

### 10.3.7.77 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Real(0.0..4095*3060/(4096*13) by step of 3060/(4096*13))	In ms

### 10.3.7.78 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Amount of reporting	OP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself
Reporting interval	OP		Real(0.25, 0.5, 1, 2, 3, 4, 6, 8, 12, 16, 20, 24, 28, 32, 64)	Indicates the interval of periodical report. Interval in seconds

### 10.3.7.79 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to <MaxBLER >		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>DL Transport Channel BLER	OP		Real(0.00 ..5.10, by step of 0.02)	In dB= -Log10(Transport channel BLER)
SIR	OP		Integer(-10..20)	In dB

Multi Bound	Explanation
<i>MaxBLER</i>	Maximum number of transport channels with BLER measurements that can be included in a measurement report

### 10.3.7.80 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality measurement Object	OP		Quality measurement Object 10.3.7.82	IE is FFS
Quality measurement quantity	OP		Quality measurement quantity 10.3.7.83	IE is FFS
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.86	
<b>CHOICE report criteria</b>	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.84	IE is FFS
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.81 Quality measurement event results (FFS)

NOTE: Only the section is made.

### 10.3.7.82 Quality measurement object (FFS)

NOTE: Only the section is made.

### 10.3.7.83 Quality measurement quantity (FFS)

NOTE: Only the section is made.

### 10.3.7.84 Quality measurement reporting criteria (FFS)

NOTE: Only the section is made.

### 10.3.7.85 Quality measurement system information

NOTE: Only the section is made.

### 10.3.7.86 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <MaxBLER >		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
SIR	MP		Boolean	TRUE means report requested

Multi Bound	Explanation
<i>MaxBLER</i>	Maximum number of transport channels with BLER measurements that can be included in a measurement report

Condition	Explanation
<i>BLER reporting</i>	This information element is absent if 'DL Transport Channel BLER' is 'No' and optional, if 'DL Transport Channel BLER' is 'Yes'

### 10.3.7.87 Reference time difference to cell

The reference time difference to cell indicates the time difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell. It is notified to UE by System Information or Measurement Control message.

In case of macro-diversity the reference is the primary CCPCH of one the cells used in the active set.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>accuracy</i>	MP			
>40 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 40)	In chips
>256 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 256)	In chips
>2560 chips				
>>Reference time difference	MP		Enumerated(0..38400 by step of 2560)	In chips

NOTE: Exactly how the reference cell is pointed out in this case in the messages is FFS.

### 10.3.7.88 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or monitored set cells should/should not be included in the IE "Measured results".



Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reporting cells	MP		Enumerated (mandatory cells only, mandatory cells+1, mandatory cells+2,.. mandatory cells+6)	For other measurement types than intra-frequency measurement, "mandatory cell" = 0.
Choice measurement	MP			At least one spare choice, Criticality: reject, is needed.
>intra-frequency				
>>Active set cell report	MP		Enumerated (include all, exclude all, other)	
>>Monitored set cell report	MP		Enumerated (exclude all, other)	

### 10.3.7.89 Reporting information for state CELL\_DCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency reporting quantity	MP		Intra-frequency reporting quantity 10.3.7.41	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

### 10.3.7.90 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>type</i>	MP			
>Type 1			Enumerated(0..983 0399)	Number of chips
>Type 2			Real(-1279.75..1280.0 by step of 0.25)	Number of chips

### 10.3.7.91 Time to trigger

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Time to trigger	MP		Enumerated(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms

### 10.3.7.92 Traffic volume event identity

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

### 10.3.7.93 Traffic volume measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement results	OP	1 to <MaxTraf >		
>RB Identity	MP		RB Identity 10.3.4.11	
>RLC buffers payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Average RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Variance of RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K)	In bytes And N Kbytes = N*1024 bytes

Multi Bound	Explanation
<i>MaxTraf</i>	Maximum number of radio bearers with traffic volume measurements that can be included in a measurement report

### 10.3.7.94 Traffic volume measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement Object	OP		Traffic volume measurement Object 10.3.7.96	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.97	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.100	
Measurement validity	OP		Measurement validity 10.3.7.76	
<b>CHOICE report criteria</b>	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.98	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.95 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport Channel causing the event	MP		Transport channel identity 10.3.5.16	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.92	

### 10.3.7.96 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <MaxTrCH count>		
>Target Transport Channel ID	MP		Transport channel identity 10.3.5.16	

Multi bound	Explanation
MaxTrCHCount	Maximum number of target Transport channels to be measured

### 10.3.7.97 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity	MP		Enumerated( RLC buffer payload, Average RLC buffer payload, Variance of RLC buffer payload)	
<u>Time Interval to take an average or a vaiance</u>	<u>CV-A/V</u>		<u>Integer(20, 40, ..260, by steps of 20)</u>	<u>In ms</u> <u>At least 3 spare values.</u> <u>Criticality: reject, are needed.</u>

<u>Condition</u>	<u>Explanation</u>
<u>A/V</u>	<u>This IE is present when "Average RLC buffer" or "Variance of RLC buffer payload" is chosen.</u>

### 10.3.7.98 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: RLC buffer payload exceeds an absolute threshold.

Event 4b: RLC buffer payload becomes smaller than an absolute threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH count>		
>Transport Channel ID	MP		Transport channel identity 10.3.5.16	
>Parameters required for each Event	OP	1 to 2		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.92	
>>Reporting Threshold	MP		Integer(8,16,32,64,128,256,512,1024,1536,2048,3072,4096,6144,8192)	Threshold in bytes
Time to trigger	OP		Time to trigger 10.3.7.91	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
Pending time after trigger	OP		Real(0.25, 0.5, 1, 2, 4, 8, 16)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. Time in seconds
Tx interruption after trigger	OP		Real(0.25, 0.5, 1, 2, 4, 8, 16)	Time in seconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.
Amount of reporting	OP		Enumerated(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
Reporting interval	OP		Real(0, 0.25, 0.5, 1, 2, 4, 8, 16)	Interval in seconds. Indicates the interval of periodical report during the event is in the detected state.

Multi Bound	Explanation
<i>MaxTrCHcount</i>	Maximum number of transport channels = 64

### 10.3.7.99 Traffic volume measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement identity number	MD		Measurement identity number 10.3.7.73	The traffic volume measurement identity number has default value 4.
Traffic volume measurement objects	OP		Traffic volume measurement objects 10.3.7.96	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.97	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.100	Note 2

NOTE 2: The reporting of traffic volume measurements is activated in state CELL\_FACH only.

### 10.3.7.100 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC buffer payload for each RB	MP		Boolean	
Average RLC buffer payload for each RB	MP		Boolean	
Variance of RLC buffer payload for each RB	MP		Boolean	

### 10.3.7.101 UE internal event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		Enumerated(6a,6b,6c,6d,6e, 6f, 6g)	

### 10.3.7.102 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		Real(-50..33)	UE transmitted power In dBm
>>UE Rx-Tx report entries	OP	1 to <maxUsedRLcount>		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference	MP		UE Rx-Tx time difference 10.3.7.109	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE transmitted Power	OP	1 to <maxUsedUpITScout>		UE transmitted power for each used timeslot (TDD)

Multi Bound	Explanation
<i>MaxUsedRLcount</i>	Maximum number of radio links that can be included in a measurement report for Rx-Tx time difference
<i>MaxUsedUpITScout</i>	Maximum number of TS used for UL transmission

### 10.3.7.103 UE internal measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.105	
UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.108	
<b>CHOICE report criteria</b>	MP			
>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.106	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

<b>CHOICE report criteria</b>	<b>Condition under which the given report criteria is chosen</b>
UE internal measurement reporting criteria	Chosen when UE internal measurement event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

### 10.3.7.104 UE internal measurement event results

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

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
UE internal event identity	MP		UE internal event identity 10.3.7.101	
CHOICE <i>mode</i>	MP			
>FDD				
>Primary CPICH info	CV - clause 1		Primary CPICH info 10.3.6.43	
>TDD				(no data)

<b>Condition</b>	<b>Explanation</b>
<i>Clause 1</i>	This IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

### 10.3.7.105 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

<b>Information Element/Group name</b>	<b>Need</b>	<b>Multi</b>	<b>Type and reference</b>	<b>Semantics description</b>
Measurement quantity	MP		Enumerated( UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	
Filter coefficient	MP		Filter coefficient 10.3.7.9	

### 10.3.7.106 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c.... In TDD, the events 6a - 6d are measured and reported on timeslot basis.

Event 6a: The UE Transmitted Power becomes larger than an absolute threshold

Event 6b: The UE Transmitted Power becomes less than an absolute threshold

Event 6c: The UE Transmitted Power reaches its minimum value

Event 6d: The UE Transmitted Power reaches its maximum value



Event 6e: The UE RSSI reaches the UEs dynamic receiver range

Event 6f: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

Event 6g: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each UE internal measurement event	OP	1 to <maxEvent count>		
> UE internal event identity	MP		UE internal event identity 10.3.7.101	
>Time-to-trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Time in ms. Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>UE Transmitted power Tx power threshold	CV - clause 1		Integer(-50..33)	Power in dBm. In event 6a, 6b.
>UE Rx-Tx time difference threshold	CV - clause 2		Integer(769..1280)	Time difference in chip. In event 6f, 6g.

Condition	Explanation
Clause 1	The IE is mandatory if "UE internal event identity" is set to "6a" or "6b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

Multi Bound	Explanation
MaxEventcount	Maximum number of events that can be listed in measurement reporting criteria

### 10.3.7.107 UE internal measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement identity number	MD		Measurement identity number 10.3.7.73	The UE internal measurement identity number has default value 5.
UE internal measurement quantity	MP		UE internal measurement quantity 10.3.7.105	

### 10.3.7.108 UE Internal reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Transmitted Power	MP		Boolean	
UE Rx-Tx time difference	MP		Boolean	

### 10.3.7.109 UE Rx-Tx time difference

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference	MP		Integer(876..1172)	In chips. Number of chips.

### 11.3.7 Measurement information elements

Measurement-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CellIdentity  
FROM UTRANMobility-IEs

DRX-CycleLengthCoefficient  
FROM UserEquipment-IEs

RB-Identity  
FROM RadioBearer-IEs

TransportChannelIdentity  
FROM TransportChannel-IEs

FrequencyInfo,  
MaxAllowedUL-TX-Power,  
PrimaryCCPCH-Info,  
PrimaryCCPCH-TX-Power,  
PrimaryCPICH-Info,  
PrimaryCPICH-TX-Power,  
Timeslot  
FROM PhysicalChannel-IEs

BSIC  
FROM Other-IEs

maxAdditionalMeas,  
maxAddRLcount,  
maxBLER,  
maxCCTrCHcount,  
maxCellCount,  
maxCellsForbidden,  
maxDelRLcount,  
maxEventCount,  
maxFreqCount,  
maxInterCells,  
maxInterRAT,  
maxInterSys,  
maxInterSysCells,  
maxIntraCells,  
maxN-BadSAT,  
maxN-SAT,  
maxNoCells,  
maxNonUsedFrequency,  
maxNumFreq,  
maxTraf,  
maxTrCHcount,  
maxTSperCCTrCHcount,  
maxTStoMeasureCount,  
maxUsedRLcount,  
maxUsedUplTScout  
FROM Constant-definitions;

AcquisitionSatInfo ::= SEQUENCE {  
 satID INTEGER (0..63),  
 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..maxN-SAT)) OF
                                AcquisitionSatInfo

ActiveSetCellReport ::=        ENUMERATED {
                                includeAll,
                                excludeAll,
                                other }

-- **TODO**, definition to be checked from TS 09.31
AdditionalAssistanceData ::=    SEQUENCE {
}

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                MeasurementIdentityNumber

AlmanacSatInfo ::=             SEQUENCE {
    satID                        INTEGER (0..63),
    deltaI                       BIT STRING (SIZE (16)),
    e                            BIT STRING (SIZE (16)),
    m0                           BIT STRING (SIZE (24)),
    a-Sqrt                       BIT STRING (SIZE (24)),
    omega0                       BIT STRING (SIZE (24)),
    omegaDot                     BIT STRING (SIZE (16)),
    omega                        BIT STRING (SIZE (24)),
    af0                          BIT STRING (SIZE (11)),
    af1                          BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=        SEQUENCE (SIZE (1..maxN-SAT)) OF
                                AlmanacSatInfo

AverageRLC-BufferPayload ::=   ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k }

AzimuthAndElevation ::=       SEQUENCE {
    azimuth                      INTEGER (0..31),
    elevation                    INTEGER (0..7)
}

BadSatList ::=                 SEQUENCE (SIZE (1..maxN-BadSAT)) OF
                                INTEGER (0..63)

BCCH-ARFCN ::=                 INTEGER (0..1023)

BLER-MeasurementResults ::=    SEQUENCE {
    transportChannelIdentity      TransportChannelIdentity,
    dl-TransportChannelBLER      DL-TransportChannelBLER            OPTIONAL
}

BLER-MeasurementResultsList ::= SEQUENCE (SIZE(1..maxBLER)) OF
                                BLER-MeasurementResults

BLER-TransChIdList ::=         SEQUENCE (SIZE (1..maxBLER)) OF
                                TransportChannelIdentity

-- IE value 0 = true value -0.05, IE value 16 = true value -0.003125,
-- IE value 17 = true value 0.003125, IE value 32 = true value 0.05
BTS-ClockDrift ::=             INTEGER (0..31)

BurstModeParameters ::=       SEQUENCE {
    burstStart                    INTEGER (0..15),
    burstLength                   INTEGER (10..25),
    burstFreq                     INTEGER (1..16)
}

CCTrCH-Timeslot ::=           SEQUENCE {
    iscp                          DL-TimeslotISCP            OPTIONAL,
    rscp                          RSCP                        OPTIONAL
}

CCTrCH-TimeslotList ::=       SEQUENCE (SIZE(1..maxTSperCCTrCHcount)) OF
                                CCTrCH-Timeslot

```

```

CellDCH-ReportCriteria ::=
    intraFreqReportingCriteria
    periodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=
    INTEGER (-20..20)

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

CellInfoSI ::=
    cellIndividualOffset
    referenceTimeDifferenceToCell
    modeSpecificInfo
    fdd
        primaryCPICH-Info
        primaryCPICH-TX-Power
        readSFN-Indicator
        tx-DiversityIndicator
    },
    tdd
        primaryCCPCH-Info
        primaryCCPCH-TX-Power
        dl-CCTrCH-Info
        dl-TimeslotInfo
    },
    cellSelectionReselectionInfo
    signallingOption
}

CellMeasuredResults ::=
    cellIdentity
    sfm-SFN-ObsTimeDifference
    modeSpecificInfo
    fdd
        primaryCPICH-Info
        cpich-Ec-N0
        cpich-RSCP
        cpich-SIR
        pathloss
        cfm-SFN-ObsTimeDifference
    },
    tdd
        primaryCCPCH-Info
        dl-CCTrCH-SIR-List
        dl-TimeslotISCP-List
    }
}

CellMeasurementEventResults ::=
    fdd
        SEQUENCE (SIZE (1..maxCellCount)) OF
            PrimaryCPICH-Info,
    tdd
        SEQUENCE (SIZE (1..maxCellCount)) OF
            PrimaryCCPCH-Info
}

CellPosition ::=
    relativeNorth
    SEQUENCE {
        INTEGER (-32767..32767),

```

```

relativeEast                INTEGER (-32767..32767),
relativeAltitude            INTEGER (-4095..4095)
}

CellReportingQuantities ::= SEQUENCE {
    sfm-SFM-OTD-Type        SFM-SFM-OTD-Type,
    cellIdentity            CellIdentity,
    modeSpecificInfo        CHOICE {
        fdd                 SEQUENCE {
            cpich-Ec-N0     BOOLEAN,
            cpich-RSCP      BOOLEAN,
            cpich-SIR       BOOLEAN,
            pathloss        BOOLEAN,
            cfm-SFM-ObsTimeDifference    BOOLEAN
        },
        tdd                 SEQUENCE {
            dl-CCTrCH-SIR   BOOLEAN,
            timeslotISCP    BOOLEAN,
            primaryCCPCH-RSCP    BOOLEAN,
            pathloss        BOOLEAN
        }
    }
}

CellSelectionReselectionInfo ::= SEQUENCE {
    modeSpecificInfo        CHOICE {
        fdd                 Qmin-FDD,
        tdd                 Qmin-TDD
    }
    maxAllowedUL-TX-Power   MaxAllowedUL-TX-Power OPTIONAL,
    signallingOption        SignallingOption OPTIONAL,
}

CellToMeasure ::= SEQUENCE {
    sfm-sfm-Drift           INTEGER (0..30) OPTIONAL,
    primaryCPICH-Info       PrimaryCPICH-Info,
    frequencyInfo           FrequencyInfo OPTIONAL,
    sfm-SFM-ObservedTimeDifference    SFM-SFM-ObsTimeDifference1,
    fineSFM-SFM            FineSFM-SFM,
    cellPosition            CellPosition OPTIONAL,
}

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

CellToReport ::= SEQUENCE {
    frequency              Frequency,
    bsic                   BSIC,
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellCount)) OF
    CellToReport

CFM-SFM-ObsTimeDifference ::= INTEGER (0..9830399)

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
    w12, w16, w24, w32, w48, w64,
    w96, w128, w192 }

CompressedNavModel ::= SEQUENCE {
    iode                   BIT STRING (SIZE (4)),
    t-oe                   BIT STRING (SIZE (7)),
    c-rc                   BIT STRING (SIZE (12)),
    c-rs                   BIT STRING (SIZE (12)),
    c-ic                   BIT STRING (SIZE (9)),
    c-is                   BIT STRING (SIZE (9)),
    c-uc                   BIT STRING (SIZE (11)),
    c-us                   BIT STRING (SIZE (11)),
    e                      BIT STRING (SIZE (16)),
    m0                     BIT STRING (SIZE (22)),
    a-Sqrt                 BIT STRING (SIZE (13)),
    delta-n                BIT STRING (SIZE (11)),
    omega0                 BIT STRING (SIZE (14)),
    omegaDot               BIT STRING (SIZE (12)),
    i0                     BIT STRING (SIZE (15)),
    iDot                   BIT STRING (SIZE (11)),
    omega                  BIT STRING (SIZE (21)),
}

```

```

t-oc          BIT STRING (SIZE (7)),
af0           BIT STRING (SIZE (7)),
af1           BIT STRING (SIZE (3)),
af2           BIT STRING (SIZE (1))
}

CPICH-Ec-N0 ::= INTEGER (-20..0)

-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::= INTEGER (0..26)

CPICH-RSCP ::= INTEGER (-115..-40)

CPICH-SIR ::= INTEGER (-10..20)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID      INTEGER (0..63),
    iode       BIT STRING (SIZE (8)),
    udre       UDRE,
    prc        INTEGER (-2048..2048),
    rrc        INTEGER (-125..125),
    deltaPRC2  INTEGER (-127..127),
    deltaRRC2  INTEGER (-7..7),
    deltaPRC3  INTEGER (-127..127),
    deltaRRC3  INTEGER (-7..7)
}

DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-CorrectionSatInfo

DGPS-Information ::= SEQUENCE {
    satID      SatID,
    iode       IODE,
    udre       UDRE,
    scaleFactor ScaleFactor,
    prc        PRC,
    rrc        RRC
}

DGPS-InformationList ::= SEQUENCE (SIZE (1..maxN-SAT)) OF
    DGPS-Information

DiffCorrectionStatus ::= ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- **TODO**, not defined yet
DL-CCTrCH-Info ::= SEQUENCE {
}

DL-CCTrCH-SIR ::= SEQUENCE {
    ccTrCH-TimeslotList
}

DL-CCTrCH-SIR-List ::= SEQUENCE (SIZE(1..maxCCTrCHcount)) OF
    DL-CCTrCH-SIR

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

-- **TODO**, not defined yet
DL-TimeslotInfo ::= SEQUENCE {
}

-- **TODO**, not defined yet
DL-TimeslotISCP ::= SEQUENCE {
}

DL-TimeslotISCP-List ::= SEQUENCE (SIZE(1..maxTStoMeasureCount)) OF
    DL-TimeslotISCP

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

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

EnvironmentCharacterization ::= ENUMERATED {

```

possibleHeavyMultipathNLOS,  
lightMultipathLOS,  
notDefined }

```
Event1a ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
    hysteresis
    reportDeactivationThreshold
}
SEQUENCE {
    TriggeringCondition,
    ReportingRange,
    ForbiddenAffectCellList _____ OPTIONAL,
    W,
    Hysteresis
    ReportDeactivationThreshold
    OPTIONAL,
}

Event1b ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
    hysteresis
}
SEQUENCE {
    TriggeringCondition,
    ReportingRange,
    ForbiddenAffectCellList _____ OPTIONAL,
    W,
    Hysteresis
    OPTIONAL
}

Event1c ::=
    hysteresis
    replacementActivationThreshold
}
SEQUENCE {
    Hysteresis
    ReplacementActivationThreshold
    OPTIONAL,
}

Event1ef ::=
    reportThreshold
    triggeringCondition
}
SEQUENCE {
    IntraFreqThreshold,
    TriggeringCondition
}

Event2a ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2b ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2c ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2d ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval
}

Event2e ::=
    hysteresis
    timeToTrigger
    reportingAmount
    reportingInterval
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingAmount,
    ReportingInterval,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2f ::=
    usedFreqThreshold
}
SEQUENCE {
    Threshold,
}
```

<pre> usedFreqW hysteresis timeToTrigger reportingAmount reportingInterval } Event3a ::=   thresholdOwnSystem   w   thresholdOtherSystem   hysteresis   timeToTrigger   reportingAmount   reportingInterval } Event3b ::=   thresholdOtherSystem   hysteresis   timeToTrigger   reportingAmount   reportingInterval } Event3c ::=   thresholdOtherSystem   hysteresis   timeToTrigger   reportingAmount   reportingInterval } Event3d ::=   hysteresis   timeToTrigger   reportingAmount   reportingInterval } EventIDInterFreq ::= EventIDInterSystem ::= EventIDIntraFreq ::= EventIDTrafficVolume ::= EventResults ::=   intraFreqEventResults   interFreqEventResults   interSystemEventResults   trafficVolumeEventResults   qualityEventResults   ue-InternalEventResults   lcs-MeasurementEventResults } ExtraDopplerInfo ::=   doppler1stOrder   dopplerUncertainty } FACH-MeasurementOccasionInfo ::=   k-UTRA   otherRAT-InSysInfoList } FilterCoefficient ::= </pre>	<pre> W, HysteresisInterFreq, TimeToTrigger, ReportingAmount, ReportingInterval } SEQUENCE {   Threshold,   W,   Threshold,   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } SEQUENCE {   Threshold,   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } SEQUENCE {   Threshold,   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } SEQUENCE {   Hysteresis,   TimeToTrigger,   ReportingAmount,   ReportingInterval } ENUMERATED {   e2a, e2b, e2c, e2d, e2e, e2f } ENUMERATED {   e3a, e3b, e3c, e3d } ENUMERATED {   e1a, e1b, e1c, e1d, e1e,   e1f, e1g, e1h, e1i, e1j } ENUMERATED {   e4a, e4b } CHOICE {   IntraFreqEventResults,   InterFreqEventResults,   InterSystemEventResults,   TrafficVolumeEventResults,   QualityEventResults,   UE-InternalEventResults,   LCS-MeasurementEventResults } SEQUENCE {   INTEGER (-42..21),   DopplerUncertainty } SEQUENCE {   DRX-CycleLengthCoefficient,   OtherRAT-InSysInfoList <u>OPTIONAL</u> } ENUMERATED {   fc1, fc2, fc3, fc4, fc6, fc8,   fc12, fc16, fc24, fc32, fc64,   fc128, fc256, fc512, fc1024,   spare1 } </pre>
---	--



```

FineSFN-SFN ::=
    ENUMERATED {
        fs0, fs0-25, fs0-5, fs0-75 }

ForbiddenAffectCell ::=
    modeSpecificInfo
    fdd
        primaryCPICH-Info
    },
    tdd
        primaryCCPCH-Info
    }
}

ForbiddenAffectCellList ::=
    SEQUENCE (SIZE(1..maxCellsForbidden)) OF
        ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP }

-- **TODO**, not defined yet
Frequency ::=
    SEQUENCE {

GPS-MeasurementParam ::=
    satelliteID
    c-N0
    doppler
    wholeGPS-Chips
    fractionalGPS-Chips
    multipathIndicator
    pseudorangeRMS-Error
}

GPS-MeasurementParamList ::=
    SEQUENCE (SIZE (1..maxN-SAT)) OF
        GPS-MeasurementParam

GPS-TOW-1msec ::=
    INTEGER (0..604700000)

GPS-TOW-Assist ::=
    satID
    tlm-Message
    antiSpoof
    alert
    tlm-Reserved
}

GPS-TOW-AssistList ::=
    SEQUENCE (SIZE (1..maxN-SAT)) OF
        GPS-TOW-Assist

GPS-TOW-HighResolution ::=
    INTEGER (0..999)

GSM-CarrierRSSI ::=
    BIT STRING (SIZE (6))

-- **TODO**, not defined yet
GSM-OutputPower ::=
    SEQUENCE {

HCS-CellReselectInformation ::=
    penaltyTime
}

HCS-NeighbouringCellInformation ::= SEQUENCE {
    hcs-PRIO
    q-HCS
    hcs-CellReselectInformation
}

HCS-PRIO ::=
    INTEGER (0..7)

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

```

```

-- Actual value = IE value * 0.5
HysteresisInterFreq ::= INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo          FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxInterCells)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList     NewInterFreqCellList     OPTIONAL
}

InterFreqCellInfoSI-List ::= SEQUENCE {
    removedInterFreqCellList RemovedInterFreqCellList OPTIONAL,
    newInterFreqCellList     NewInterFreqCellSI-List  OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreqCount)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a      Event2a,
    event2b      Event2b,
    event2c      Event2c,
    event2d      Event2d,
    event2e      Event2e,
    event2f      Event2f
}

InterFreqEventList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID      EventIDInterFreq,
    interFreqCellList InterFreqCellList OPTIONAL
}

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria CHOICE {
        intraFreqReportingCriteria SEQUENCE {
            intraFreqMeasQuantity IntraFreqMeasQuantity,
        },
        interFreqReportingCriteria SEQUENCE {
            filterCoefficient      FilterCoefficient,
            modeSpecificInfo        CHOICE {
                fdd SEQUENCE {
                    freqQualityEstimateQuantity-FDD FreqQualityEstimateQuantity-FDD
                },
                tdd SEQUENCE {
                    freqQualityEstimateQuantity-TDD FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::= SEQUENCE {
    frequencyInfo          FrequencyInfo          OPTIONAL,
    ultra-CarrierRSSI      UTRA-CarrierRSSI      OPTIONAL,
    interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxNumFreq)) OF
    InterFreqMeasuredResults

InterFreqMeasurementSysInfo ::= SEQUENCE {
    interFreqMeasurementID MeasurementIdentityNumber OPTIONAL,
    interFreqCellInfoSI-List InterFreqCellInfoSI-List OPTIONAL,
    interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
    interFreqReportCriteria InterFreqReportCriteria OPTIONAL
}

```

```

InterFreqReportCriteria ::=
    intraFreqReportingCriteria
    interFreqReportingCriteria
    periodicalReportingCriteria
    noReporting
}
CHOICE {
    IntraFreqReportingCriteria,
    InterFreqReportingCriteria,
    PeriodicalReportingCriteria,
    NULL
}

InterFreqReportingCriteria ::=
    interFreqEventList
}
SEQUENCE {
    InterFreqEventList
} OPTIONAL

InterFreqReportingQuantity ::=
    ultra-Carrier-RSSI
    frequencyQualityEstimate
    nonFreqRelatedQuantities
}
SEQUENCE {
    BOOLEAN,
    BOOLEAN,
    CellReportingQuantities
}

InterFreqSetUpdate ::=
    ue-AutonomousUpdateMode
}
SEQUENCE {
    UE-AutonomousUpdateMode
}

InterFrequencyMeasurement ::=
    interFreqCellInfoList
    interFreqMeasQuantity
    interFreqReportingQuantity
    reportingCellStatus
    measurementValidity
    interFreqSetUpdate
    reportCriteria
}
SEQUENCE {
    InterFreqCellInfoList,
    InterFreqMeasQuantity
} OPTIONAL,
    InterFreqReportingQuantity
} OPTIONAL,
    ReportingCellStatus
} OPTIONAL,
    MeasurementValidity
} OPTIONAL,
    InterFreqSetUpdate
} OPTIONAL,
    InterFreqReportCriteria
}

InterSystemCellID ::=
    INTEGER (0..maxInterSysCells)

InterSystemCellInfoList ::=
    removedInterSystemCellList
    newInterSystemCellList
}
SEQUENCE {
    RemovedInterSystemCellList,
    NewInterSystemCellList
}

InterSystemEvent ::=
    event3a
    event3b
    event3c
    event3d
}
CHOICE {
    Event3a,
    Event3b,
    Event3c,
    Event3d
}

InterSystemEventList ::=
    SEQUENCE (SIZE(1..maxEventCount)) OF
        InterSystemEvent

InterSystemEventResults ::=
    eventID
    cellToReportList
}
SEQUENCE {
    EventIDInterSystem,
    CellToReportList
}

InterSystemInfo ::=
    ENUMERATED {
        gsm, spare1
    }

InterSystemMeasQuantity ::=
    measQuantityUTRAN-QualityEstimate
    systemSpecificInfo
    gsm
        measurementQuantity
        filterCoefficient
        bsic-VerificationRequired
    },
    is-2000
        tadd-EcIo
        tcomp-EcIo
        softSlope
        addIntercept
}
SEQUENCE {
    IntraFreqMeasQuantity,
    CHOICE {
        SEQUENCE {
            MeasurementQuantityGSM,
            FilterCoefficient,
            BOOLEAN
        },
        SEQUENCE {
            INTEGER (0..63),
            INTEGER (0..15),
            INTEGER (0..63)
        },
        INTEGER (0..63)
    }
} OPTIONAL,
    INTEGER (0..63)
} OPTIONAL,
}

InterSystemMeasuredResults ::=
    gsm
        frequency
        gsm-CarrierRSSI
        pathloss
}
CHOICE {
    SEQUENCE {
        Frequency,
        GSM-CarrierRSSI
    } OPTIONAL,
    Pathloss
} OPTIONAL,
}

```

```

        bsic                BSIC                OPTIONAL,
        observedTimeDifferenceToGSM    ObservedTimeDifferenceToGSM    OPTIONAL
    },
    other                NULL
}

InterSystemMeasuredResultsList ::= SEQUENCE (SIZE (1..maxInterSys)) OF
    InterSystemMeasuredResults

InterSystemMeasurement ::= SEQUENCE {
    interSystemCellInfoList    InterSystemCellInfoList    OPTIONAL,
    interSystemMeasQuantity    InterSystemMeasQuantity    OPTIONAL,
    interSystemReportingQuantity    InterSystemReportingQuantity    OPTIONAL,
    reportingCellStatus        ReportingCellStatus    OPTIONAL,
    reportCriteria            InterSystemReportCriteria
}

InterSystemMeasurementSysInfo ::= SEQUENCE {
    interSystemMeasurementID    MeasurementIdentityNumber    OPTIONAL,
    interSystemCellInfoList    InterSystemCellInfoList    OPTIONAL,
    interSystemMeasQuantity    InterSystemMeasQuantity    OPTIONAL
}

InterSystemReportCriteria ::= CHOICE {
    interSystemReportingCriteria    InterSystemReportingCriteria,
    periodicalReportingCriteria    PeriodicalReportingCriteria,
    noReporting                    NULL
}

InterSystemReportingCriteria ::= SEQUENCE {
    interSystemEventList        InterSystemEventList        OPTIONAL
}

InterSystemReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality        BOOLEAN,
    systemSpecificInfo            CHOICE {
        gsm                        SEQUENCE {
            pathloss                BOOLEAN,
            observedTimeDifferenceGSM    BOOLEAN,
            gsm-Carrier-RSSI        BOOLEAN,
            bsic                    BOOLEAN
        },
        spare1                    SEQUENCE {}
    }
}

IntraFreqCellID ::= INTEGER (0..maxIntraCells)

IntraFreqCellInfoList ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellList        OPTIONAL
}

IntraFreqCellInfoSI ::= SEQUENCE {
    cellInfo                    CellInfoSI
}

IntraFreqCellInfoSI-List ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List    OPTIONAL
}

IntraFreqEvent ::= CHOICE {
    ela                        Event1a,
    elb                        Event1b,
    elc                        Event1c,
    eld                        Hysteresis,
    ele                        Event1efTriggeringCondition,
    elf                        Event1efTriggeringCondition,
    elg                        Hysteresis,
    elh                        Hysteresis,
    eli                        Hysteresis,
    elj                        Hysteresis
}

IntraFreqEventCriteria ::= SEQUENCE {
    event                    IntraFreqEvent,
    timeToTrigger            TimeToTrigger,
}

```

```

    reportingAmount                ReportingAmount,
    reportingInterval              ReportingInterval
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE(1..maxEventCount)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID                        EventIDIntraFreq,
    cellMeasurementEventResults   CellMeasurementEventResults
}

IntraFreqMeasQuantity ::= SEQUENCE {
    filterCoefficient             FilterCoefficient,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            intraFreqMeasQuantity-FDD IntraFreqMeasQuantity-FDD
        },
        tdd                       SEQUENCE {
            intraFreqMeasQuantity-TDD IntraFreqMeasQuantity-TDD
        }
    }
}

IntraFreqMeasQuantity-FDD ::= ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    cpich-SIR,
    pathloss,
    ultra-CarrierRSSI }

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

IntraFreqMeasuredResults ::= SEQUENCE {
    cellMeasuredResults           CellMeasuredResults
}

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    IntraFreqMeasuredResults

IntraFreqMeasurementSysInfo ::= SEQUENCE {
    intraFreqMeasurementID        MeasurementIdentityNumber           OPTIONAL,
    intraFreqCellInfoSI-List      IntraFreqCellInfoSI-List           OPTIONAL,
    intraFreqMeasQuantity         IntraFreqMeasQuantity             OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH        MaxReportedCellsOnRACH           OPTIONAL,
    reportingInfoForCellDCH       ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria    IntraFreqReportingCriteria,
    periodicalReportingCriteria   PeriodicalReportingCriteria,
    noReporting                   NULL
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList             IntraFreqEventCriteriaList
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities   CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    unlistedSetReportingQuantities CellReportingQuantities           OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-ObsTimeDifference      SFN-SFN-ObsTimeDifference,
    modeSpecificInfo                CHOICE {
        fdd                         SEQUENCE {
            intraFreqRepQuantityRACH-FDD IntraFreqRepQuantityRACH-FDD
        },
        tdd                         SEQUENCE {
            intraFreqRepQuantityRACH-TDD IntraFreqRepQuantityRACH-TDD
        }
    }
}

```

```

}
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    cpich-SIR, pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFreqThreshold ::= INTEGER(-115..140)

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList          IntraFreqCellInfoList          OPTIONAL,
    intraFreqMeasQuantity          IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantity     IntraFreqReportingQuantity     OPTIONAL,
    reportingCellStatus            ReportingCellStatus            OPTIONAL,
    measurementValidity            MeasurementValidity            OPTIONAL,
    reportCriteria                 IntraFreqReportCriteria
}

IODD ::= INTEGER (0..255)

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

K-InterRAT ::= INTEGER (0..12)

LCS-Accuracy ::= BIT STRING (SIZE (7))

LCS-CipherParameters ::= SEQUENCE {
    cipheringKeyFlag                BIT STRING (SIZE (1)),
    cipheringSerialNumber           INTEGER (0..65535)
}

LCS-Error ::= SEQUENCE {
    errorReason                     LCS-ErrorCause,
    additionalAssistanceData        AdditionalAssistanceData
    -- The IE above is defined in GSM 09.31, the actual definition
    -- will have to be checked
}

LCS-ErrorCause ::= ENUMERATED {
    notEnoughOTDOA-Cells,
    notEnoughGPS-Satellites,
    assistanceDataMissing,
    methodNotSupported,
    undefinedError,
    requestDeniedByUser,
    notProcessedAndTimeout }

LCS-EventID ::= ENUMERATED {
    e7a, e7b, e7c }

LCS-EventParam ::= SEQUENCE {
    eventID                         LCS-EventID,
    reportingAmount                 ReportingAmount,
    reportFirstFix                  BOOLEAN,
    measurementInterval             LCS-MeasurementInterval,
    eventSpecificInfo               LCS-EventSpecificInfo
}

LCS-EventParamList ::= SEQUENCE (SIZE (1..maxEventCount)) OF
    LCS-EventParam

LCS-EventSpecificInfo ::= CHOICE {

```

```

    e7a                ThresholdPositionChange,
    e7b                ThresholdSFN-SFN-Change,
    e7c                ThresholdSFN-GPS-TOW
}

LCS-GPS-AcquisitionAssistance ::= SEQUENCE {
    referenceTime      CHOICE {
        utran-ReferenceTime      UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly    INTEGER (0..604700000)
    },
    satelliteInformationList    AcquisitionSatInfoList
}

LCS-GPS-Almanac ::= SEQUENCE {
    almanacSatInfoList    AlmanacSatInfoList
}

LCS-GPS-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters    LCS-CipherParameters                OPTIONAL,
    referenceGPS-TOW        ReferenceGPS-TOW,
    status                  DiffCorrectionStatus,
    btsClockDrift          BTS-ClockDrift                OPTIONAL,
    timeOffset              LCS-TimeOffset                OPTIONAL,
    iodd                    IODD                        OPTIONAL,
    dgps-InformationList    DGPS-InformationList          OPTIONAL
}

LCS-GPS-AssistanceData ::= SEQUENCE {
    lcs-GPS-ReferenceTime    LCS-GPS-ReferenceTime                OPTIONAL,
    lcs-GPS-ReferenceLocation LCS-GPS-ReferenceLocation          OPTIONAL,
    lcs-GPS-DGPS-Corrections LCS-GPS-DGPS-Corrections            OPTIONAL,
    lcs-GPS-NavigationModel  LCS-GPS-NavigationModel          OPTIONAL,
    lcs-GPS-IonosphericModel LCS-GPS-IonosphericModel          OPTIONAL,
    lcs-GPS-UTC-Model        LCS-GPS-UTC-Model                OPTIONAL,
    lcs-GPS-Almanac          LCS-GPS-Almanac                    OPTIONAL,
    lcs-GPS-AcquisitionAssistance LCS-GPS-AcquisitionAssistance    OPTIONAL,
    lcs-GPS-Real-timeIntegrity LCS-GPS-Real-timeIntegrity        OPTIONAL
}

LCS-GPS-DGPS-Corrections ::= SEQUENCE {
    gps-TOW                INTEGER (0..604799),
    statusHealth           DiffCorrectionStatus,
    dgps-CorrectionSatInfoList DGPS-CorrectionSatInfoList
}

LCS-GPS-IonosphericModel ::= SEQUENCE {
    alfa0                  BIT STRING (SIZE (8)),
    alfa1                  BIT STRING (SIZE (8)),
    alfa2                  BIT STRING (SIZE (8)),
    alfa3                  BIT STRING (SIZE (8)),
    beta0                  BIT STRING (SIZE (8)),
    beta1                  BIT STRING (SIZE (8)),
    beta2                  BIT STRING (SIZE (8)),
    beta3                  BIT STRING (SIZE (8))
}

LCS-GPS-Measurement ::= SEQUENCE {
    referenceSFN           ReferenceSFN                OPTIONAL,
    gps-TOW-lmsec          GPS-TOW-lmsec,
    gps-TOW-HighResolution GPS-TOW-HighResolution          OPTIONAL,
    gps-MeasurementParamList GPS-MeasurementParamList
}

LCS-GPS-NavigationModel ::= SEQUENCE {
    n-SAT                  INTEGER (1..16),
    navigationModelSatInfoList NavigationModelSatInfoList
}

-- **TODO**, definition in 23.032
LCS-GPS-ReferenceLocation ::= SEQUENCE {
}

LCS-GPS-Real-timeIntegrity ::= SEQUENCE {
    badSatList            BadSatList
}

LCS-GPS-ReferenceTime ::= SEQUENCE {
    gps-Week              INTEGER (0..1023),

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```

gps-TOW                INTEGER (0..604700000000),
sfn                    INTEGER (0..4095),
gps-TOW-AssistList    GPS-TOW-AssistList                OPTIONAL
}

LCS-GPS-UTC-Model ::= SEQUENCE {
    a0                BIT STRING (SIZE (32)),
    a1                BIT STRING (SIZE (24)),
    delta-t-LS       BIT STRING (SIZE (8)),
    t-ot              BIT STRING (SIZE (8)),
    wn-t              BIT STRING (SIZE (8)),
    wn-lsf            BIT STRING (SIZE (8)),
    dn                BIT STRING (SIZE (8)),
    delta-t-LSF      BIT STRING (SIZE (8))
}

LCS-IPDL-Parameters ::= SEQUENCE {
    ip-Spacing        IP-Spacing,
    ip-Length         IP-Length,
    ip-Offset         INTEGER (0..9),
    seed              INTEGER (0..63),
    burstModeParameters BurstModeParameters
}

LCS-MeasuredResults ::= SEQUENCE {
    lcs-MultipleSets  LCS-MultipleSets                OPTIONAL,
    lcs-ReferenceCellIdentity PrimaryCPICH-Info            OPTIONAL,
    lcs-OTDOA-Measurement LCS-OTDOA-Measurement        OPTIONAL,
    lcs-Position      LCS-Position                OPTIONAL,
    lcs-GPS-Measurement LCS-GPS-Measurement        OPTIONAL,
    lcs-Error         LCS-Error                  OPTIONAL
}

LCS-Measurement ::= SEQUENCE {
    lcs-ReportingQuantity LCS-ReportingQuantity,
    reportCriteria        LCS-ReportCriteria,
    lcs-OTDOA-AssistanceData LCS-OTDOA-AssistanceData    OPTIONAL,
    lcs-GPS-AssistanceData LCS-GPS-AssistanceData    OPTIONAL
}

LCS-MeasurementEventResults ::= SEQUENCE {
    event7a            LCS-Position,
    event7b            LCS-OTDOA-Measurement,
    event7c            LCS-GPS-Measurement
}

LCS-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

LCS-MethodType ::= ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

LCS-MultipleSets ::= SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets INTEGER (2..3),
    numberOfReferenceCells      INTEGER (1..3),
    referenceCellRelation       ReferenceCellRelation
}

LCS-OTDOA-AssistanceData ::= SEQUENCE {
    lcs-OTDOA-ReferenceCell        LCS-OTDOA-ReferenceCell        OPTIONAL,
    lcs-OTDOA-MeasurementAssistDataList LCS-OTDOA-MeasurementAssistDataList OPTIONAL,
    lcs-IPDL-Parameters           LCS-IPDL-Parameters                OPTIONAL
}

LCS-OTDOA-AssistanceSIB ::= SEQUENCE {
    lcs-CipherParameters          LCS-CipherParameters                OPTIONAL,
    searchWindowSize              OTDOA-SearchWindowSize,
    referenceCellPosition         ReferenceCellPosition,
    lcs-IPDL-Parameters           LCS-IPDL-Parameters                OPTIONAL,
    cellToMeasureInfoList        CellToMeasureInfoList
}

LCS-OTDOA-Measurement ::= SEQUENCE {
    sfn                    INTEGER (0..4095),

```



```

-- Actual value = IE value * 0.25 + 876
ue-Rx-Tx-TimeDifference      INTEGER (0..1184),
qualityType                  QualityType,
qualityChoice                CHOICE {
    std-10                    ReferenceQuality10,
    std-50                    ReferenceQuality50,
    cpich-EcN0                CPICH-Ec-N0-OTDOA,
    defaultQuality            ReferenceQuality
},
neighborList                 NeighborList                                OPTIONAL
}

LCS-OTDOA-MeasurementAssistData ::= SEQUENCE {
    primaryCPICH-Info         PrimaryCPICH-Info,
    frequencyInfo             FrequencyInfo                                OPTIONAL,
    sfn-SFN-ObsTimeDifference SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN              FineSFN-SFN                                OPTIONAL,
    searchWindowSize          OTDOA-SearchWindowSize,
    relativeNorth             INTEGER (-20000..20000)                    OPTIONAL,
    relativeEast              INTEGER (-20000..20000)                    OPTIONAL,
    relativeAltitude          INTEGER (-4000..4000)                       OPTIONAL
}

LCS-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..15)) OF
    LCS-OTDOA-MeasurementAssistData

LCS-OTDOA-ReferenceCell ::= SEQUENCE {
    primaryCPICH-Info         PrimaryCPICH-Info,
    frequencyInfo             FrequencyInfo                                OPTIONAL,
    cellPosition              ReferenceCellPosition                       OPTIONAL
}

LCS-Position ::= SEQUENCE {
    referenceSFN              ReferenceSFN,
    gps-TOW                   INTEGER (0..604700000000),
    positionEstimate          PositionEstimate
}

LCS-ReportCriteria ::= CHOICE {
    lcs-ReportingCriteria     LCS-ReportingCriteria,
    periodicalReportingCriteria,
    noReporting               NULL
}

LCS-ReportingCriteria ::= SEQUENCE {
    eventParameterList        LCS-EventParamList                        OPTIONAL
}

LCS-ReportingQuantity ::= SEQUENCE {
    methodType                LCS-MethodType,
    positioningMethod          PositioningMethod,
    responseTime               LCS-ResponseTime,
    accuracy                   LCS-Accuracy                            OPTIONAL,
    gps-TimingOfCellWanted     BOOLEAN,
    multipleSets               BOOLEAN,
    environmentCharacterization EnvironmentCharacterization            OPTIONAL
}

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

LCS-TimeOffset ::= INTEGER (0..4095)

MaxNumberOfReportingCells ::= ENUMERATED {
    mandatoryCellsOnly,
    mandatoryCellsPlus1,
    mandatoryCellsPlus2,
    mandatoryCellsPlus3,
    mandatoryCellsPlus4,
    mandatoryCellsPlus5,
    mandatoryCellsPlus6 }

MaxReportedCellsOnRACH ::= ENUMERATED {
    noReport,
    currentCell,
    currentAnd-1-BestNeighbour,
    currentAnd-2-BestNeighbour,

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        currentAnd-3-BestNeighbour,
        currentAnd-4-BestNeighbour,
        currentAnd-5-BestNeighbour,
        currentAnd-6-BestNeighbour }

MeasuredResults ::=
    intraFreqMeasuredResultsList      CHOICE {
    interFreqMeasuredResultsList      IntraFreqMeasuredResultsList,
    interSystemMeasuredResultsList    InterFreqMeasuredResultsList,
    trafficVolumeMeasuredResultsList  InterSystemMeasuredResultsList,
    qualityMeasuredResults            TrafficVolumeMeasuredResultsList,
    ue-InternalMeasuredResults        QualityMeasuredResults,
    lcs-MeasuredResults              UE-InternalMeasuredResults,
    }                                  LCS-MeasuredResults

MeasuredResultsList ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasuredResults

MeasuredResultsOnRACH ::= SEQUENCE {
    currentCell SEQUENCE {
        modeSpecificInfo CHOICE {
            fdd SEQUENCE {
                measurementQuantity CHOICE {
                    cpich-Ec-NO      CHOICE {
                    cpich-RSCP        CPICH-Ec-NO,
                    cpich-SIR         CPICH-RSCP,
                    pathloss          CPICH-SIR,
                }                  Pathloss
            },
            tdd SEQUENCE {
                timeslotISCP         TimeslotISCP,
                primaryCCPCH-RSCP    PrimaryCCPCH-RSCP
            }
        }
    },
    monitoredCells MonitoredCellRACH-List OPTIONAL
}

MeasurementCommand ::= CHOICE {
    setup      MeasurementType,
    modify     SEQUENCE {
        measurementType MeasurementType OPTIONAL
    },
    release    NULL
}

MeasurementControlSysInfo ::= SEQUENCE {
    intraFreqMeasurementSysInfo  IntraFreqMeasurementSysInfo  OPTIONAL,
    interFreqMeasurementSysInfo  InterFreqMeasurementSysInfo  OPTIONAL,
    interSystemMeasurementSysInfo InterSystemMeasurementSysInfo  OPTIONAL,
    trafficVolumeMeasSysInfo     TrafficVolumeMeasSysInfo     OPTIONAL,
    ue-InternalMeasurementSysInfo UE-InternalMeasurementSysInfo  OPTIONAL
}

-- **TODO**, not defined yet
MeasurementIdentityNumber ::= INTEGER(1..1632) SEQUENCE {
}

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

MeasurementReportingMode ::= SEQUENCE {
    measurementReportTransferMode TransferMode,
    periodicalOrEventTrigger     PeriodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
    intraFrequencyMeasurement    IntraFrequencyMeasurement,
    interFrequencyMeasurement    InterFrequencyMeasurement,
    interSystemMeasurement       InterSystemMeasurement,
    lcs-Measurement              LCS-Measurement,
    trafficVolumeMeasurement     TrafficVolumeMeasurement,
    qualityMeasurement           QualityMeasurement,
    ue-InternalMeasurement       UE-InternalMeasurement
}

MeasurementValidity ::= SEQUENCE {

```



```

NewInterSystemCell ::=
    technologySpecificInfo
        gsm
            q-Offset
            hcs-NeighbouringCellInformation
            q-Min
            maxAllowedUL-TX-Power
            bsic
            bcch-ARFCN
            gsm-OutputPower
        },
        is-2000
            is-2000SpecificMeasInfo
    }
}

NewInterSystemCellList ::=
    SEQUENCE (SIZE (1..maxInterSysCells)) OF
        NewInterSystemCell

NewIntraFreqCell ::=
    intraFreqCellID
    cellInfo
}

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

NewIntraFreqCellSI ::=
    intraFreqCellID
    cellInfo
}

NewIntraFreqCellSI-List ::=
    SEQUENCE (SIZE (1..maxIntraCells)) OF
        NewIntraFreqCell

NonUsedFreqParameter ::=
    nonUsedFreqThreshold
    nonUsedFreqW
}

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

ObservedTimeDifferenceToGSM ::=
    INTEGER (0..4095)

OtherRAT-InSysInfo ::=
    rat-Type
    k-InterRAT
}

OtherRAT-InSysInfoList ::=
    SEQUENCE (SIZE (1..maxInterRAT)) OF
        OtherRAT-InSysInfo

OTDOA-SearchWindowSize ::=
    ENUMERATED {
        c10, c20, c30, c40, c50,
        c60, c70, moreThan70 }

Pathloss ::=
    INTEGER (46..158)

PenaltyTime ::=
    notUsed
    pt10
    pt20
    pt30
    pt40
    pt50
    pt60
}

PendingTimeAfterTrigger ::=
    ENUMERATED {
        ptat0-25, ptat0-5, ptat1,
        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=
    ENUMERATED {
        periodical,

```

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eventTrigger }

PeriodicalReportingCriteria ::= SEQUENCE {
    reportingAmount          ReportingAmount          OPTIONAL,
    reportingInterval        ReportingIntervalLong      OPTIONAL
}

-- **TODO**, contents to be defined, source 23.032
PositionEstimate ::= CHOICE {
    ellipsoidPoint          SEQUENCE {},
    ellipsoidPointUncertCircle SEQUENCE {},
    ellipsoidPointUncertEllipse SEQUENCE {},
    ellipsoidPointAltitude SEQUENCE {},
    ellipsoidPointAltitudeEllipse SEQUENCE {}
}

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

PRC ::= INTEGER (-32767..32767)

-- **TODO**, not defined yet
PrimaryCCPCH-RSCP ::= SEQUENCE {
}

Q-Accept-s-n ::= INTEGER (0..63)

Q-HCS ::= INTEGER (0..99)

Q-Offset ::= INTEGER (-50..50)

-- Actual value = IE value * 0.5
Q-OffsetS-N ::= INTEGER (-40..40)

-- **TODO**, not defined yet
Q-Min ::= SEQUENCE {
}

Qmin-FDD ::= INTEGER (-20..0)

-- Actual value = IE value * 2 - 115
Qmin-TDD ::= INTEGER (0..45)

-- **TODO**, not defined yet
QualityEventResults ::= SEQUENCE {
}

-- **TODO**, not defined yet
QualityMeasQuantity ::= SEQUENCE {
}

QualityMeasuredResults ::= SEQUENCE {
    blerMeasurementResultsList BLER-MeasurementResultsList OPTIONAL,
    dl-PhysicalChannelBER      DL-PhysicalChannelBER      OPTIONAL,
    sir                         SIR                         OPTIONAL
}

QualityMeasurement ::= SEQUENCE {
    qualityMeasurementObject QualityMeasurementObject OPTIONAL,
    qualityMeasQuantity      QualityMeasQuantity      OPTIONAL,
    qualityReportingQuantity QualityReportingQuantity  OPTIONAL,
    reportCriteria           QualityReportCriteria
}

-- **TODO**, not defined yet
QualityMeasurementObject ::= SEQUENCE {
}

QualityReportCriteria ::= CHOICE {
    qualityReportingCriteria QualityReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting              NULL
}

-- **TODO**, not defined yet
QualityReportingCriteria ::= SEQUENCE {

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}

QualityReportingQuantity ::= SEQUENCE {
    dl-TransChBLER          BOOLEAN,
    bler-TransChIdList     BLER-TransChIdList          OPTIONAL,
    sir                     BOOLEAN
}

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

RAT-Type ::= ENUMERATED {
    gsm, is2000, spare1, spare2,
    spare3, spare4, spare5, spare6,
    spare7, spare8, spare9, spare10,
    spare11, spare12, spare13, spare14 }

-- **TODO**, definition to be checked from 23.032
ReferenceCellPosition ::= SEQUENCE {
}

ReferenceCellRelation ::= ENUMERATED {
    first-12-second-3,
    first-13-second-2,
    first-1-second-23 }

ReferenceGPS-TOW ::= INTEGER (0..604700000000)

ReferenceQuality ::= ENUMERATED {
    m0-19, m20-39, m40-79,
    m80-159, m160-319, m320-639,
    m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::= INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::= INTEGER (1..32)

ReferenceSFN ::= INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::= CHOICE {
    -- Actual value = IE value * 40
    accuracy40          INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256         INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560        INTEGER (0..15)
}

RemovedInterFreqCell ::= SEQUENCE {
    interFreqCellID     InterFreqCellID
}

RemovedInterFreqCellList ::= SEQUENCE (SIZE (1..maxInterCells)) OF
    RemovedInterFreqCell

RemovedInterSystemCell ::= SEQUENCE {
    interSystemCellID   InterSystemCellID
}

RemovedInterSystemCellList ::= SEQUENCE (SIZE (1..maxInterSysCells)) OF
    RemovedInterSystemCell

RemovedIntraFreqCell ::= SEQUENCE {
    intraFreqCellID     IntraFreqCellID
}

RemovedIntraFreqCellList ::= SEQUENCE (SIZE (1..maxIntraCells)) OF
    RemovedIntraFreqCell

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,

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        t3, t4, t5, t6, t7 }

ReportingAmount ::=
    ENUMERATED {
        ra1, ra2, ra4, ra8, ra16, ra32,
        ra64, ra-Infinity }

ReportingCellStatus ::=
    maxNumberOfReportingCells
    measurement
    intraFreq
    otherMeasurement
    }
}

ReportingCellStatusIntraFreq ::=
    activeSetCellReport
    monitoredSetCellReport
    }

ReportingInfoForCellDCH ::=
    intraFreqReportingQuantity
    reportCriteria
    }

ReportingInterval ::=
    ENUMERATED {
        noPeriodicalreporting, ri0-25,
        ri0-5, ril, ri2, ri4, ri8, ril6 }

ReportingIntervalLong ::=
    ENUMERATED {
        ril0, ril0-25, ril0-5, ril1,
        ril2, ril3, ril4, ril6, ril8,
        ril12, ril16, ril20, ril24,
        ril28, ril32, ril64 }

-- Actual value = IE value * 0.5
ReportingRange ::=
    INTEGER (0..29)

Resume-Release ::=
    resume
    release
    }

RL-AdditionInfo ::=
    primaryCPICH-Info
    }

RL-AdditionInfoList ::=
    SEQUENCE (SIZE(1..maxAddRLcount)) OF
    RL-AdditionInfo

RL-InformationLists ::=
    rl-AdditionInfoList
    rl-RemovalInfoList
    }

RL-RemovalInfo ::=
    primaryCPICH-Info
    }

RL-RemovalInfoList ::=
    SEQUENCE (SIZE(1..maxDelRLcount)) OF
    RL-RemovalInfo

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

RRC ::=
    INTEGER (-127..127)

-- **TODO**, not defined yet
RSCP ::=
    SEQUENCE {
    }

SatelliteStatus ::=
    ENUMERATED {
        ns-NN-U,
        es-SN,
        es-NN-U,
        es-NN-C }

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SatID ::= INTEGER (0..31)

ScaleFactor ::= ENUMERATED {
    prc0-02-rrc0-002,
    prc0-32-rrc0-032 }

SFN-SFN-ObsTimeDifference ::= CHOICE {
    type1 SFN-SFN-ObsTimeDifference1,
    -- Actual value for type2 = IE value * 0.25
    type2 SFN-SFN-ObsTimeDifference2
}

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

SFN-SFN-ObsTimeDifference2 ::= INTEGER (-5119..5120)

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

SignallingOption ::= CHOICE {
    alternative1 SEQUENCE {
        q-OffsetS-N OPTIONAL
    },
    alternative2 NULL
}

SIR ::= INTEGER (-10..20)

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

--**TODO**, not defined yet
Threshold ::= INTEGER(-115..0)SEQUENCE {
}

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 }

--Actual value is this value * 20. 14, 15, 16 is spare
TimeInterval ::= INTEGER(1..16)

-- **TODO**, not defined yet
TimeslotISCP ::= SEQUENCE {
}

TimeslotListWithISCP ::= SEQUENCE (SIZE (1..14)) OF
    TimeslotWithISCP

TimeslotWithISCP ::= SEQUENCE {
    timeslot Timeslot,
    timeslotISCP TimeslotISCP
}

TimeToTrigger ::= ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, tt320, ttt640,
    ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::= SEQUENCE {
    eventID TrafficVolumeEventType,
    reportingThreshold TrafficVolumeThreshold
}

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}

TrafficVolumeEventResults ::= SEQUENCE {
    transportChannelCausingEvent TransportChannelIdentity,
    trafficVolumeEventIdentity EventIDTrafficVolume
}

TrafficVolumeEventType ::= ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasObject ::= SEQUENCE {
    targetTransportChannelID TransportChannelIdentity
}

TrafficVolumeMeasObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasObject

TrafficVolumeMeasQuantity ::= ENUMERATED-CHOICE {
    rlc-BufferPayload NULL,
    averageRLC-BufferPayload TimeInterval,
    varianceOfRLC-BufferPayload TimeInterval
}

TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID MeasurementIdentityNumber OPTIONAL,
    trafficVolumeMeasObjectList TrafficVolumeMeasObjectList OPTIONAL,
    trafficVolumeMeasQuantity TrafficVolumeMeasQuantity OPTIONAL
}

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..maxTraff)) OF
    TrafficVolumeMeasuredResults

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

TrafficVolumeMeasurementObject ::= SEQUENCE {
    targetTransportChannelID TransportChannelIdentity
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCHcount)) OF
    TrafficVolumeMeasurementObject

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList TransChCriteriaList OPTIONAL,
    timeToTrigger TimeToTrigger OPTIONAL,
    pendingTimeAfterTrigger PendingTimeAfterTrigger OPTIONAL,
    tx-InterruptionAfterTrigger TX-InterruptionAfterTrigger OPTIONAL,
    reportingAmount ReportingAmount OPTIONAL,
    reportingInterval ReportingInterval OPTIONAL
}

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

TrafficVolumeThreshold ::= ENUMERATED {
    th8, th16, th32, th64, th128,

```

```

th256, th512, th1024, th1536,
th2048, th3072, th4096, th6144,
th8192 }

TransChCriteria ::=
    transportChannelID
    eventSpecificParameters
}

SEQUENCE {
    TransportChannelIdentity,
    SEQUENCE (SIZE (1..2)) OF
        TrafficVolumeEventParam
} OPTIONAL

TransChCriteriaList ::= =
    SEQUENCE (SIZE (1..maxTrCHcount)) OF
        TransChCriteria

TransferMode ::=
    ENUMERATED {
        acknowledgedModeRLC,
        unacknowledgedModeRLC }

TransmittedPowerThreshold ::=
    INTEGER (-50..33)

TriggeringCondition ::=
    ENUMERATED {
        activeSetCellsOnly,
        monitoredCellsOnly,
        activeSetAndMonitoredCells }

TX-InterruptionAfterTrigger ::=
    ENUMERATED {
        txiat0-25, txiat0-5, txiat1,
        txiat2, txiat4, txiat8, txiat16 }

UDRE ::=
    ENUMERATED {
        lessThan1,
        between1-and-4,
        between4-and-8,
        over8 }

UE-6AB-Event ::=
    timeToTrigger
    transmittedPowerThreshold
}

SEQUENCE {
    TimeToTrigger,
    TransmittedPowerThreshold
}

UE-6FG-Event ::=
    timeToTrigger
    ue-RX-TX-TimeDifferenceThreshold
}

SEQUENCE {
    TimeToTrigger,
    UE-RX-TX-TimeDifferenceThreshold
}

UE-AutonomousUpdateMode ::=
    on
    onWithNoReporting
    off
}

CHOICE {
    NULL,
    NULL,
    RL-InformationLists
}

UE-InternalEventParam ::=
    event6a
    event6b
    event6c
    event6d
    event6e
    event6f
    event6g
}

CHOICE {
    UE-6AB-Event,
    UE-6AB-Event,
    TimeToTrigger,
    TimeToTrigger,
    TimeToTrigger,
    UE-6FG-Event,
    UE-6FG-Event
}

UE-InternalEventParamList ::=
    SEQUENCE (SIZE (1..maxEventCount)) OF
        UE-InternalEventParam

UE-InternalEventResults ::=
    event6a
    event6b
    event6c
    event6d
    event6e
    event6f
    event6g
}

CHOICE {
    NULL,
    NULL,
    NULL,
    NULL,
    NULL,
    PrimaryCPICH-Info,
    PrimaryCPICH-Info
}

UE-InternalMeasQuantity ::=
    measurementQuantity
    filterCoefficient
}

SEQUENCE {
    UE-MeasurementQuantity,
    FilterCoefficient
}

```

```

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-TransmittedPowerFDD UE-TransmittedPowerFDD OPTIONAL,
            ue-RX-TX-ReportEntryList UE-RX-TX-ReportEntryList OPTIONAL
        },
        tdd SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity UE-InternalMeasQuantity OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity OPTIONAL,
    reportCriteria UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID MeasurementIdentityNumber OPTIONAL,
    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,
    ue-RX-TX-TimeDifference BOOLEAN,
    ue-Position BOOLEAN
}

UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    ue-RX-TX-TimeDifference UE-RX-TX-TimeDifference
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxUsedRLcount)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifference ::= INTEGER (876..1172)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (769..1280)

UE-State ::= ENUMERATED {
    cell-DCH, all-But-Cell-DCH, all-States }

UE-TransmittedPowerFDD ::= INTEGER (-50..33)

-- **TODO**, not defined yet
UE-TransmittedPowerTDD ::= SEQUENCE {
}

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

UncompressedNavModel ::= SEQUENCE {
    iode BIT STRING (SIZE (8)),
    t-oe BIT STRING (SIZE (16)),
    c-rc BIT STRING (SIZE (16)),
    c-rs BIT STRING (SIZE (16)),
    c-ic BIT STRING (SIZE (16)),
    c-is BIT STRING (SIZE (16)),
    c-uc BIT STRING (SIZE (16)),
    c-us BIT STRING (SIZE (16)),
}

```

```

e          BIT STRING (SIZE (32)),
m0        BIT STRING (SIZE (32)),
a-Sqrt    BIT STRING (SIZE (32)),
delta-n   BIT STRING (SIZE (16)),
omega0    BIT STRING (SIZE (32)),
omegaDot  BIT STRING (SIZE (24)),
i0        BIT STRING (SIZE (32)),
iDot      BIT STRING (SIZE (14)),
omega     BIT STRING (SIZE (32)),
t-oc     BIT STRING (SIZE (16)),
af0       BIT STRING (SIZE (22)),
af1       BIT STRING (SIZE (16)),
af2       BIT STRING (SIZE (8))
}

UTRA-CarrierRSSI ::= INTEGER (-95..-30)

UTRAN-ReferenceTime ::= SEQUENCE {
    gps-TOW      INTEGER (0..604700000000),
    sfn          INTEGER (0..4095)
}

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

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

END

```

**CHANGE REQUEST**

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

**25.331 CR 291r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
 list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
 non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** RACH transmission parameters

**Work item:**

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

**Reason for change:** The value ranges for NB01min and NB01max are not defined yet. These parameters represent the value range of the timer TB01. This timer represents how many TTI UE should wait before performing next persistency test, when negative acknowledgement is received on AICH. According to section 11.2.2 of 25.321, the minimum value of these two parameters is zero. The minimum length for the timer used in RRC Connection procedure is 1 second, and TTI for RACH is 10ms or 20ms. Taking these into account, the maximum value of these parameters is chosen to be 50.

**Clauses affected:** 10.3.6.49, 11.3.6

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

**Other comments:**



help.doc

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

### 10.3.6.49 RACH transmission parameters

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mmax	MP		Integer(1..32)	Maximum number of preamble cycles
NB01min	MP		<a href="#">Integer(0..50)</a>	Sets lower bound for random back-off
NB01max	MP		<a href="#">Integer(0..50)</a>	Sets upper bound for random back-off

### 11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

maxAddRLcount,  
maxAP-SigNum,  
maxAP-SubCH,  
maxChanCount,  
maxCodeCount,  
maxCodeNum,  
maxCodeNumComp-1,  
maxCombineSet,  
maxCPCH-SetCount,  
maxDelRLcount,  
maxDPDCHcount,  
maxFACH-Count,  
maxMidambleShift-1,  
maxNoCodeGroups,  
maxNoTFCI-Groups,  
maxPCPCHs,  
maxPDSCHcount,  
maxPRACHcount,  
maxPUSCHcount,  
maxReplaceCount,  
maxRLcount,  
maxSCCPCHcount,  
maxSigNum,  
maxSF-Num,  
maxSubChNum,  
maxTFCI-2-Combs,  
maxTFs,  
maxTimeslotCount,  
maxTScount,  
maxUL-CCTrCHcount

FROM Constant-definitions

ActivationTime

FROM UserEquipment-IEs

CPCH-SetID,  
FACH-PCH-InformationList,  
TFCS,  
TFCS-Identity,  
TransportFormatSet

FROM TransportChannel-IEs

SIB-ReferenceListFACH

FROM Other-IEs;

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

AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (7)) OF  
AC-To-ASC-Mapping

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

```

    availableSubChannelEndIndex          INTEGER (0..11)
}
AccessServiceClassIndex ::=            INTEGER (1..8)
AICH-Info ::=                          SEQUENCE {
    secondaryScramblingCode             SecondaryScramblingCode           OPTIONAL,
    channelisationCode256               ChannelisationCode256,
    sttd-Indicator                      STTD-Indicator,
    aich-TransmissionTiming             AICH-TransmissionTiming
}
AICH-PowerOffset ::=                   INTEGER (-10..5)
AICH-TransmissionTiming ::=            ENUMERATED {
    e0, e1 }
AllocationPeriodInfo ::=               SEQUENCE {
    allocationActivationTime             INTEGER (1..256),
    allocationDuration                  INTEGER (1..256)
}
AP-AICH-ChannelisationCode ::=         INTEGER (0..255)
AP-AICH-ScramblingCode ::=             INTEGER (0..255)
AP-PreambleScramblingCode ::=         INTEGER (0..255)
AP-Signature ::=                       INTEGER (0..15)
AP-Subchannel ::=                      INTEGER (0..11)
ASC ::=                                 SEQUENCE {
    accessServiceClass                  AccessServiceClass,
    repetitionPeriodAndOffset          ASC-RepetitionPeriodAndOffset  OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}
ASC-Info ::=                           SEQUENCE {
    asc-List                            ASC-List
}
ASC-List ::=                           SEQUENCE (SIZE (1..8)) OF
    ASC
ASC-RepetitionPeriodAndOffset ::=      CHOICE {
    rp1                                 NULL,
    rp2                                 INTEGER (0..1),
    rp4                                 INTEGER (0..3),
    rp8                                 INTEGER (0..7)
}
AvailableAP-SignatureList ::=          SEQUENCE (SIZE (1..maxAP-SigNum)) OF
    AP-Signature
AvailableAP-SubchannelList ::=         SEQUENCE (SIZE (1..maxAP-SubCH)) OF
    AP-Subchannel
AvailableMinimumSF-VCAM ::=           SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
    nf-Max                              NF-Max,
    maxAvailablePCPCH-Number            MaxAvailablePCPCH-Number,
    availableAP-SignatureList           AvailableAP-SignatureList,
    availableAP-SubchannelList          AvailableAP-SubchannelList           OPTIONAL
}
AvailableMinimumSF-ListUCSM ::=        SEQUENCE (SIZE (1..maxSF-Num)) OF
    MinimumSpreadingFactor
AvailableMinimumSF-ListVCAM ::=        SEQUENCE (SIZE (1..maxSF-Num)) OF
    AvailableMinimumSF-VCAM
AvailableSignatureList ::=             SEQUENCE (SIZE (1..maxSigNum)) OF
    Signature
AvailableSubChannelNumber ::=          INTEGER (0..11)
AvailableSubChannelNumberList ::=      SEQUENCE (SIZE (1..maxSubChNum)) OF

```

```

AvailableSubChannelNumber

BlockSTTD-Indicator ::=          BOOLEAN

BurstType ::=                    ENUMERATED {
                                short1, long2 }

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

BurstType2 ::=                  ENUMERATED { ms3, ms6 }

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

CD-AccessSlotSubchannel ::=      INTEGER (0..11)

CD-AccessSlotSubchannelList ::=  SEQUENCE (SIZE (1..maxSubChNum)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

CD-CA-ICH-ScramblingCode ::=    INTEGER (0..255)

CD-PreambleScramblingCode ::=   INTEGER (0..255)

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

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

CellParametersID ::=            INTEGER (0..127)

CFN ::=                          INTEGER (0..255)

ChannelAssignmentActive ::=      CHOICE {
    notActive                    NULL,
    isActive                    VCAM-Info
}

ChannelisationCode256 ::=        INTEGER (0..255)

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

ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    ChannelReqParamsForUCSM

ClosedLoopTimingAdjMode ::=     ENUMERATED {
                                slot1, slot2 }

CodeNumber ::=                  INTEGER (0..maxCodeNum)

CodeNumberDSCH ::=              INTEGER (0..maxCodeNumComp-1)

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

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

CommonTimeslotInfo ::=          SEQUENCE {
    secondInterleavingMode       SecondInterleavingMode    OPTIONAL,
    tfci-Coding                  TFCI-Coding                OPTIONAL,
    puncturingLimit              PuncturingLimit,
    repetitionPeriodAndLength    RepetitionPeriodAndLength  OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=    SEQUENCE {

```



```

secondInterleavingMode      SecondInterleavingMode      OPTIONAL,
tfci-Coding                 TFCI-Coding                 OPTIONAL,
puncturingLimit            PuncturingLimit,
repetitionPeriodLengthAndOffset  RepetitionPeriodLengthAndOffset  OPTIONAL
}

CompressedModeMethod ::=      CHOICE {
    puncturing                NULL,
    sf-2                      ScramblingCodeChange,
    upperLayerScheduling      NULL,
    noCompressing             NULL
}

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

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

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

CPCH-SetInfo ::=             SEQUENCE {
    cpch-SetID                CPCH-SetID,
    transportFormatSet        TransportFormatSet,
    ap-PreambleScramblingCode AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode    AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode  CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList  OPTIONAL,
    cd-SignatureCodeList      CD-SignatureCodeList          OPTIONAL,
    slotFormat                SlotFormat,
    n-StartMessage            N-StartMessage,
    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..maxCPCH-SetCount)) OF
    CPCH-SetInfo

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

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

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

DL-CCTrCh ::=                SEQUENCE {
    individualTS-InfoDL-CCTrCHList  IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=             SEQUENCE {
    tfcs-Identity              TFCS-Identity,
    individualTS-InfoDL-CCTrCHList  IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=            CHOICE {
    single                     DL-CCTrCh,
    handover                   SEQUENCE (SIZE (1..8)) OF
        DL-CCTrCh-HO
}

DL-ChannelisationCode ::=    SEQUENCE {
    secondaryScramblingCode      SecondaryScramblingCode      OPTIONAL,
    codeNumber                   CodeNumber
}

DL-ChannelisationCodeList ::= SEQUENCE (SIZE(1..maxChanCount)) OF

```

DL-ChannelisationCode

```

DL-CommonInformation ::=
  dl-DPCH-InfoCommon
  modeSpecificInfo
  fdd
    defaultDPCH-OffsetValue
    dpch-CompressedModeInfo
    tx-DiversityMode
    ssdt-Information
  },
  tdd
    ul-TimingAdvance
  }
}

DL-CommonInformationPredef ::=
  dl-DPCH-InfoCommon
  modeSpecificInfo
  fdd
    defaultDPCH-OffsetValue
  },
  tdd
  }
}

DL-DPCCH-SlotFormat ::=
  ENUMERATED {
    slf0, slf1 }

DL-DPCH-InfoCommon ::=
  DL-DPCH-PowerControlInfo
  spreadingFactor
  -- TABULAR: The number of pilot bits is nested inside the spreading factor.
  positionFixedOrFlexible
  tfci-Existence
}

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

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

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

DL-InfoPerRL ::=
  dl-InformationPerRL
  dl-DPCH-InfoPerRL
}

DL-InfoPerRL-List ::=
  SEQUENCE (SIZE (1..maxRLcount)) OF
  DL-InfoPerRL

DL-InformationPerRL ::=
  modeSpecificInfo
  fdd
    primaryCPICH-Info
    pdsch-SHO-DCH-Info
    pdsch-CodeMapping
  }

```

```

SEQUENCE {
  DL-DPCH-InfoCommon
  CHOICE {
    SEQUENCE {
      DefaultDPCH-OffsetValue
      DPCH-CompressedModeInfo
      TX-DiversityMode
      SSDT-Information
    }
    SEQUENCE {
      UL-TimingAdvance
    }
  }
}

```

```

SEQUENCE {
  DL-DPCH-InfoCommon
  CHOICE {
    SEQUENCE {
      DefaultDPCH-OffsetValue
    }
    NULL
  }
}

```

```

ENUMERATED {
  slf0, slf1 }

```

```

SEQUENCE {
  DL-DPCH-PowerControlInfo,
  SF-DL-DPCH,
  PositionFixedOrFlexible,
  BOOLEAN
}

```

```

CHOICE {
  SEQUENCE {
    PCPICH-UsageForChannelEst
    SecondaryCPICH-Info
    DL-ChannelisationCodeList,
    TPC-CombinationIndex,
    SSDT-CellIdentity
    ClosedLoopTimingAdjMode
  }
  SEQUENCE {
    DL-CCTrChList
  }
}

```

```

SEQUENCE {
  CHOICE {
    SEQUENCE {
      DPC-Mode
    }
    NULL
  }
}

```

```

ENUMERATED {
  dl-FrameTypeA, dl-FrameTypeB }

```

```

SEQUENCE {
  DL-InformationPerRL-Short,
  DL-DPCH-InfoPerRL
}

```

```

SEQUENCE (SIZE (1..maxRLcount)) OF
  DL-InfoPerRL

```

```

SEQUENCE {
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info,
      PDSCH-SHO-DCH-Info
    }
    PDSCH-CodeMapping
  }
}

```

```

    },
    tdd
        primaryCCPCH-Info
    }
},
dl-DPCH-InfoPerRL
secondaryCCPCH-Info
sib-ReferenceList
}

SEQUENCE {
    PrimaryCCPCH-Info
}

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

DL-InformationPerRL-Short ::= SEQUENCE {
    modeSpecificInfo
        fdd
            primaryCPICH-Info
        },
        tdd
            NULL
    },
    dl-DPCH-InfoPerRL
}

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

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

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

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

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

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

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl
        TGL,
    cfn
        CFN,
    sn
        Timeslot,
    tgp1
        TGP,
    tgp2
        TGP
    },
    tgd
        TGD,
    pd
        PD,
    pcm
        PCM,
    prn
        PRM,
    ul-DL-Mode
        UL-DL-Mode,
    compressedModeMethod
        CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType
        DL-FrameType,
    deltaSIR
        DeltaSIR,
    deltaSIRAfter
        DeltaSIR
}

DPDCH-ChannelisationCode ::= ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

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

```

```

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    DSCH-Mapping

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

DurationTimeInfo ::= INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

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

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

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

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

FBI-BitNumber ::= INTEGER (1..2)

FrequencyInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            uarfcn-UL UARFCN-Nu,
            uarfcn-DL UARFCN-Nd,
        },
        tdd SEQUENCE {
            uarfcn-Nt UARFCN-Nt
        }
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber Timeslot,
    tfci-Existence BOOLEAN,
    -- The IE above is CH, but since it is a boolean it's kept mandatory.
    burstType BurstType,
    midambleShift MidambleShift
}

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

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

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCode PDSCH-ChannelisationCode
}

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

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pusch-ChannelisationCode PUSCH-ChannelisationCode
}

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

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    channelisationCode UL-TS-ChannelisationCode
}

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

```

```

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

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

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

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

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

MidambleConfiguration ::= SEQUENCE {
    burstType1      BurstType1,
    burstType2      BurstType2
}

MidambleShift ::= INTEGER (0..maxMidambleShift-1)

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

MultiCodeInfo ::= INTEGER (1..16)

N-GAP ::= ENUMERATED {
    f2, f4, f8 }

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

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

-- **TODO**, not defined yet
NB01Max ::= INTEGER(0..50)SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::= INTEGER(0..50)SEQUENCE {
}

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

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

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

PC-Preamble ::= ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::= ENUMERATED {
    slf0, slf1 }

PCM ::= ENUMERATED {
    pc-mode0, pc-mode1 }

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

PCPCH-ChannelInfo ::= SEQUENCE {
    pcpch-UL-ScramblingCode    INTEGER (0..255),
    pcpch-DL-ChannelisationCode  INTEGER (0..511),
    pcpch-DL-ScramblingCode    INTEGER (0..255),
    pcp-Length                 PCP-Length,
    ucsM-Info                   UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::= SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.

```

```

PD ::= INTEGER (0..35)

PDSCH-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 }

PDSCH-CodeInfo ::= SEQUENCE {
    spreadingFactor SF-PDSCH,
    codeNumber CodeNumberDSCH,
    multiCodeInfo MultiCodeInfo
}

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

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

PDSCH-CodeMapList ::= SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
    PDSCH-CodeMap

PDSCH-CodeMapping ::= SEQUENCE {
    dl-ScramblingCode SecondaryScramblingCode,
    signallingMethod CHOICE {
        codeRange CodeRange,
        tfci-Range DSCH-MappingList,
        explicit PDSCH-CodeInfoList,
        replace ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Info ::= SEQUENCE {
    tfcs-Identity TFCS-Identity OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    individualTimeslotInfoList IndividualTS-InfoPDSCH-List OPTIONAL
}

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

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

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

PersistenceScalingFactor ::= ENUMERATED {
    psf0-9, psf0-8, psf0-7, psf0-6,
    psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::= SEQUENCE (SIZE (1..6)) OF
    PersistenceScalingFactor

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

PICH-Info ::= CHOICE {
    fdd SEQUENCE {
        secondaryScramblingCode SecondaryScramblingCode OPTIONAL,
        channelisationCode256 ChannelisationCode256,
        pi-CountPerFrame PI-CountPerFrame,
        sttd-Indicator STTD-Indicator
    },
    tdd SEQUENCE {
        channelisationCode TDD-PICH-CCode OPTIONAL,
        timeslot Timeslot OPTIONAL,
        burstType BurstType,
        midambleShift MidambleShift OPTIONAL
    }
}

```

```

        repetitionPeriodLengthOffset      RepPerLengthOffset-PICH      OPTIONAL,
        pagingIndicatorLength             PagingIndicatorLength      OPTIONAL,
        n-GAP                              N-GAP                      OPTIONAL,
        n-PCH                              N-PCH                      OPTIONAL
    }
}

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

PilotBits128 ::=                         ENUMERATED {
    pb4, pb8 }

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

PositionFixedOrFlexible ::=             ENUMERATED {
    fixed,
    flexible }

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

PowerOffsetP0 ::=                       INTEGER (1..8)

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

PRACH-Partitioning ::=                 SEQUENCE (SIZE (1..8)) OF
    AccessServiceClass

PRACH-PowerOffset ::=                 SEQUENCE {
    powerOffsetP0                         PowerOffsetP0,
    preambleRetransMax                    PreambleRetransMax
}

PRACH-RACH-Info ::=                   SEQUENCE {
    modeSpecificInfo                     CHOICE {
        fdd                               SEQUENCE {
            availableSignatureList        AvailableSignatureList,
            availableSF                    SF-PRACH,
            scramblingCodeWordNumber      ScramblingCodeWordNumber,
            puncturingLimit                PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd                               SEQUENCE {
            timeslot                       Timeslot,
            channelisationCode             TDD-PRACH-CCode,
            prach-Midamble                 PRACH-Midamble
        }
    }
}

PRACH-SystemInformation ::=           SEQUENCE {
    prach-RACH-Info                      PRACH-RACH-Info,
    rach-TransportFormatSet              TransportFormatSet,
    rach-TFCS                             TFCS,
    modeSpecificInfo                     CHOICE {
        fdd                               SEQUENCE {
            prach-Partitioning            PRACH-Partitioning,
            persistenceScalingFactorList PersistenceScalingFactorList
        },
        tdd                               SEQUENCE {
            asc-Info                      ASC-Info
        }
    }
}

PRACH-SystemInformationList ::=        SEQUENCE (SIZE (1..maxPRACHcount)) OF

```

PRACH-SystemInformation

```

PreambleRetransMax ::=                INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::=          SEQUENCE {
    ul-DPCH-InfoPredef                UL-DPCH-InfoPredef,
    dl-CommonInformationPredef        DL-CommonInformationPredef
}

PrimaryCCPCH-Info ::=                 CHOICE {
    fdd                                SEQUENCE {
        tx-DiversityIndicator         BOOLEAN
    },
    tdd                                SEQUENCE {
        timeslot                      Timeslot                OPTIONAL,
        cellParametersID              CellParametersID        OPTIONAL,
        syncCase                      SyncCase                OPTIONAL,
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset
    OPTIONAL,
        blockSTTD-Indicator           BlockSTTD-Indicator    OPTIONAL
    }
}

PrimaryCCPCH-InfoSI ::=               CHOICE {
    fdd                                SEQUENCE {
        tx-DiversityIndicator         BOOLEAN
    },
    tdd                                SEQUENCE {
        repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL,
        blockSTTD-Indicator           BlockSTTD-Indicator    OPTIONAL
    }
}

PrimaryCCPCH-TX-Power ::=             INTEGER (6..43)

PrimaryCPICH-Info ::=                SEQUENCE {
    primaryScramblingCode              PrimaryScramblingCode
}

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

PrimaryScramblingCode ::=             INTEGER (0..511)

PRM ::=                               ENUMERATED {
    pr-mode0, pr-model }

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-AllocationAssignment ::=        SEQUENCE {
    pusch-PowerControlInfo            PUSCH-PowerControlInfo    OPTIONAL,
    timeInfo                          TimeInfo,
    commonTimeslotInfo                CommonTimeslotInfo        OPTIONAL,
    timeslotInfoList                  IndividualTS-InfoPUSCH-List    OPTIONAL
}

PUSCH-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 }

PUSCH-Info ::=                       SEQUENCE {
    pusch-Allocation                  CHOICE {
        pusch-AllocationPending      NULL,
        pusch-AllocationAssignment    PUSCH-AllocationAssignment
    }
}

PUSCH-PowerControlInfo ::=           SEQUENCE {

```



```

    ul-TargetSIR                UL-TargetSIR
}

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

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

RACH-TransmissionParameters ::=
    mmax
    nb01Min
    nb01Max
}
SEQUENCE {
    INTEGER (1..32),
    NB01Min,
    NB01Max
}

ReducedScramblingCodeNumber ::=
INTEGER (0..8191)

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

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1
    repetitionPeriod2
    length
    offset
},
    repetitionPeriod4
    length
    offset
},
    repetitionPeriod8
    length
    offset
},
    repetitionPeriod16
    length
    offset
},
    repetitionPeriod32
    length
    offset
},
    repetitionPeriod64
    length
    offset
}
CHOICE {
    NULL,
    SEQUENCE {
        NULL,
        INTEGER (0..1)
    },
    SEQUENCE {
        INTEGER (1..3),
        INTEGER (0..3)
    },
    SEQUENCE {
        INTEGER (1..7),
        INTEGER (0..7)
    },
    SEQUENCE {
        INTEGER (1..15),
        INTEGER (0..15)
    },
    SEQUENCE {
        INTEGER (1..31),
        INTEGER (0..31)
    },
    SEQUENCE {
        INTEGER (1..63),
        INTEGER (0..63)
    }
}

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

ReplacedPDSCH-CodeInfoList ::=
SEQUENCE (SIZE (1..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

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

```

```

}

RL-AdditionInformation ::=          SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL                DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator          BOOLEAN,
    secondaryCCPCH-Info              SecondaryCCPCH-Info          OPTIONAL,
    sib-ReferenceListFACH            SIB-ReferenceListFACH          OPTIONAL
}

RL-AdditionInformationList ::=     SEQUENCE (SIZE (1..maxAddRLcount)) OF
    RL-AdditionInformation

RL-IdentifierList ::=              SEQUENCE (SIZE(1..maxCombineSet)) OF
    PrimaryCPICH-Info

RL-RemovalInformation ::=          SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info
}

RL-RemovalInformationList ::=     SEQUENCE (SIZE (1..maxDelRLcount)) OF
    RL-RemovalInformation

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

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

ScramblingCodeChange ::=          ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::=            ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::=     INTEGER (0..15)

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

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

```

```

}

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

SecondInterleavingMode ::=          ENUMERATED {
    frameRelated, timeslotRelated }

SelectionIndicator ::=              ENUMERATED {
    on, off }

SF-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)
}

SF-DL-DPCH ::=                    CHOICE {
    sfd4         NULL,
    sfd8         NULL,
    sfd16        NULL,
    sfd32        NULL,
    sfd64        NULL,
    sfd128       PilotBits128,
    sfd256       PilotBits256,
    sfd512       NULL
}

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

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

Signature ::=                     INTEGER (0..15)

SlotFormat ::=                    SEQUENCE {
    pc-PreambleSlotFormat  PC-PreambleSlotFormat,
    ul-DPCCH-SlotFormat    UL-DPCCH-SlotFormat,
    dl-DPCCH-SlotFormat    DL-DPCCH-SlotFormat
}

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
}

STTD-Indicator ::=              BOOLEAN

SyncCase ::=                    ENUMERATED {
    sc1, sc2 }

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-CCode ::=            ENUMERATED {
    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 }

TFC-ControlDuration ::=         ENUMERATED {
    tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,

```

```

        tfc-cd48, tfc-cd64, tfc-cd128,
        tfc-cd192, tfc-cd256, tfc-cd512 }

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

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

TGD ::=
    INTEGER (0..35)

TGL ::=
    INTEGER (1..15)

TGP ::=
    INTEGER (1..256)

TimeInfo ::=
    SEQUENCE {
        activationTime           OPTIONAL,
        duration                  OPTIONAL
    }

Timeslot ::=
    INTEGER (0..14)

TimeslotList ::=
    SEQUENCE (SIZE (1..14)) OF
        Timeslot

-- Actual value = IE value * 256
TimingOffset ::=
    INTEGER (0..149)

TPC-CombinationIndex ::=
    INTEGER (0..5)

TPC-StepSize ::=
    ENUMERATED {
        dB1, dB2 }

TX-DiversityMode ::=
    ENUMERATED {
        noDiversity,
        sttd,
        closedLoopModel1,
        closedLoopMode2 }

UARFCN-Nd ::=
    INTEGER (0..16383)

UARFCN-Nt ::=
    INTEGER (0..16383)

UARFCN-Nu ::=
    INTEGER (0..16383)

UCSM-Info ::=
    SEQUENCE {
        availableMinimumSF-ListUCSM,
        nf-Max,
        channelReqParamsForUCSM-List OPTIONAL
    }

UL-CCTrCH ::=
    SEQUENCE {
        tfcs-Identity           OPTIONAL,
        timeInfo                OPTIONAL,
        commonTimeslotInfo     OPTIONAL,
        timeslotInfoList       OPTIONAL
    }

UL-CCTrCHList ::=
    SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
        UL-CCTrCH

UL-ChannelRequirement ::=
    CHOICE {
        ul-DPCH-Info,
        prach-RACH-Info,
        spare,
        NULL
    }

UL-DL-Mode ::=
    ENUMERATED {
        dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::=
    ENUMERATED {
        slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::=
    SEQUENCE {
        ul-DPCH-PowerControlInfo OPTIONAL,
        modeSpecificInfo
    }

```

```

        fdd
            scramblingCodeType
            scramblingCode
            dpdch-ChannelisationCodeList
            tfci-Existence
            fbi-BitNumber
            puncturingLimit
        },
        tdd
            ul-CCTrCHList
    }
}

UL-DPCH-InfoHO ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            scramblingCodeType
            scramblingCode
            dpdch-ChannelisationCodeList
            tfci-Existence
            fbi-BitNumber
            puncturingLimit
        },
        tdd
            ul-CCTrCHList
    }
}

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            maxAllowedUL-TX-Power
            pc-Preamble
            tfci-Existence
            puncturingLimit
        },
        tdd
            NULL
    }
}

UL-DPCH-InfoShort ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
        fdd
            scramblingCodeType
            reducedScramblingCodeNumber
            dpdch-ChannelisationCode
            numberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd
            NULL
    }
}

UL-DPCH-PowerControlInfo ::=
    fdd
        dpcch-PowerOffset
        pc-Preamble
        powerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd
        maxAllowedUL-TX-Power
        ul-TargetSIR
        handoverGroup
        individualTS-InterferenceList
        dpch-ConstantValue
    }
}

UL-DPCH-PowerControlInfoHO ::=
    fdd

```

```

SEQUENCE {
    ScramblingCodeType,
    UL-ScramblingCode,
    DPDCH-ChannelisationCodeList,
    BOOLEAN,
    FBI-BitNumber,
    PuncturingLimit
}

```

```

SEQUENCE {
    UL-CCTrCHList
}

```

```

SEQUENCE {
    UL-DPCH-PowerControlInfoHO
    CHOICE {
        SEQUENCE {
            ScramblingCodeType,
            UL-ScramblingCode,
            DPDCH-ChannelisationCodeList,
            BOOLEAN,
            FBI-BitNumber,
            PuncturingLimit
        }
    }
}

```

```

SEQUENCE {
    UL-CCTrCHList
}

```

```

SEQUENCE {
    UL-DPCH-PowerControlInfo,
    CHOICE {
        SEQUENCE {
            MaxAllowedUL-TX-Power
            PC-Preamble
            BOOLEAN,
            PuncturingLimit
        }
    }
}

```

```

NULL

```

```

SEQUENCE {
    UL-DPCH-PowerControlInfoShort,
    CHOICE {
        SEQUENCE {
            ScramblingCodeType,
            ReducedScramblingCodeNumber,
            DPDCH-ChannelisationCode,
            NumberOfFBI-Bits
        }
    }
}

```

```

NULL

```

```

CHOICE {
    SEQUENCE {
        DPCCH-PowerOffset,
        PC-Preamble,
        PowerControlAlgorithm
    }
    SEQUENCE {
        MaxAllowedUL-TX-Power
        UL-TargetSIR,
        SEQUENCE {
            IndividualTS-InterferenceList,
            ConstantValue
        }
    }
}

```

```

OPTIONAL

```

```

CHOICE {
    SEQUENCE {

```

```

        dpcch-PowerOffset          DPCCH-PowerOffset,
        powerControlAlgorithm      PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                             SEQUENCE {
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power          OPTIONAL,
        ul-TargetSIR              UL-TargetSIR,
        handoverGroup             SEQUENCE {
            individualTS-InterferenceList IndividualTS-InterferenceList,
            dpch-ConstantValue      ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            dpcch-PowerOffset      DPCCH-PowerOffset,
            powerControlAlgorithm  PowerControlAlgorithm
        },
        tdd                       NULL
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::= INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List      AvailableMinimumSF-ListVCAM
}

END

```

**CHANGE REQUEST**

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

**25.331 CR 292r1**

Current Version: **3.2.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
 list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
 non-strategic

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

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

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** SCCPCH System Info

**Work item:**

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

**Reason for change:** There is a case that several SCCPCHs are needed in one cell for high traffic area and these information can be broadcasted by SYSTEM INFORMATION. However, there may not be needed to set all the parameters for a PRACH for every PRACH since some of the information are the same among each other. This CR proposes the way to reduce the amount of bits in this case.  
 Same concept also is proposed for PRACH system information.

**Clauses affected:** 10.3.6.39, 10.3.6.53, 11.3.6

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

**Other comments:**



help.doc

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

### 10.3.6.52 Secondary CCPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Selection Indicator	CV		Enumerated (On, Off)	Needed if send on BCCH.
CHOICE mode	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.54	
>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.55	Default is the same scrambling code as for the Primary CPICH
>>STTD indicator	MD		STTD Indicator 10.3.6.58	Default value is "TRUE"
>>Spreading factor	MP		Enumerated(4, 8, 16, 32, 64, 128, 256)	
>>Code number	MP		Integer(0..Spreading factor - 1)	
>>Pilot symbol existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>TFCI existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>Fixed or Flexible Position	MD		Enumerated (Fixed, Flexible)	Default value is "Flexible"
>>Timing Offset	MD		Enumerated(0..38144 by step of 256)	Chip Delay of the Secondary CCPCH relative to the Primary CCPCH. Default value is 0.
>TDD				
>>Offset	MD		Integer (0..Repetition Period -1)	SFN modulo Repetition period = offset. Repetition period is the one indicated in the accompanying Common timeslot info IE
>>Common timeslot info	CH		Common timeslot info 10.3.6.8	Common timeslot info is needed if Common timeslot info needs to be updated.
>>Individual timeslot info	MP		Individual timeslot info 10.3.6.25	
>>Channelisation Code	MP		Enumerated((16/1)..(16/16))	



### 10.3.6.53 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCCPCHcount>		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.52	Note 1
>TFCS	<a href="#">MPMD</a>		Transport format set 10.3.5.20	For FACHs and PCH <a href="#">Default value is the value of "TFCS" for the previous SCCPCH in the list (note : the first occurrence is then MP)</a>
>FACH/PCH information	<a href="#">MDMP</a>	1 to <maxFACHcount>		<a href="#">Default value is the value of "FACH/PCH" for the previous SCCPCH in the list (note : the first occurrence is then MP)</a>
>>TFS	MP		Transport format set 10.3.5.20	For each FACHs and PCH Note 2
>>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	CV		PICH info 10.3.6.34	PICH info is present only when PCH is multiplexed on Secondary CCPCH

NOTE 1: The secondary CCPCH carrying the PCH shall be the first Secondary CCPCH information in the list.

NOTE 2: TFS for PCH shall be the first FACH/PCH information in the list if PCH exists.

Multi bound	Explanation
<i>MaxSCCPCHcount</i>	Maximum number of secondary CCPCHs
<i>MaxFACHcount</i>	Maximum number of FACH and PCHs mapped onto secondary CCPCHs

### 10.3.6.39 PRACH system information

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRACHcount>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.36	
>RACH TFS	<a href="#">MPMD</a>		Transport format set 10.3.5.20	<a href="#">Default value is the value of "RACH TFS" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>RACH TFCS	<a href="#">MPMD</a>		Transport Format Combination Set 10.3.5.17	<a href="#">Default value is the value of "RACH TFCS" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>CHOICE mode	MP			
>>FDD				
>>>PRACH partitioning	<a href="#">MPMD</a>		PRACH partitioning 10.3.3.37	<a href="#">Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.33	<a href="#">If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists</a>
>>>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5 <a href="#">If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists</a>
>>>Primary CPICH TX power	<a href="#">MPMD</a>		Primary CPICH TX power 10.3.6.42	<a href="#">Default value is the value of "Primary CPICH TX power" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>>Constant value	<a href="#">MPMD</a>		Constant value 10.3.6.9	<a href="#">Default value is the value of "Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>>PRACH power offset	<a href="#">MPMD</a>		PRACH power offset 10.3.6.38	<a href="#">Default value is the value of "PRACH power offset" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>>RACH transmission parameters	<a href="#">MPMD</a>		RACH transmission parameters 10.3.6.49	<a href="#">Default value is the value of "RACH transmission parameters" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>>AICH info	<a href="#">MPMD</a>		AICH info 10.3.6.2	<a href="#">Default value is the value of "AICH info" for the previous PRACH in the list (note : the first occurrence is then MP)</a>
>>TDD				
>>>ASC info	OP		ASC info 10.3.6.5	<a href="#">If this IE is absent, value is the value of "Persistence scaling factors" for the previous</a>

				<a href="#">PRACH in the list if value exists</a>
--	--	--	--	---

Multi bound	Explanation
<i>MaxPRACHcount</i>	Maximum number of PRACHs

## 11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

maxAddRLcount,  
maxAP-SigNum,  
maxAP-SubCH,  
maxChanCount,  
maxCodeCount,  
maxCodeNum,  
maxCodeNumComp-1,  
maxCombineSet,  
maxCPCH-SetCount,  
maxDelRLcount,  
maxDPDCHcount,  
maxFACH-Count,  
maxMidambleShift-1,  
maxNoCodeGroups,  
maxNoTFCI-Groups,  
maxPCPCHs,  
maxPDSCHcount,  
maxPRACHcount,  
maxPUSCHcount,  
maxReplaceCount,  
maxRLcount,  
maxSCCPCHcount,  
maxSigNum,  
maxSF-Num,  
maxSubChNum,  
maxTFCI-2-Combs,  
maxTFs,  
maxTimeslotCount,  
maxTScount,  
maxUL-CCTrCHcount

FROM Constant-definitions

ActivationTime

FROM UserEquipment-IEs

CPCH-SetID,  
FACH-PCH-InformationList,  
TFCS,  
TFCS-Identity,  
TransportFormatSet

FROM TransportChannel-IEs

SIB-ReferenceListFACH

FROM Other-IEs;

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

AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (7)) OF  
AC-To-ASC-Mapping

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

AccessServiceClassIndex ::= INTEGER (1..8)

AICH-Info ::= SEQUENCE {  
secondaryScramblingCode SecondaryScramblingCode OPTIONAL,  
channelisationCode256 ChannelisationCode256,

```

    sttd-Indicator                STTD-Indicator,
    aich-TransmissionTiming       AICH-TransmissionTiming
}

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

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

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

AP-AICH-ChannelisationCode ::=  INTEGER (0..255)

AP-AICH-ScramblingCode ::=      INTEGER (0..255)

AP-PreambleScramblingCode ::=  INTEGER (0..255)

AP-Signature ::=                INTEGER (0..15)

AP-Subchannel ::=               INTEGER (0..11)

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

ASC-Info ::=                     SEQUENCE {
    asc-List                      ASC-List
}

ASC-List ::=                     SEQUENCE (SIZE (1..8)) OF
    ASC

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

AvailableAP-SignatureList ::=    SEQUENCE (SIZE (1..maxAP-SigNum)) OF
    AP-Signature

AvailableAP-SubchannelList ::=   SEQUENCE (SIZE (1..maxAP-SubCH)) OF
    AP-Subchannel

AvailableMinimumSF-VCAM ::=      SEQUENCE {
    minimumSpreadingFactor        MinimumSpreadingFactor,
    nf-Max                       NF-Max,
    maxAvailablePCPCH-Number      MaxAvailablePCPCH-Number,
    availableAP-SignatureList     AvailableAP-SignatureList,
    availableAP-SubchannelList    AvailableAP-SubchannelList    OPTIONAL
}

AvailableMinimumSF-ListUCSM ::=  SEQUENCE (SIZE (1..maxSF-Num)) OF
    MinimumSpreadingFactor

AvailableMinimumSF-ListVCAM ::=  SEQUENCE (SIZE (1..maxSF-Num)) OF
    AvailableMinimumSF-VCAM

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

AvailableSubChannelNumber ::=    INTEGER (0..11)

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

BlockSTTD-Indicator ::=         BOOLEAN

BurstType ::=                   ENUMERATED {
    short1, long2 }

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

```

```

BurstType2 ::= ENUMERATED { ms3, ms6 }

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

CD-AccessSlotSubchannel ::= INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxSubChNum)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

CD-CA-ICH-ScramblingCode ::= INTEGER (0..255)

CD-PreambleScramblingCode ::= INTEGER (0..255)

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

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

CellParametersID ::= INTEGER (0..127)

CFN ::= INTEGER (0..255)

ChannelAssignmentActive ::= CHOICE {
    notActive          NULL,
    isActive          VCAM-Info
}

ChannelisationCode256 ::= INTEGER (0..255)

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

ChannelReqParamsForUCSM-List ::= SEQUENCE (SIZE (1..maxSigNum)) OF
    ChannelReqParamsForUCSM

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumber ::= INTEGER (0..maxCodeNum)

CodeNumberDSCH ::= INTEGER (0..maxCodeNumComp-1)

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

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

CommonTimeslotInfo ::= SEQUENCE {
    secondInterleavingMode    SecondInterleavingMode    OPTIONAL,
    tfci-Coding                TFCI-Coding                OPTIONAL,
    puncturingLimit            PuncturingLimit,
    repetitionPeriodAndLength  RepetitionPeriodAndLength    OPTIONAL
}

CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    secondInterleavingMode    SecondInterleavingMode    OPTIONAL,
    tfci-Coding                TFCI-Coding                OPTIONAL,
    puncturingLimit            PuncturingLimit,
    repetitionPeriodLengthAndOffset  RepetitionPeriodLengthAndOffset    OPTIONAL
}

CompressedModeMethod ::= CHOICE {
    puncturing          NULL,
}

```

```

    sf-2                ScramblingCodeChange,
    upperLayerScheduling NULL,
    noCompressing       NULL
}

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

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

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

CPCH-SetInfo ::=          SEQUENCE {
    cpch-SetID                CPCH-SetID,
    transportFormatSet        TransportFormatSet,
    ap-PreambleScramblingCode AP-PreambleScramblingCode,
    ap-AICH-ScramblingCode    AP-AICH-ScramblingCode,
    ap-AICH-ChannelisationCode AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode  CD-CA-ICH-ScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList OPTIONAL,
    cd-SignatureCodeList      CD-SignatureCodeList OPTIONAL,
    slotFormat                SlotFormat,
    n-StartMessage            N-StartMessage,
    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..maxCPCH-SetCount)) OF
                                CPCH-SetInfo

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

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

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

DL-CCTrCh ::=             SEQUENCE {
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrCh-HO ::=          SEQUENCE {
    tfcs-Identity            TFCS-Identity,
    individualTS-InfoDL-CCTrCHList IndividualTS-InfoDL-CCTrCHList
}

DL-CCTrChList ::=         CHOICE {
    single                    DL-CCTrCh,
    handover                   SEQUENCE (SIZE (1..8)) OF
                                DL-CCTrCh-HO
}

DL-ChannelisationCode ::= SEQUENCE {
    secondaryScramblingCode   SecondaryScramblingCode OPTIONAL,
    codeNumber                CodeNumber
}

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

DL-CommonInformation ::=  SEQUENCE {
    dl-DPCH-InfoCommon        DL-DPCH-InfoCommon OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd                    SEQUENCE {
            defaultDPCH-OffsetValue DefaultDPCH-OffsetValue OPTIONAL,
            dpch-CompressedModeInfo DPCH-CompressedModeInfo OPTIONAL,
        }
    }
}

```

tx-DiversityMode	TX-DiversityMode	OPTIONAL,
ssdt-Information	SSDT-Information	OPTIONAL
},		
tdd	SEQUENCE {	
ul-TimingAdvance	UL-TimingAdvance	OPTIONAL
}		
}		
DL-CommonInformationPredef ::=	SEQUENCE {	
dl-DPCH-InfoCommon	DL-DPCH-InfoCommon	OPTIONAL,
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
defaultDPCH-OffsetValue	DefaultDPCH-OffsetValue	OPTIONAL
},		
tdd	NULL	
}		
}		
DL-DPCCH-SlotFormat ::=	ENUMERATED {	
	slf0, slf1 }	
DL-DPCH-InfoCommon ::=	SEQUENCE {	
dl-DPCH-PowerControlInfo	DL-DPCH-PowerControlInfo,	
spreadingFactor	SF-DL-DPCH,	
-- TABULAR: The number of pilot bits is nested inside the spreading factor.	PositionFixedOrFlexible,	
positionFixedOrFlexible	PositionFixedOrFlexible,	
tfci-Existence	BOOLEAN	
}		
DL-DPCH-InfoPerRL ::=	CHOICE {	
fdd	SEQUENCE {	
pCPICH-UsageForChannelEst	PCPICH-UsageForChannelEst	OPTIONAL,
secondaryCPICH-Info	SecondaryCPICH-Info	OPTIONAL,
dl-ChannelisationCodeList	DL-ChannelisationCodeList,	
tpc-CombinationIndex	TPC-CombinationIndex,	
ssdt-CellIdentity	SSDT-CellIdentity	OPTIONAL,
closedLoopTimingAdjMode	ClosedLoopTimingAdjMode	OPTIONAL
},		
tdd	SEQUENCE {	
dl-CCTrChList	DL-CCTrChList	
}		
}		
DL-DPCH-PowerControlInfo ::=	SEQUENCE {	
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
dpc-Mode	DPC-Mode	OPTIONAL
},		
tdd	NULL	
}		
}		
DL-FrameType ::=	ENUMERATED {	
	dl-FrameTypeA, dl-FrameTypeB }	
DL-InfoPerRL ::=	SEQUENCE {	
dl-InformationPerRL	DL-InformationPerRL-Short,	
dl-DPCH-InfoPerRL	DL-DPCH-InfoPerRL	
}		
DL-InfoPerRL-List ::=	SEQUENCE (SIZE (1..maxRLcount)) OF	
	DL-InfoPerRL	
DL-InformationPerRL ::=	SEQUENCE {	
modeSpecificInfo	CHOICE {	
fdd	SEQUENCE {	
primaryCPICH-Info	PrimaryCPICH-Info,	
pdsch-SHO-DCH-Info	PDSCH-SHO-DCH-Info	OPTIONAL,
pdsch-CodeMapping	PDSCH-CodeMapping	OPTIONAL
},		
tdd	SEQUENCE {	
primaryCCPCH-Info	PrimaryCCPCH-Info	
}		
},		
dl-DPCH-InfoPerRL	DL-DPCH-InfoPerRL	OPTIONAL,
secondaryCCPCH-Info	SecondaryCCPCH-Info	OPTIONAL,
sib-ReferenceList	SIB-ReferenceListFACH	OPTIONAL

```

}

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

DL-InformationPerRL-Short ::= SEQUENCE {
    modeSpecificInfo          CHOICE {
        fdd                   SEQUENCE {
            primaryCPICH-Info
        },
        tdd
    },
    dl-DPCH-InfoPerRL        DL-DPCH-InfoPerRL           OPTIONAL
}

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

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

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

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

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

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

DPCH-CompressedModeInfo ::= SEQUENCE {
    tgl          TGL,
    cfn          CFN,
    sn           Timeslot,
    tgp1         TGP,
    tgp2         TGP           OPTIONAL,
    tgd          TGD,
    pd           PD,
    pcm          PCM,
    prm          PRM,
    ul-DL-Mode   UL-DL-Mode,
    compressedModeMethod CompressedModeMethod,
    -- TABULAR: Scrambling code change is nested inside CompressedModeMethod
    dl-FrameType DL-FrameType,
    deltaSIR     DeltaSIR,
    deltaSIRAfter DeltaSIR
}

DPDCH-ChannelisationCode ::= ENUMERATED {
    e4, e8, e16, e32,
    e64, e128, e256 }

DPDCH-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPDCHcount)) OF
    DPDCH-ChannelisationCode

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

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxNoTFCI-Groups)) OF
    DSCH-Mapping

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

DurationTimeInfo ::= INTEGER (1..4096)

```





```

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

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

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

MidambleConfiguration ::=          SEQUENCE {
    burstType1                      BurstType1,
    burstType2                      BurstType2
}

MidambleShift ::=                  INTEGER (0..maxMidambleShift-1)

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

MultiCodeInfo ::=                  INTEGER (1..16)

N-GAP ::=                           ENUMERATED {
    f2, f4, f8 }

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

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

-- **TODO**, not defined yet
NB01Max ::=                          SEQUENCE {
}

-- **TODO**, not defined yet
NB01Min ::=                          SEQUENCE {
}

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

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

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

PC-Preamble ::=                     ENUMERATED {
    pcp0, pcp8 }

PC-PreambleSlotFormat ::=           ENUMERATED {
    slf0, slf1 }

PCM ::=                              ENUMERATED {
    pc-mode0, pc-mode1 }

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

PCPCH-ChannelInfo ::=               SEQUENCE {
    pcpch-UL-ScramblingCode          INTEGER (0..255),
    pcpch-DL-ChannelisationCode      INTEGER (0..511),
    pcpch-DL-ScramblingCode          INTEGER (0..255),
    pcp-Length                       PCP-Length,
    ucsm-Info                         UCSM-Info
}
OPTIONAL

PCPCH-ChannelInfoList ::=           SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=       ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

-- Here the value 0 represents "infinity" in the tabular notation.
PD ::=                              INTEGER (0..35)

PDSCH-ChannelisationCode ::=        ENUMERATED {
    ccl6-1, ccl6-2, ccl6-3, ccl6-4,
    ccl6-5, ccl6-6, ccl6-7, ccl6-8,
    ccl6-9, ccl6-10, ccl6-11, ccl6-12,
    ccl6-13, ccl6-14, ccl6-15, ccl6-16 }

```

```

PDSCH-CodeInfo ::=
    spreadingFactor
    codeNumber
    multiCodeInfo
}

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

PDSCH-CodeMap ::=
    spreadingFactor
    multiCodeInfo
}

PDSCH-CodeMapList ::=
    SEQUENCE (SIZE (1..maxNoCodeGroups)) OF
        PDSCH-CodeMap

PDSCH-CodeMapping ::=
    dl-ScramblingCode
    signallingMethod
    codeRange
    tfci-Range
    explicit
    replace
}

PDSCH-Info ::=
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    individualTimeslotInfoList
}

PDSCH-SHO-DCH-Info ::=
    dsch-RadioLinkIdentifier
    tfci-CombiningSet
    rl-IdentifierList
}

PDSCH-SysInfo ::=
    pdsch-Info
    dsch-TFS
}

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

PersistenceScalingFactor ::=
    ENUMERATED {
        psf0-9, psf0-8, psf0-7, psf0-6,
        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=
    SEQUENCE (SIZE (1..6)) OF
        PersistenceScalingFactor

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

PICH-Info ::=
    fdd
        secondaryScramblingCode
        channelisationCode256
        pi-CountPerFrame
        sttd-Indicator
    },
    tdd
        channelisationCode
        timeslot
        burstType
        midambleShift
        repetitionPeriodLengthOffset
        pagingIndicatorLength
        n-GAP
        n-PCH
}

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

```

```

PilotBits128 ::=          ENUMERATED {
                            pb4, pb8 }

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

PositionFixedOrFlexible ::= ENUMERATED {
                              fixed,
                              flexible }

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

PowerOffsetP0 ::=         INTEGER (1..8)

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

PRACH-Partitioning ::=    SEQUENCE (SIZE (1..8)) OF
                            AccessServiceClass

PRACH-PowerOffset ::=     SEQUENCE {
    powerOffsetP0          PowerOffsetP0,
    preambleRetransMax     PreambleRetransMax
}

PRACH-RACH-Info ::=       SEQUENCE {
    modeSpecificInfo       CHOICE {
        fdd                 SEQUENCE {
            availableSignatureList AvailableSignatureList,
            availableSF          SF-PRACH,
            scramblingCodeWordNumber ScramblingCodeWordNumber,
            puncturingLimit       PuncturingLimit,
            availableSubChannelNumberList AvailableSubChannelNumberList
        },
        tdd                 SEQUENCE {
            timeslot            Timeslot,
            channelisationCode  TDD-PRACH-CCode,
            prach-Midamble      PRACH-Midamble
        }
    }
}

PRACH-SystemInformation ::= SEQUENCE {
    prach-RACH-Info         PRACH-RACH-Info,
    rach-TransportFormatSet TransportFormatSet OPTIONAL,
    rach-TFCS               TFCS OPTIONAL,
    modeSpecificInfo        CHOICE {
        fdd                 SEQUENCE {
            prach-Partitioning PRACH-Partitioning OPTIONAL,
            persistenceScalingFactorList PersistenceScalingFactorList
        },
        tdd                 SEQUENCE {
            ac-To-ASC-MappingTable AC-To-ASC-MappingTable OPTIONAL,
            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
        }
    }
}

PRACH-SystemInformationList ::= SEQUENCE (SIZE (1..maxPRACHcount)) OF
    PRACH-SystemInformation

PreambleRetransMax ::=    INTEGER (1..64)

-- **TODO**, tabular definition a little unclear
PreDefPhyChConfiguration ::= SEQUENCE {
    ul-DPCH-InfoPredef     UL-DPCH-InfoPredef,
    dl-CommonInformationPredef DL-CommonInformationPredef
}

```

```

}

PrimaryCCPCH-Info ::=
    CHOICE {
        fdd
            tx-DiversityIndicator
            BOOLEAN
        },
        tdd
            timeslot
            Timeslot
            OPTIONAL,
            cellParametersID
            CellParametersID
            OPTIONAL,
            syncCase
            SyncCase
            OPTIONAL,
            repetitionPeriodLengthAndOffset
            RepetitionPeriodLengthAndOffset
            OPTIONAL,
            blockSTTD-Indicator
            BlockSTTD-Indicator
            OPTIONAL
    }

PrimaryCCPCH-InfoSI ::=
    CHOICE {
        fdd
            tx-DiversityIndicator
            BOOLEAN
        },
        tdd
            repetitionPeriodLengthAndOffset
            RepetitionPeriodLengthAndOffset
            OPTIONAL,
            blockSTTD-Indicator
            BlockSTTD-Indicator
            OPTIONAL
    }

PrimaryCCPCH-TX-Power ::=
    INTEGER (6..43)

PrimaryCPICH-Info ::=
    SEQUENCE {
        primaryScramblingCode
        PrimaryScramblingCode
    }

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=
    INTEGER (-10..53)

PrimaryScramblingCode ::=
    INTEGER (0..511)

PRM ::=
    ENUMERATED {
        pr-mode0, pr-model }

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-AllocationAssignment ::=
    SEQUENCE {
        pusch-PowerControlInfo
        PUSCH-PowerControlInfo
        OPTIONAL,
        timeInfo
        TimeInfo,
        commonTimeslotInfo
        CommonTimeslotInfo
        OPTIONAL,
        timeslotInfoList
        IndividualTS-InfoPUSCH-List
        OPTIONAL
    }

PUSCH-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 }

PUSCH-Info ::=
    SEQUENCE {
        pusch-Allocation
        CHOICE {
            pusch-AllocationPending
            NULL,
            pusch-AllocationAssignment
            PUSCH-AllocationAssignment
        }
    }

PUSCH-PowerControlInfo ::=
    SEQUENCE {
        ul-TargetSIR
        UL-TargetSIR
    }

PUSCH-SysInfo ::=
    SEQUENCE {
        pusch-Info
        PUSCH-Info,
        usch-TFS
        TransportFormatSet
        OPTIONAL
    }

```

```

PUSCH-SysInfoList ::= SEQUENCE (SIZE (1..maxPUSCHcount)) OF
    PUSCH-SysInfo

RACH-TransmissionParameters ::= SEQUENCE {
    mmax INTEGER (1..32),
    nb01Min NB01Min,
    nb01Max NB01Max
}

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..maxReplaceCount)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2 INTEGER (0..3),
    rpp8-2 INTEGER (0..7),
    rpp8-4 INTEGER (0..7),
    rpp16-2 INTEGER (0..15),
    rpp16-4 INTEGER (0..15),
    rpp32-2 INTEGER (0..31),
    rpp32-4 INTEGER (0..31),
    rpp64-2 INTEGER (0..63),
    rpp64-4 INTEGER (0..63)
}

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator BOOLEAN,
    secondaryCCPCH-Info SecondaryCCPCH-Info OPTIONAL,
    sib-ReferenceListFACH SIB-ReferenceListFACH OPTIONAL
}

```

```

}

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxAddRLcount)) OF
                                RL-AdditionInformation

RL-IdentiferList ::= SEQUENCE (SIZE(1..maxCombineSet)) OF
                                PrimaryCPICH-Info

RL-RemovalInformation ::= SEQUENCE {
    primaryCPICH-Info
                                PrimaryCPICH-Info
}

RL-RemovalInformationList ::= SEQUENCE (SIZE (1..maxDelRLcount)) OF
                                RL-RemovalInformation

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-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info SecondaryCCPCH-Info,
    -- These two IEs are mandatory default
    tfcs TFCs OPTIONAL,
    fach-PCH-InformationList FACH-PCH-InformationList OPTIONAL,
    pich-Info PICH-Info OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCHcount)) OF
    SCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

ScramblingCodeWordNumber ::= INTEGER (0..15)

SecondaryCCPCH-Info ::= SEQUENCE {
    selectionIndicator SelectionIndicator OPTIONAL,
    -- The IE above is conditional on the logical channel type.
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            pCPICH-UsageForChannelEst PCPICH-UsageForChannelEst,
            secondaryCPICH-Info SecondaryCPICH-Info OPTIONAL,
            secondaryScramblingCode SecondaryScramblingCode OPTIONAL,
            sttd-Indicator STTD-Indicator,
            sf-AndCodeNumber SF-AndCodeNumber,
            pilotSymbolExistence BOOLEAN,
            tfci-Existence BOOLEAN,
            positionFixedOrFlexible PositionFixedOrFlexible,
            timingOffset TimingOffset OPTIONAL
        },
        tdd SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo CommonTimeslotInfoSCCPCH OPTIONAL,
            individualTimeslotInfo IndividualTimeslotInfo,
            channelisationCode SCPCH-ChannelisationCode
        }
    }
}

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode SecondaryScramblingCode OPTIONAL,
    channelisationCode ChannelisationCode256
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::= INTEGER (1..16)

SecondInterleavingMode ::= ENUMERATED {

```

```

frameRelated, timeslotRelated }

SelectionIndicator ::=
ENUMERATED {
    on, off }

SF-AndCodeNumber ::=
    sf4
    sf8
    sf16
    sf32
    sf64
    sf128
    sf256
}

SF-DL-DPCH ::=
    sfd4
    sfd8
    sfd16
    sfd32
    sfd64
    sfd128
    sfd256
    sfd512
}

SF-PDSCH ::=
ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::=
ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

Signature ::=
INTEGER (0..15)

SlotFormat ::=
    pc-PreambleSlotFormat
    ul-DPCCH-SlotFormat
    dl-DPCCH-SlotFormat
}

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 ::=
    s-Field
    codeWordSet
}

STTD-Indicator ::=
BOOLEAN

SyncCase ::=
ENUMERATED {
    sc1, sc2 }

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-CCode ::=
ENUMERATED {
    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 }

TFC-ControlDuration ::=
ENUMERATED {
    tfc-cd1, 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 }

```



```

-- **TODO**, not defined
TFCI-CombiningSet ::= SEQUENCE {
}

TGD ::= INTEGER (0..35)

TGL ::= INTEGER (1..15)

TGP ::= INTEGER (1..256)

TimeInfo ::= SEQUENCE {
    activationTime ActivationTime OPTIONAL,
    duration DurationTimeInfo OPTIONAL
}

Timeslot ::= INTEGER (0..14)

TimeslotList ::= SEQUENCE (SIZE (1..14)) OF
    Timeslot

-- Actual value = IE value * 256
TimingOffset ::= INTEGER (0..149)

TPC-CombinationIndex ::= INTEGER (0..5)

TPC-StepSize ::= ENUMERATED {
    dB1, dB2 }

TX-DiversityMode ::= ENUMERATED {
    noDiversity,
    sttd,
    closedLoopMode1,
    closedLoopMode2 }

UARFCN-Nd ::= INTEGER (0..16383)

UARFCN-Nt ::= INTEGER (0..16383)

UARFCN-Nu ::= INTEGER (0..16383)

UCSM-Info ::= SEQUENCE {
    availableMinimumSF-ListUCSM AvailableMinimumSF-ListUCSM,
    nf-Max NF-Max,
    channelReqParamsForUCSM-List ChannelReqParamsForUCSM-List OPTIONAL
}

UL-CCTrCH ::= SEQUENCE {
    tfcs-Identity TFCS-Identity OPTIONAL,
    timeInfo TimeInfo,
    commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
    timeslotInfoList IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::= SEQUENCE (SIZE (1..maxUL-CCTrCHcount)) OF
    UL-CCTrCH

UL-ChannelRequirement ::= CHOICE {
    ul-DPCH-Info UL-DPCH-Info,
    prach-RACH-Info PRACH-RACH-Info,
    spare NULL
}

UL-DL-Mode ::= ENUMERATED {
    dl-Only, ul-DL }

UL-DPCCH-SlotFormat ::= ENUMERATED {
    slf0, slf1, slf2, slf3, slf4, slf5 }

UL-DPCH-Info ::= SEQUENCE {
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            scramblingCodeType ScramblingCodeType,
            scramblingCode UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList,
            tfci-Existence BOOLEAN,
            fbi-BitNumber FBI-BitNumber,

```

```

        puncturingLimit                PuncturingLimit
    },
    tdd                                SEQUENCE {
        ul-CCTrCHList                  UL-CCTrCHList
    }
}

UL-DPCH-InfoHO ::=                      SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfoHO           OPTIONAL,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            scramblingCodeType           ScramblingCodeType,
            scramblingCode               UL-ScramblingCode,
            dpdch-ChannelisationCodeList DPDCH-ChannelisationCodeList,
            tfci-Existence               BOOLEAN,
            fbi-BitNumber                FBI-BitNumber,
            puncturingLimit              PuncturingLimit
        },
        tdd                             SEQUENCE {
            ul-CCTrCHList                UL-CCTrCHList
        }
    }
}

UL-DPCH-InfoPredef ::=                 SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfo,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power           OPTIONAL,
            pc-Preamble                  PC-Preamble                     OPTIONAL,
            tfci-Existence               BOOLEAN,
            puncturingLimit              PuncturingLimit
        },
        tdd                             NULL
    }
}

UL-DPCH-InfoShort ::=                 SEQUENCE {
    ul-DPCH-PowerControlInfo           UL-DPCH-PowerControlInfoShort,
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            scramblingCodeType           ScramblingCodeType,
            reducedScramblingCodeNumber  ReducedScramblingCodeNumber,
            dpdch-ChannelisationCode     DPDCH-ChannelisationCode,
            numberOfFBI-Bits             NumberOfFBI-Bits
            -- The IE above is CH, which is questionable as such.
            -- There's no point in making a 1-bit integer optional, however.
        },
        tdd                             NULL
    }
}

UL-DPCH-PowerControlInfo ::=          CHOICE {
    fdd                                SEQUENCE {
        dpccch-PowerOffset              DPCCH-PowerOffset,
        pc-Preamble                     PC-Preamble,
        powerControlAlgorithm           PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                                SEQUENCE {
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-TargetSIR                    UL-TargetSIR,
        handoverGroup                   SEQUENCE {
            individualTS-InterferenceList IndividualTS-InterferenceList,
            dpch-ConstantValue           ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoHO ::=        CHOICE {
    fdd                                SEQUENCE {
        dpccch-PowerOffset              DPCCH-PowerOffset,
        powerControlAlgorithm           PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                                SEQUENCE {
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,

```

```

        ul-TargetSIR                UL-TargetSIR,
        handoverGroup                SEQUENCE {
            individualTS-InterferenceList  IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue
        }
    }
}

UL-DPCH-PowerControlInfoShort ::= SEQUENCE {
    modeSpecificInfo                CHOICE {
        fdd                          SEQUENCE {
            dpcch-PowerOffset        DPCCH-PowerOffset,
            powerControlAlgorithm    PowerControlAlgorithm
        },
        tdd                          NULL
    }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

-- **TODO**, specification possibly wrong. 777215 mod 16 <> 0...
UL-ScramblingCode ::= INTEGER (0..48575)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

VCAM-Info ::= SEQUENCE {
    availableMinimumSF-List        AvailableMinimumSF-ListVCAM
}

END

```

**CHANGE REQUEST**

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

**25.331 CR 293r1**

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval   
 list expected approval meeting # here ↑ for information

strategic  (for SMG use only)  
 non-strategic

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

**Proposed change affects:** (U)SIM  ME  UTRAN / Radio  Core Network   
 (at least one should be marked with an X)

**Source:** TSG-RAN WG2 **Date:** 2000-4-10

**Subject:** Addition of HFN for RRC CONNECTION RE-ESTABLISHMENT COMPLETE

**Work item:**

**Category:** F Correction  **Release:** Phase 2   
 A Corresponds to a correction in an earlier release  Release 96   
 B Addition of feature  Release 97   
 C Functional modification of feature  Release 98   
 D Editorial modification  Release 99   
 Release 00   
 (only one category shall be marked with an X)

**Reason for change:** HFN is added in RRC CONNECTION RE-ESTABLISHMENT COMPLETE message. The reason for this is that HFN is necessary in response message in case of allocating RB in command message such as RB SETUP message and RRC CONNECTION RE-ESTABLISHMENT message.(HFN is already included in RB SETUP COMPLETE message.)

**Clauses affected:** 10.2.36

**Other specs affected:** Other 3G core specifications  → List of CRs:  
 Other GSM core specifications  → List of CRs:  
 MS test specifications  → List of CRs:  
 BSS test specifications  → List of CRs:  
 O&M specifications  → List of CRs:

**Other comments:**



help.doc

<----- double-click here for help and instructions on how to create a CR.

## 10.2.36 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

NOTE: Functional description of this message to be included here.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
<b>UE information elements</b>				
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
CHOICE mode	OP			
>TDD				
>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.69	This information element shall be present in case of handover procedure. Calculated timing advance value for the new cell after handover in a synchronous TDD network
>FDD				
<a href="#">Hyperframe number</a>	<a href="#">MP</a>		<a href="#">Hyper Frame Number</a> <a href="#">10.3.3.13</a>	
<b>RB Information elements</b>				
Radio bearer uplink ciphering activation time info	OP		RB activation time info 10.3.4.10	
RB with PDCP information list	OP	1 to <MaxRBWithPDCPCo unt>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.17	

Multi bound	Explanation
<i>MaxRBWithPDCPCount</i>	Maximum number of radio bearers which can have PDCP entity configured

## 11.2 PDU definitions

```
--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-CycleLengthCoefficient,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Capability,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RLC-ReconfigurationIndicator,
    RRC-MessageTX-Count,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-InformationAffectedList,
    RB-InformationReconfigList,
    RB-InformationReleaseList,
    RB-InformationSetupList,
```

RB-WithPDCP-InfoList,  
SRB-InformationSetupList,  
SRB-InformationSetupList2  
FROM RadioBearer-IEs

CPCH-SetID,  
DL-AddReconfTransChInfo2List,  
DL-AddReconfTransChInfoList,  
DL-CommonTransChInfo,  
DL-DeletedTransChInfoList,  
DRAC-StaticInformationList,  
TFC-Subset,  
UL-AddReconfTransChInfoList,  
UL-CommonTransChInfo,  
UL-DeletedTransChInfoList  
FROM TransportChannel-IEs

AllocationPeriodInfo,  
CCTrCH-PowerControlInfo,  
ConstantValue,  
CPCH-SetInfo,  
DL-CommonInformation,  
DL-InfoPerRL-List,  
DL-InformationPerRL,  
DL-InformationPerRL-List,  
DL-DPCH-InfoCommon,  
DL-DPCH-PowerControlInfo,  
DL-OuterLoopControl,  
DL-PDSCH-Information,  
FrequencyInfo,  
IndividualTS-InterferenceList,  
MaxAllowedUL-TX-Power,  
PDSCH-Info,  
PRACH-RACH-Info,  
PrimaryCCPCH-TX-Power,  
PUSCH-Info,  
RL-AdditionInformationList,  
RL-RemovalInformationList,  
UL-DPCH-InfoShort,  
SSDT-Information,  
TFC-ControlDuration,  
TimeslotList,  
TX-DiversityMode,  
UL-ChannelRequirement,  
UL-DPCH-Info,  
UL-DPCH-InfoHO,  
UL-Interference,  
UL-TimingAdvance  
FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,  
EventResults,  
MeasuredResults,  
MeasuredResultsList,  
MeasuredResultsOnRACH,  
MeasurementCommand,  
MeasurementIdentityNumber,  
MeasurementReportingMode,  
PrimaryCCPCH-RSCP,  
TimeslotListWithISCP,  
TrafficVolumeMeasuredResultsList  
FROM Measurement-IEs

BCCH-ModificationInfo,  
InterSystemHO-Failure,  
InterSystemMessage,  
ProtocolErrorInformation,  
SegCount,  
SegmentIndex,  
SFN-Prime,  
SIB-Content,  
SIB-Data,  
SIB-Type  
FROM Other-IEs;

-- \*\*\*\*\*  
--  
-- ACTIVE SET UPDATE (FDD only)

```

--
-- *****
ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
  cipheringModeInfo                CipheringModeInfo                OPTIONAL,
  activationTime                    ActivationTime                    OPTIONAL,
  newU-RNTI                        U-RNTI                          OPTIONAL,
  -- Core network IES
  cn-InformationInfo               CN-InformationInfo               OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList             RB-WithPDCP-InfoList            OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
  rl-AdditionInformationList        RL-AdditionInformationList        OPTIONAL,
  rl-RemovalInformationList         RL-RemovalInformationList         OPTIONAL,
  tx-DiversityMode                 TX-DiversityMode                 OPTIONAL,
  ssdt-Information                 SSDT-Information                 OPTIONAL,
  -- Extension mechanism
  non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- ACTIVE SET UPDATE COMPLETE (FDD only)
--
-- *****

```

```

ActiveSetUpdateComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo           OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism
  non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

```

```

ActiveSetUpdateFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause                    FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- CELL UPDATE
--
-- *****

```

```

CellUpdate ::= SEQUENCE {
  -- User equipment IES
  u-RNTI                          U-RNTI,
  am-RLC-ErrorIndication           BOOLEAN,
  cellUpdateCause                  CellUpdateCause,
  protocolErrorIndicator           ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IES
  measuredResultsOnRACH            MeasuredResultsOnRACH           OPTIONAL,
  -- Extension mechanism
  non-Release99-Information         SEQUENCE {}                      OPTIONAL
}

```

```

-- *****
--
-- CELL UPDATE CONFIRM
--
-- *****

```



```

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  new-U-RNTI                     U-RNTI                       OPTIONAL,
  new-C-RNTI                     C-RNTI                       OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient    OPTIONAL,
  rlc-ReconfIndicatorC-Plane     RLC-ReconfigurationIndicator,
  rlc-ReconfIndicatorU-Plane     RLC-ReconfigurationIndicator,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo           OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                   URA-Identity                 OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList        OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power       OPTIONAL,
  prach-RACH-Info               PRACH-RACH-Info             OPTIONAL,
  dl-InformationPerRL           DL-InformationPerRL         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                 OPTIONAL
}

```

```

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

```

```

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IES
  cn-DomainIdentity             CN-DomainIdentity,
  nas-Message                   NAS-Message,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                 OPTIONAL
}

```

```

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL
--
-- *****

```

```

DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IES
  dl-OuterLoopControl          DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo     DL-DPCH-PowerControlInfo    OPTIONAL,
  -- Extension mechanism
  non-Release99-Information     SEQUENCE {}                 OPTIONAL
}

```

```

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

```

```

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IES
  new-U-RNTI                   U-RNTI-Short,
  activationTime                ActivationTime                OPTIONAL,
  cipheringAlgorithm            CipheringAlgorithm           OPTIONAL,
  -- Radio bearer IES
  rab-Info                     RAB-Info,
  -- Specification mode information
  specificationMode             CHOICE {
    complete                    SEQUENCE {
      srb-InformationSetupList  SRB-InformationSetupList,
      rb-InformationSetupList   RB-InformationSetupList,
      ul-CommonTransChInfo     UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo     DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info             UL-DPCH-InfoHO,
      dl-CommonInformation     DL-CommonInformation,
      dl-PDSCH-Information     DL-PDSCH-Information       OPTIONAL,
      modeSpecificInfo         CHOICE {

```

```

                fdd                               SEQUENCE {
                cpch-SetInfo                       CPCH-SetInfo           OPTIONAL
                },
                tdd                               NULL
            },
            dl-InformationPerRL-List               DL-InformationPerRL-List
        },
        preconfiguration                          SEQUENCE {
            predefinedConfigIdentity               PredefinedConfigIdentity,
            ul-DPCH-Info                          UL-DPCH-InfoShort,
            dl-DPCH-InfoCommon                    DL-DPCH-InfoCommon,
            dl-InfoPerRL-List                     DL-InfoPerRL-List
        }
    },
    -- Physical channel IEs
    frequencyInfo                               FrequencyInfo,
    maxAllowedUL-TX-Power                       MaxAllowedUL-TX-Power,
    modeSpecificPhysChInfo                      CHOICE {
        fdd                                       NULL,
        tdd                                       SEQUENCE {
            primaryCCPCH-TX-Power                 PrimaryCCPCH-TX-Power,
            constantValue                         ConstantValue,
            ul-Interference                       UL-Interference,
            cellParametersID                      INTEGER (0..127)
        }
    },
    -- Extension mechanism
    non-Release99-Information                    SEQUENCE {}           OPTIONAL
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionHFN                      HyperFrameNumber,
    -- Extension mechanism
    non-Release99-Information                    SEQUENCE {}           OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
    serviceDescriptor                           ServiceDescriptor,
    flowIdentifier                               FlowIdentifier,
    cn-DomainIdentity                           CN-DomainIdentity,
    nas-Message                                  NAS-Message,
    -- Measurement IEs
    measuredResultsOnRACH                       MeasuredResultsOnRACH   OPTIONAL,
    -- Extension mechanism
    non-Release99-Information                    SEQUENCE {}           OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
    -- User equipment IEs
    activationTime                              ActivationTime           OPTIONAL,
    -- Radio bearer IEs
    remainingRAB-Info                           RAB-Info                OPTIONAL,
    -- Other IEs
    interSystemMessage                          InterSystemMessage,
    -- Extension mechanism
    non-Release99-Information                    SEQUENCE {}           OPTIONAL
}

```

```

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IEs
  interSystemHO-Failure      InterSystemHO-Failure      OPTIONAL,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL
--
-- *****

MeasurementControl ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber   MeasurementIdentityNumber,
  measurementCommand          MeasurementCommand,
  -- TABULAR: The measurement type is included in MeasurementCommand.
  measurementReportingMode    MeasurementReportingMode    OPTIONAL,
  additionalMeasurementList   AdditionalMeasurementID-List OPTIONAL,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT CONTROL FAILURE
--
-- *****

MeasurementControlFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                OPTIONAL
}

-- *****
--
-- MEASUREMENT REPORT
--
-- *****

MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber   MeasurementIdentityNumber,
  measuredResults             MeasuredResults             OPTIONAL,
  additionalMeasuredResults   MeasuredResultsList        OPTIONAL,
  eventResults                EventResults                OPTIONAL,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                OPTIONAL
}

-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList            PagingRecordList            OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo      BCCH-ModificationInfo      OPTIONAL,
  -- Extension mechanism
  non-Release99-Information   SEQUENCE {}                OPTIONAL
}

-- *****
--
-- PAGING TYPE 2
--

```

```

-- *****
PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause           PagingCause,
  -- Core network IEs
  cn-DomainIdentity     CN-DomainIdentity,
  pagingRecordTypeID   PagingRecordTypeID,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****

```

```

PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo   OPTIONAL,
  cipheringModeInfo          CipheringModeInfo               OPTIONAL,
  activationTime              ActivationTime                  OPTIONAL,
  new-U-RNTI                  U-RNTI                         OPTIONAL,
  new-C-RNTI                  C-RNTI                         OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient     OPTIONAL,
  re-EstablishmentTimer      Re-EstablishmentTimer         OPTIONAL,
  -- Core network IEs
  cn-InformationInfo         CN-InformationInfo              OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList      RB-WithPDCP-InfoList           OPTIONAL,
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo                   OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement          OPTIONAL,
  -- TABULAR: UL-ChannelRequirement contains the choice
  -- between UL DPCH info and PRACH info for RACH.
  dl-CommonInformation       DL-CommonInformation           OPTIONAL,
  dl-PDSCH-Information       DL-PDSCH-Information           OPTIONAL,
  modeSpecificInfo           CHOICE {
    fdd                       SEQUENCE {
      cpch-SetInfo            CPCH-SetInfo                   OPTIONAL
    },
    tdd                       NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- *****

```

```

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo   OPTIONAL,
  modeSpecificInfo           CHOICE {
    fdd                       NULL,
    tdd                       SEQUENCE {
      ul-TimingAdvance        UL-TimingAdvance             OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo         OPTIONAL,
  rb-WithPDCP-InfoList       RB-WithPDCP-InfoList           OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {}           OPTIONAL
}

```

```

-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION FAILURE
--
-- *****

```

```

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
    failureCause          FailureCauseWithProtErr,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- PHYSICAL SHARED CHANNEL ALLOCATION (TDD only)
--
-- *****

PhysicalSharedChannelAllocation ::= SEQUENCE {
    -- User equipment IEs
    c-RNTI                C-RNTI,
    -- Physical channel IEs
    ul-TimingAdvance      UL-TimingAdvance        OPTIONAL,
    allocationPeriodInfo  AllocationPeriodInfo   OPTIONAL,
    pusch-Info            PUSCH-Info              OPTIONAL,
    pdsch-Info            PDSCH-Info              OPTIONAL,
    timeslotList          TimeslotList            OPTIONAL,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- PUSCH CAPACITY REQUEST (TDD only)
--
-- *****

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
    c-RNTI                C-RNTI,
    -- Measurement IEs
    trafficVolumeMeasuredResultsList
        TrafficVolumeMeasuredResultsList,
    timeslotListWithISCP  TimeslotListWithISCP   OPTIONAL,
    primaryCCPCH-RSCP     PrimaryCCPCH-RSCP     OPTIONAL,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- RADIO BEARER RECONFIGURATION
--
-- *****

RadioBearerReconfiguration ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
    cipheringModeInfo        CipheringModeInfo        OPTIONAL,
    activationTime           ActivationTime           OPTIONAL,
    new-U-RNTI              U-RNTI                  OPTIONAL,
    new-C-RNTI              C-RNTI                  OPTIONAL,
    drx-Indicator           DRX-Indicator,
    utran-DRX-CycleLengthCoeff
        DRX-CycleLengthCoefficient   OPTIONAL,
    re-EstablishmentTimer   Re-EstablishmentTimer   OPTIONAL,
    -- Core network IEs
    cn-InformationInfo      CN-InformationInfo        OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReconfigList
        RB-InformationReconfigList,
    rb-InformationAffectedList
        RB-InformationAffectedList   OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo    UL-CommonTransChInfo    OPTIONAL,
    ul-deletedTransChInfoList
        UL-DeletedTransChInfoList    OPTIONAL,
    ul-AddReconfTransChInfoList
        UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo CHOICE {
        fdd SEQUENCE {
            cpch-SetID          CPCH-SetID          OPTIONAL,
            addReconfTransChDRAC-Info
                DRAC-StaticInformationList   OPTIONAL
        },
        tdd NULL
    }
    dl-CommonTransChInfo    DL-CommonTransChInfo    OPTIONAL,
}

```

```

        dl-DeletedTransChInfoList      DL-DeletedTransChInfoList      OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfo2List   OPTIONAL,
-- Physical channel IES
    frequencyInfo                      FrequencyInfo                   OPTIONAL,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power          OPTIONAL,
    ul-ChannelRequirement              UL-ChannelRequirement          OPTIONAL,
    dl-CommonInformation                DL-CommonInformation           OPTIONAL,
    dl-PDSCH-Information                DL-PDSCH-Information           OPTIONAL,
    modeSpecificPhysChInfo              CHOICE {
        fdd                             SEQUENCE {
            cpch-SetInfo                 CPCH-SetInfo                   OPTIONAL
        },
        tdd                             NULL
    },
    dl-InformationPerRL-List            DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information           SEQUENCE {}                     OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

```

```

RadioBearerReconfigurationComplete ::= SEQUENCE {
-- User equipment IES
    ul-IntegProtActivationInfo          IntegrityProtActivationInfo      OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                             NULL,
        tdd                             SEQUENCE {
            ul-TimingAdvance             UL-TimingAdvance               OPTIONAL
        }
    },
-- Radio bearer IES
    rb-UL-CiphActivationTimeInfo        RB-ActivationTimeInfo           OPTIONAL,
-- Extension mechanism
    non-Release99-Information            SEQUENCE {}                     OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- *****

```

```

RadioBearerReconfigurationFailure ::= SEQUENCE {
-- User equipment IES
    failureCause                        FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information            SEQUENCE {}                     OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER RELEASE
--
-- *****

```

```

RadioBearerRelease ::= SEQUENCE {
-- User equipment IES
    integrityProtectionModeInfo          IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo                   CipheringModeInfo                OPTIONAL,
    activationTime                       ActivationTime                     OPTIONAL,
    new-U-RNTI                           U-RNTI                           OPTIONAL,
    new-C-RNTI                           C-RNTI                           OPTIONAL,
    drx-Indicator                        DRX-Indicator,
    utran-DRX-CycleLengthCoeff           DRX-CycleLengthCoefficient       OPTIONAL,
    re-EstablishmentTimer                Re-EstablishmentTimer            OPTIONAL,
-- Core network IES
    cn-InformationInfo                   CN-InformationInfo               OPTIONAL,
-- Radio bearer IES
    rb-InformationReleaseList            RB-InformationReleaseList,
    rb-InformationAffectedList           RB-InformationAffectedList       OPTIONAL,
-- Transport channel IES
    ul-CommonTransChInfo                 UL-CommonTransChInfo             OPTIONAL,
    ul-deletedTransChInfoList            UL-DeletedTransChInfoList        OPTIONAL,
    ul-AddReconfTransChInfoList          UL-AddReconfTransChInfoList      OPTIONAL,
}

```

```

modeSpecificTransChInfo      CHOICE {
  fdd      SEQUENCE {
    cpch-SetID          CPCH-SetID          OPTIONAL,
    addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
  },
  tdd      NULL
}
dl-CommonTransChInfo        DL-CommonTransChInfo        OPTIONAL,
dl-DeletedTransChInfoList   DL-DeletedTransChInfoList   OPTIONAL,
dl-AddReconfTransChInfoList DL-AddReconfTransChInfo2List OPTIONAL,
-- Physical channel IEs
frequencyInfo               FrequencyInfo               OPTIONAL,
maxAllowedUL-TX-Power       MaxAllowedUL-TX-Power       OPTIONAL,
ul-ChannelRequirement       UL-ChannelRequirement       OPTIONAL,
dl-CommonInformation        DL-CommonInformation        OPTIONAL,
dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL,
modeSpecificPhysChInfo      CHOICE {
  fdd      SEQUENCE {
    cpch-SetInfo        CPCH-SetInfo          OPTIONAL
  },
  tdd      NULL
},
dl-InformationPerRL-List    DL-InformationPerRL-List,
-- Extension mechanism
non-Release99-Information    SEQUENCE {}          OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER RELEASE COMPLETE
--
-- *****

```

```

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
  modeSpecificInfo            CHOICE {
    fdd      NULL,
    tdd      SEQUENCE {
      ul-TimingAdvance  UL-TimingAdvance          OPTIONAL
    }
  },
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo        OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}          OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER RELEASE FAILURE
--
-- *****

```

```

RadioBearerReleaseFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause                FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information    SEQUENCE {}          OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER SETUP
--
-- *****

```

```

RadioBearerSetup ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo             OPTIONAL,
  activationTime                ActivationTime                 OPTIONAL,
  new-U-RNTI                    U-RNTI                      OPTIONAL,
  new-C-RNTI                    C-RNTI                      OPTIONAL,
  drx-Indicator                 DRX-Indicator,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer         Re-EstablishmentTimer        OPTIONAL,
}

```

```

-- Core network IEs
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList    SRB-InformationSetupList    OPTIONAL,
  rab-InformationSetupList    RAB-InformationSetupList,
  rb-InformationAffectedList  RB-InformationAffectedList    OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo       UL-CommonTransChInfo       OPTIONAL,
  ul-deletedTransChInfoList  UL-DeletedTransChInfoList  OPTIONAL,
  ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList OPTIONAL,
  modeSpecificTransChInfo    CHOICE {
    fdd                      SEQUENCE {
      cpch-SetID             CPCH-SetID             OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                      NULL
  }
  dl-CommonTransChInfo       DL-CommonTransChInfo       OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList OPTIONAL,
-- Physical channel IEs
  frequencyInfo              FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
  dl-CommonInformation       DL-CommonInformation       OPTIONAL,
  dl-PDSCH-Information       DL-PDSCH-Information       OPTIONAL,
  modeSpecificPhysChInfo    CHOICE {
    fdd                      SEQUENCE {
      cpch-SetInfo          CPCH-SetInfo          OPTIONAL
    },
    tdd                      NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}              OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

```

```

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo IntegrityProtActivationInfo OPTIONAL,
  modeSpecificInfo          CHOICE {
    fdd                      NULL,
    tdd                      SEQUENCE {
      ul-TimingAdvance      UL-TimingAdvance      OPTIONAL
    }
  },
  hyperFrameNumber          HyperFrameNumber,
-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo RB-ActivationTimeInfo    OPTIONAL,
-- Extension mechanism
  non-Release99-Information  SEQUENCE {}              OPTIONAL
}

```

```

-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

```

```

RadioBearerSetupFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause              FailureCauseWithProtErr,
-- Extension mechanism
  non-Release99-Information SEQUENCE {}              OPTIONAL
}

```

```

-- *****
--
-- RNTI REALLOCATION
--
-- *****

```



```

RNTIReallocation ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  new-U-RNTI                     U-RNTI                       OPTIONAL,
  new-C-RNTI                     C-RNTI                       OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient    OPTIONAL,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo            OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

```

```

RNTIReallocationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo    IntegrityProtActivationInfo    OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo         OPTIONAL,
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

```

```

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause                  FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information      SEQUENCE {}                  OPTIONAL
}

```

```

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

```

```

RRCConnectionReEstablishment ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                 ActivationTime                  OPTIONAL,
  new-U-RNTI                     U-RNTI                       OPTIONAL,
  new-C-RNTI                     C-RNTI                       OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff    DRX-CycleLengthCoefficient    OPTIONAL,
  re-EstablishmentTimer         Re-EstablishmentTimer        OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo            OPTIONAL,
  -- Radio bearer IEs
  srb-InformationSetupList       SRB-InformationSetupList       OPTIONAL,
  rab-InformationSetupList       RAB-InformationSetupList       OPTIONAL,
  rb-InformationReleaseList      RB-InformationReleaseList      OPTIONAL,
  rb-InformationReconfigList     RB-InformationReconfigList     OPTIONAL,
  rb-InformationAffectedList     RB-InformationAffectedList     OPTIONAL,
  -- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo          OPTIONAL,
  ul-deletedTransChInfoList      UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList   OPTIONAL,
  modeSpecificTransChInfo        CHOICE {
    fdd                               SEQUENCE {
      cpch-SetID                      CPCH-SetID                      OPTIONAL,
      addReconfTransChDRAC-Info       DRAC-StaticInformationList     OPTIONAL
    },

```

```

        tdd                                NULL
    },
    dl-CommonTransChInfo                    DL-CommonTransChInfo                OPTIONAL,
    dl-DeletedTransChInfoList                DL-DeletedTransChInfoList              OPTIONAL,
    dl-AddReconfTransChInfoList              DL-AddReconfTransChInfoList            OPTIONAL,
-- Physical channel IEs
    frequencyInfo                            FrequencyInfo                          OPTIONAL,
    maxAllowedUL-TX-Power                     MaxAllowedUL-TX-Power                  OPTIONAL,
    ul-ChannelRequirement                     UL-ChannelRequirement                  OPTIONAL,
    dl-CommonInformation                      DL-CommonInformation                   OPTIONAL,
    dl-PDSCH-Information                      DL-PDSCH-Information                   OPTIONAL,
    modeSpecificPhysChInfo                    CHOICE {
        fdd                                    SEQUENCE {
            cpch-SetInfo                        CPCH-SetInfo                            OPTIONAL
        },
        tdd                                    NULL
    },
    dl-InformationPerRL-List                  DL-InformationPerRL-List,
-- Extension mechanism
    non-Release99-Information                 SEQUENCE {}                             OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

RRCConnectionReEstablishment-CCCH ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                                    U-RNTI,
-- The rest of the message is identical to the one sent on DCCH.
    rrcConnectionReEstablishment              RRCConnectionReEstablishment
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--
-- *****

RRCConnectionReEstablishmentComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo                IntegrityProtActivationInfo             OPTIONAL,
    modeSpecificInfo                          CHOICE {
        fdd                                    NULL,
        tdd                                    SEQUENCE {
            ul-TimingAdvance                    UL-TimingAdvance                       OPTIONAL
        }
    },
-- TABULAR: The choice above is optional in the tabular definitions,
-- but this does not seem to make much sense. Either the choice should
-- be optional and UL-TimingAdvance mandatory inside the TDD choice,
-- but not both.
    hyperFrameNumber                        HyperFrameNumber,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo              RB-ActivationTimeInfo                  OPTIONAL,
    rb-WithPDCP-InfoList                      RB-WithPDCP-InfoList                   OPTIONAL,
-- Extension mechanism
    non-Release99-Information                 SEQUENCE {}                             OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
-- User equipment IEs
    u-RNTI                                    U-RNTI,
    protocolErrorIndicator                    ProtocolErrorIndicatorWithInfo,
-- TABULAR: The IE above is MD in tabular, but making a 2-way choice
-- optional wastes one bit (using PER) and produces no additional
-- information.
-- Measurement IEs
    measuredResultsOnRACH                      MeasuredResultsOnRACH                  OPTIONAL,

```

```

-- Extension mechanism
non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION REJECT
--
-- *****

RRCConnectionReject ::= SEQUENCE {
-- User equipment IEs
initialUE-Identity             InitialUE-Identity,
rejectionCause                 RejectionCause,
waitTime                       WaitTime,
redirectionInfo                RedirectionInfo    OPTIONAL,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE
--
-- *****

RRCConnectionRelease ::= SEQUENCE {
-- User equipment IEs
rrc-MessageTX-Count           RRC-MessageTX-Count,
-- The IE above is conditional on the UE state.
releaseCause                  ReleaseCause,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION RELEASE COMPLETE
--
-- *****

RRCConnectionReleaseComplete ::= SEQUENCE {
-- Extension mechanism
non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION REQUEST
--
-- *****

RRCConnectionRequest ::= SEQUENCE {
-- User equipment IEs
initialUE-Identity             InitialUE-Identity,
initialUE-Capability           InitialUE-Capability,
establishmentCause             EstablishmentCause,
protocolErrorIndicator         ProtocolErrorIndicator,
-- Measurement IEs
measuredResultsOnRACH          MeasuredResultsOnRACH    OPTIONAL,
-- Extension mechanism
non-Release99-Information      SEQUENCE {}          OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP
--
-- *****

RRCConnectionSetup ::= SEQUENCE {
-- User equipment IEs
initialUE-Identity             InitialUE-Identity,
activationTime                 ActivationTime          OPTIONAL,
new-U-RNTI                     U-RNTI,
new-c-RNTI                     C-RNTI                OPTIONAL,
utran-DRX-CycleLengthCoeff     DRX-CycleLengthCoefficient,
re-EstablishmentTimer          Re-EstablishmentTimer  OPTIONAL,
}

```

```

        capabilityUpdateRequirement      CapabilityUpdateRequirement      OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList              SRB-InformationSetupList2,
-- Transport channel IEs
  ul-CommonTransChInfo                  UL-CommonTransChInfo              OPTIONAL,
  ul-AddReconfTransChInfoList           UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo                  DL-CommonTransChInfo              OPTIONAL,
  dl-AddReconfTransChInfoList           DL-AddReconfTransChInfoList,
-- Physical channel IEs
  frequencyInfo                          FrequencyInfo                       OPTIONAL,
  maxAllowedUL-TX-Power                  MaxAllowedUL-TX-Power             OPTIONAL,
  ul-ChannelRequirement                  UL-ChannelRequirement             OPTIONAL,
  dl-CommonInformation                  DL-CommonInformation              OPTIONAL,
  dl-InformationPerRL-List               DL-InformationPerRL-List          OPTIONAL,
-- Extension mechanism
  non-Release99-Information              SEQUENCE {}                       OPTIONAL
}

-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  hyperFrameNumber                      HyperFrameNumber,
  ue-RadioAccessCapability                UE-RadioAccessCapability,
  ue-SystemSpecificCapability             InterSystemMessage                 OPTIONAL,
  -- Extension mechanism
  non-Release99-Information              SEQUENCE {}                       OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
  -- Other IEs
  protocolErrorInformation                ProtocolErrorInformation,
  -- Extension mechanism
  non-Release99-Information              SEQUENCE {}                       OPTIONAL
}

-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand ::= SEQUENCE {
  -- User equipment IEs
  cipheringAlgorithm                      CipheringAlgorithm,
  cipheringModeInfo                       CipheringModeInfo                  OPTIONAL,
  integrityProtectionModeInfo             IntegrityProtectionModeInfo        OPTIONAL,
  -- Core network IEs
  cn-DomainIdentity                       CN-DomainIdentity,
  -- Extension mechanism
  non-Release99-Information              SEQUENCE {}                       OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
  -- User equipment IEs
  hyperFrameNumber                        HyperFrameNumber                  OPTIONAL,
  ul-IntegProtActivationInfo              IntegrityProtActivationInfo        OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo           RB-ActivationTimeInfoList         OPTIONAL,
  -- Extension mechanism
  non-Release99-Information              SEQUENCE {}                       OPTIONAL
}

```

```

-- *****
--
-- SECURITY MODE FAILURE
--
-- *****

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- SIGNALLING CONNECTION RELEASE
--
-- *****

SignallingConnectionRelease ::= SEQUENCE {
  -- Core network IEs
  signallingFlowInfoList      SignallingFlowInfoList,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- SYSTEM INFORMATION for BCH
--
-- *****

SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  modeSpecificInfo          CHOICE {
    fdd                      SFN-Prime,
    tdd                      NULL
  },
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment        SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete          SEQUENCE {
      completeSIB-List       CompleteSIB-List,
      lastSegment            SubsequentOrLastSegment
    },
    completeSIB-List         CompleteSIB-List,
    spare                    NULL
  }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload                   CHOICE {
    firstSegment             FirstSegment,
    subsequentSegment        SubsequentOrLastSegment,
    lastSegment              SubsequentOrLastSegment,
    lastAndComplete          SEQUENCE {
      completeSIB-List       CompleteSIB-List,
      lastSegment            SubsequentOrLastSegment
    },
    completeSIB-List         CompleteSIB-List,
    spare                    NULL
  }
}

-- *****
--
-- First segment
--
-- *****

```

```

FirstSegment ::=                               SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    seg-Count                SegCount,
    sib-Data                SIB-Data
}

-- *****
--
-- Subsequent or last segment
--
-- *****

SubsequentOrLastSegment ::=                   SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data                SIB-Data
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::=                          SEQUENCE (SIZE(1..16)) OF
                                                CompleteSIB

CompleteSIB ::=                               SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    sib-Content             SIB-Content
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::=        SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo   BCCH-ModificationInfo,
    -- Extension mechanism
    non-Release99-Information SEQUENCE {}           OPTIONAL
}

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo          CipheringModeInfo                OPTIONAL,
    activationTime              ActivationTime                   OPTIONAL,
    new-U-RNTI                  U-RNTI                          OPTIONAL,
    new-C-RNTI                  C-RNTI                          OPTIONAL,
    drx-Indicator               DRX-Indicator,
    utran-DRX-CycleLengthCoeff  DRX-CycleLengthCoefficient     OPTIONAL,
    re-EstablishmentTimer       Re-EstablishmentTimer           OPTIONAL,
    -- Core network IEs
    cn-InformationInfo          CN-InformationInfo               OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList        RB-WithPDCP-InfoList            OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo        UL-CommonTransChInfo            OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    modeSpecificTransChInfo     CHOICE {
        fdd                     SEQUENCE {
            cpch-SetID           CPCH-SetID                     OPTIONAL,
            addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
        },
        tdd                       NULL
    }
}

```

```

    }
    dl-CommonTransChInfo          DL-CommonTransChInfo          OPTIONAL,
    dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList, OPTIONAL,
-- Physical channel IEs
    frequencyInfo                FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power        OPTIONAL,
    ul-ChannelRequirement        UL-ChannelRequirement        OPTIONAL,
    dl-CommonInformation          DL-CommonInformation          OPTIONAL,
    dl-PDSCH-Information          DL-PDSCH-Information          OPTIONAL,
    modeSpecificPhysChInfo       CHOICE {
        fdd                      SEQUENCE {
            cpch-SetInfo          CPCH-SetInfo          OPTIONAL
        },
        tdd                      NULL
    },
    dl-InformationPerRL-List      DL-InformationPerRL-List      OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

```

```

TransportChannelReconfigurationComplete ::= SEQUENCE {
-- User equipment IEs
    ul-IntegProtActivationInfo    IntegrityProtActivationInfo    OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                      NULL,
        tdd                      SEQUENCE {
            ul-TimingAdvance      UL-TimingAdvance            OPTIONAL
        }
    },
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo          OPTIONAL,
    rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION FAILURE
--
-- *****

```

```

TransportChannelReconfigurationFailure ::= SEQUENCE {
-- User equipment IEs
    failureCause                  FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL
--
-- *****

```

```

TransportFormatCombinationControl ::= SEQUENCE {
    channelRequirement            CHOICE {
        dpch-TFCS-InUplink        TFC-Subset,
        tfc-ControlDuration        TFC-ControlDuration
    },
-- Extension mechanism
    non-Release99-Information     SEQUENCE {}                OPTIONAL
}

```

```

-- *****
--
-- TRANSPORT FORMAT COMBINATION CONTROL FAILURE
--
-- *****

```

```

TransportFormatCombinationControlFailure ::= SEQUENCE {
-- User equipment IEs

```

```

        failureCause                FailureCauseWithProtErr,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY ENQUIRY
--
-- *****

UECapabilityEnquiry ::= SEQUENCE {
-- User equipment IEs
    capabilityUpdateRequirement      CapabilityUpdateRequirement,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
-- User equipment IEs
    ue-RadioAccessCapability         UE-RadioAccessCapability    OPTIONAL,
-- Other IEs
    ue-SystemSpecificCapability      InterSystemMessage         OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
-- Core network IEs
    flowIdentifier                   FlowIdentifier,
    nas-Message                       NAS-Message,
-- Measurement IEs
    measuredResultsOnRACH             MeasuredResultsOnRACH      OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
-- Physical channel IEs
    ccTrCH-PowerControlInfo          CCTrCH-PowerControlInfo     OPTIONAL,
    timingAdvance                     UL-TimingAdvance           OPTIONAL,
    individualTS-InterferenceList     IndividualTS-InterferenceList OPTIONAL,
    rach-ConstantValue                ConstantValue               OPTIONAL,
    dpch-ConstantValue                ConstantValue               OPTIONAL,
    usch-ConstantValue                ConstantValue               OPTIONAL,
-- Extension mechanism
    non-Release99-Information        SEQUENCE {}                OPTIONAL
}

```



```

-- *****
--
-- URA UPDATE
--
-- *****

URAUUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  ura-UpdateCause       URA-UpdateCause,
  protocolErrorIndicator ProtocolErrorIndicatorWithInfo,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM
--
-- *****

URAUUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo           CipheringModeInfo           OPTIONAL,
  new-U-RNTI                  U-RNTI                     OPTIONAL,
  new-C-RNTI                  C-RNTI                     OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff DRX-CycleLengthCoefficient,
  -- CN information elements
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                URA-Identity            OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList       RB-WithPDCP-InfoList      OPTIONAL,
  -- Extension mechanism
  non-Release99-Information SEQUENCE {} OPTIONAL
}

-- *****
--
-- URA UPDATE CONFIRM for CCCH
--
-- *****

URAUUpdateConfirm-CCCH ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                U-RNTI,
  -- The rest of the message is identical to the one sent on DCCH.
  uraUpdateConfirm      URAUpdateConfirm
}

END

```