TSG-RAN Meeting #8 *RP-000225*
Düsseldorf, Germany, 21 – 23 June 2000

Title: **Agreed CRs to TS 25.331 (4)**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-000952	agreed	25.331	347	1	Alignment of Section 10.3 on methodology defined in 25.921	F	3.2.0	3.3.0
R2-000926	agreed	25.331	348		Modifications of cell (re)selection parameters	F	3.2.0	3.3.0
R2-001164	agreed	25.331	350	1	GPS time-of-week represented as seconds and fractions of seconds	C	3.2.0	3.3.0
R2-001261	agreed	25.331	351	2	CPCH corrections	F	3.2.0	3.3.0
R2-001012	agreed	25.331	352		PLMN type selection	D	3.2.0	3.3.0
R2-001290	agreed	25.331	353	3	Paging and establishment cause values	F	3.2.0	3.3.0
R2-001014	agreed	25.331	354		Common channel configurations	F	3.2.0	3.3.0
R2-001262	agreed	25.331	355	2	Clarification of prioritisation of logical channels in UE	F	3.2.0	3.3.0
R2-001255	agreed	25.331	357	2	UE capability corrections	F	3.2.0	3.3.0
R2-001275	agreed	25.331	358	2	Clarification of HFN	F	3.2.0	3.3.0
R2-001276	agreed	25.331	359	3	Clarification of Integrity Protection	F	3.2.0	3.3.0
R2-001171	agreed	25.331	360	1	RRC message size optimisation regarding TrCH parameters	F	3.2.0	3.3.0
R2-001021	agreed	25.331	361		Protocol extensions in ASN	F	3.2.0	3.3.0
R2-001252	agreed	25.331	362	1	Downloading of pre- defined configurations via SIB 16	D	3.2.0	3.3.0
R2-001173	agreed	25.331	363	1	Optimisation of System Information	F	3.2.0	3.3.0
R2-001175	agreed	25.331	364	1	CPCH gain factor	F	3.2.0	3.3.0
R2-001176	agreed	25.331	368	2	SFN Transmission Rate in TDD Mode	C	3.2.0	3.3.0
R2-001177	agreed	25.331	371	1	Integrity Control	F	3.2.0	3.3.0
R2-001050	agreed	25.331	372		Modification to measurement event evaluation	C	3.2.0	3.3.0
R2-001051	agreed	25.331	373		System Information related parameters	D	3.2.0	3.3.0

3GPP/SMG Meeting RAN WG2 #12
Seoul, Korea, April 10-13, 2000

Document ***R2-000952***
e.g. for 3GPP use the format TP-00xxxx
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**	**347r1**	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 12/04/2000

Subject: Alignment of section 10.3 to methodology defined in 25.921

Work item:

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:
- Where a number of units, a quantity and a size are used, Integer or Real is replacing other type
- Special attention has been made to homogeneity of units.
- Some identities are transformed also into Integer as they can be manipulated as numbers.
- Spreading factors are also translated to Integer.
- Logical channel identity is reduced from 16 to 15 (see 25.321)
- Some timers has been converted to milliseconds unit to be integer compatible
- BLER is harmonized between 10.3.7.79 and 10.3.5.1
- TFCI coding in 10.3.6.8 is harmonized with semantics
- less ambiguous naming for IE at section 10.3.3.14

Clauses affected: 10.3

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: It does not change ASN.1 which, associated with PER, is dedicated to transfer syntax.


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

10.3 Information element functional definitions

10.3.1 CN Information elements

10.3.1.1 CN domain identity

Identifies the type of core network domain.

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

10.3.1.2 CN Domain System Information

Information element	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 <MaxNoCNdomains>		
>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	

Multi Bound	Explanation
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.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Flow Identifier	MP		~~Enumerated~~ Integer (0…15)	

10.3.1.5 IMEI

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
IMEI		15		
>IMEI digit			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]

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

10.3.1.7 Location Area Identification

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

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

10.3.1.8 NAS message

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

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

10.3.1.9 NAS system information (GSM-MAP)

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

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

10.3.1.10 Paging record 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		3		
>MCC digit			INTEGER(0..9)	
MNC		2 to 3		
>MNC digit			INTEGER(0..9)	

10.3.1.12 PLMN Type

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

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

10.3.1.13 P-TMSI (GSM-MAP)

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

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

10.3.1.14 RAB identity

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

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

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

10.3.1.15 Routing Area Code

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

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

10.3.1.16 Routing Area Identification

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

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

10.3.1.17 Service Descriptor

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

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

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

10.3.1.18 TMSI (GSM-MAP)

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

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

10.3.2 UTRAN mobility Information elements

10.3.2.1 Cell Access Restriction

Indicates the restrictions to cell access.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Barred	MP		Enumerated(not barred, barred)	
Access Class Barred list	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.
>Access Class Barred	MP		Enumerated(not barred, barred)	
Cell Reserved for operator use	MP		Enumerated(reserved, not reserved)	
Cell Reserved for SoLSA exclusive use	MP		Enumerated(reserved, not reserved)	

Condition	Explanation
Barred	Presence is mandatory if the IE "Cell Barred" has the value "Barred"; otherwise the element is not needed in the message.

10.3.2.2 Cell identity

This information element identifies a cell unambiguously within a PLMN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell identity	MP		bit string(28)	

10.3.2.3 Cell selection and re-selection info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	MP		Mapping info 10.3.2.4	Contains mapping function for quality measurements
CHOICE *mode*	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.
>>$S_{intrasearch}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>$S_{intersearch}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>$S_{searchHCS}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>RAT List	OP	1 to <MaxRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>$S_{search,RAT}$	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>$S_{HCS,RAT}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>$S_{intrasearch}$	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]

>>$S_{intersearch}$	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>$S_{searchHCS}$	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
>>>$S_{search,RAT}$	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
>>>$S_{HCS,RAT}$	OP		Integer (-120..90 by step of 5)	TS 25.304 [dBm]
$Qhyst_s$	MP		~~Real~~ Integer (0..40 by step of 2)	[dB]
$Treselection_s$	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
Cell Selection and Reselection parameters	OP			Used in Alternative 2 in TS 25.304
>Decoding range	OP			Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.
>$Qoffset_s$	OP			Offset for UEs decoding this cell for cell reselection measurement
>OffsetExp	CV – if Qoffset			Expiration timer for UEs decoding the $Qoffset_s$

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

10.3.2.4 Mapping Info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Mapping List	MP	1 to <MaxRAT>		
>RAT	MP		Enumerated (UTRA FDD, UTRA TDD, GSM, cdma2000)	
>Mapping Function Parameter List	MP	1 to <MaxIntervals>		Note 1
>> Function type	MP		Enumerated (linear, function type 2, function type 3, function type 4)	Type of the function within the interval. Note 1
>>Map_parameter_1	MP		~~Enumerated~~ Integer (0..15)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Depending on function type and RAT, suitable values can be addressed via this parameter.
>>Map_parameter_2	MP		~~Enumerated~~ Integer (0..15)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Depending on function type and RAT, suitable values can be addressed via this parameter.
>>Upper_limit	CV - MaxInt		~~Enumerated~~ Integer (0..15)	Upper limit of interval for which the map_parameter_1 and map_parameter_2 are valid. Depending on function type and RAT, suitable values can be addressed via this parameter.

Multi Bound	Explanation
MaxRAT	Maximum number of Radio Access Technologies / Modes (UTRA FDD, UTRA TDD, GSM) that have to be considered in the neighbour cell measurements. Maximum number is 4.
MaxIntervals	Maximum number of intervals that define the mapping function between the measurement for the cell quality value Q of a cell and the representing quality value. Maximum number is 1. Note 1

Condition	Explanation
MaxInt	This information is only sent if Mapping Function Parameter List has not reached MaxIntervals.

NOTE 1: More work may be needed for the elaboration of the mapping function parameters. Thus, MaxIntervals can be extended if needed and function types other than linear can be included.

10.3.2.5 URA identity

Gives the identity of the UTRAN Registration Area. It can be used to indicate to the UE which URA it shall use in case of overlapping URAs.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA identity	MP		bit string(16)	

10.3.3 UE Information elements

10.3.3.1 Activation time

Activation Time defines the CFN (Connection Frame Number) in which the operation/changes caused by the related message should be executed.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Activation time	MP		Integer(0..255)	CFN [TS 25.402]

10.3.3.2 Capability Update Requirement

This IE indicates to the UE which specific capabilities to transfer to the network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE radio access capability update requirement	MP		Boolean	TRUE indicates update required
System specific capability update requirement list	OP	1 to <MaxNoSystemCapability>		
>System specific capability update requirement	MP		Enumerated (GSM)	At least 15 spare values Criticality: reject are needed

Multi Bound	Explanation
MaxNoSystemCapability	Maximum number of system specific capabilities that can be requested in one message.

Default value is:

"UE radio capability update requirement" = false

"System specific capability update requirement" not present.

10.3.3.3 Cell update cause

Indicates the cause for s cell update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell update cause	MP		Enumerated (cell reselection, periodic cell update, UL data transmission , paging response, RB control response)	At least 3 spare values, Criticality: reject, are needed

10.3.3.4 Ciphering Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm	MP		Enumerated (Standard UMTS Encryption Algorithm UEA1)	At least 15 spare values needed. Criticality: Criticality reject is needed.

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart, stop)	
Ciphering algorithm	CV-*notStop*		Ciphering algorithm 10.3.3.4	
Activation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.10	Used for radio bearers mapped on RLC-AM or RLC-UM

Condition	Explanation
notStop	The IE is mandatory if the IE "Ciphering mode command" has the value "start/restart", otherwise the IE is not needed in the message.

10.3.3.6 CPCH Parameters

NOTE: Only for FDD.

These parameters are used by any UE using any CPCH set allocated to the Node B that is broadcasting this system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Initial Priority Delay	OP	8		Initial delays for ASC priority.
>NS_IP	MP		Integer (0…28)	Number of slots for initial fixed delay for each ASC priority level
Backoff control parameters	MP			
>N_ap_retrans_max	MP		Integer (1…64)	Max number of AP transmissions without AP-AICH response, a PHY parameter.
>N_access_fails	MP		Integer (1…64)	Max number of preamble ramping cycles when NAK response received, a MAC parameter.
>NF_bo_no aich	MP		Integer (0…31)	Number of frames for UE backoff after N ap_retrans_max unsuccessful AP access attempts, a MAC parameter.
>NS_bo_busy	MP		Integer (0…63)	Number of slots for UE fixed backoff after access attempt to busy CPCH, a MAC parameter.
>NF_bo_all_busy	MP		Integer (0…31)	Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)
>NF_bo_ mismatch	MP		Integer (0…127)	Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)
>T_CPCH	MP		Enumerated (0, 1)	CPCH channel timing used to determine Tau, a PHY parameter

10.3.3.7 C-RNTI

The cell RNTI (C-RNTI) identifies an UE having a RRC connection within a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
C-RNTI	MP		bit string(16)	

10.3.3.8 DRAC system information

Information element	Need	Multi	Type and reference	Semantics description
DRAC system information	MP	1 .. <maxDRACclasses>		DRAC information is sent for each class of terminal
>Transmission probability	MP		Transmission probability 10.3.3.38	
>Maximum bit rate	MP		Maximum bit rate 10.3.3.21	

Multi bound	Explanation
MaxDRACclasses	Maximum number of UE classes which would require different DRAC parameters

10.3.3.9 DRX cycle length coefficient

A coefficient in the formula to count the paging occasions to be used by a specific UE (specified in 25.304).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX cycle length coefficient	MP		Integer(2...12)	Refers to 'k' in the formula as specified in 25.304, Discontinuous reception

10.3.3.10 DRX Indicator

Indicates to a UE if DRX shall be used with Cell updating or URA updating or if no DRX at all shall be used.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX indicator	MP		Enumerated(no DRX, DRX with cell updating, DRX with URA updating)	At least 1 spare value, Criticality: reject, are needed

10.3.3.11 Establishment cause

Cause for an RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Establishment cause	MP		Enumerated(Originating Speech Call, Originating CS Data Call, Originating PS Data Call, Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, Emergency Call, Inter-system cell re-selection, Location Update (LAU & RAU), IMSI Detach, SMS, Call re-establishment, unspecified)	At least 3 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.12 Failure cause and error information

Cause for failure to perform the requested procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Failure cause	MP		Enumerated (Configuration unacceptable, physical channel failure, incompatible simultaneous reconfiguration, protocol error)	At least 3 spare values, Criticality: reject, are needed
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.9	

Condition	Explanation
ProtErr	Presence is mandatory if the IE "Failure cause" has the value "Protocol error"; otherwise the element is not needed in the message.

10.3.3.13 Hyper Frame Number

The hyper frame number (HFN) is used to initialise both the COUNT for ciphering algorithm and the COUNT-I integrity protection algorithm.

For ciphering, HFN forms the most significant bits of COUNT. When the COUNT is initialised: COUNT = HFN (the LSB part of COUNT is set to zero).

For integrity protection, the HFN forms the most significant bits of COUNT-I. When the COUNT-I is initialised: COUNT-I = HFN (the LSB part of COUNT-I is set to zero).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HFN	MP		Bit string (20)	Start value for uplink and downlink COUNT and COUNT-I. For RBs using RLC transparent mode or RLC unacknowledged mode, zeros shall be added to form a HFN of 25 bits For integrity protection function, zeros shall be added to form a HFN of 28 bits.

10.3.3.14 Initial UE capability

This is the UE capability information given in the RRC connection request message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Range of m~~M~~aximum number of AM entities	MP		Enumerated (2 to 3, 4 to 8, 16 to 32)	At least 1 spare values, Criticality: reject, are needed

10.3.3.15 Initial UE identity

This information element identifies the UE at a request of an RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE UE id type	MP			At least 8 spare choices, Criticality: reject, is needed
>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>TMSI and LAI (GSM-MAP)				
>>TMSI (GSM-MAP)	MP		TMSI (GSM-MAP) 10.3.1.18	
>>LAI (GSM-MAP)	MP		Location Area Identification 10.3.1.7	
>P-TMSI and RAI (GSM-MAP)				
>>P-TMSI (GSM-MAP)	MP		P-TMSI (GSM-MAP) 10.1.3.13	
>>RAI (GSM-MAP)	MP		Routing Area Identification 10.3.1.16	
>IMEI			IMEI 10.3.1.5	
>ESN (DS-41)			TIA/EIA/IS-2000-4	
>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>IMSI and ESN (DS-41)			TIA/EIA/IS-2000-4	
>TMSI (DS-41)			TIA/EIA/IS-2000-4	

10.3.3.16 Integrity check info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message authentication code	MP		bit string(32)	MAC-I [TS 33.102]
RRC Message sequence number	MP		Integer (0..15)	The local hyper frame number (HFN) is concatenated with the RRC message sequence number to form the input parameter COUNT-I for the integrity protection algorithm.

10.3.3.17 Integrity protection activation info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC message sequence number list	MP	2 to 3		The RRC sequence number when a new integrity protection configuration shall be applied, for signalling radio bearers in the order RB0, RB2, RB3.
>RRC message sequence number	MP		Integer (0.. 15)	

10.3.3.18 Integrity protection Algorithm

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection algorithm	MP		Enumerated(Standard UMTS Integrity Algorithm UIA1)	At least 15 spare values needed. Criticality: Criticality reject is needed.

10.3.3.19 Integrity protection mode info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Integrity protection mode command	MP		Enumerated(start, modify)	At least 2 spare values, Criticality: reject, are needed
Downlink integrity protection activation info	CV-*modify*		Integrity protection activation info 10.3.3.17	
Integrity protection algorithm	OP		Integrity protection algorithm 10.3.3.18	
Integrity protection initialisation number	CV-*start*		Bitstring(32)	FRESH [TS 33.102]

Condition	Explanation
Start	The IE is mandatory if the IE "Integrity protection mode command" has the value "start ", otherwise it is not needed in the message.
Modify	The IE is only present if the IE "Integrity protection mode command" has the value "modify"

10.3.3.20 LCS capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Standalone location method(s) supported	MP		Boolean	Defines if a UE can measure its location by some means unrelated to UTRAN TRUE means supported
UE based OTDOA supported	MP		Boolean	TRUE means supported
Network Assisted GPS support	MP		Enumerated ('Network based', 'UE based', 'Both', 'None')	Defines if the UE supports network based or UE based GPS methods.
GPS reference time capable	MP		Boolean	Defines if a UE has the capability to measure GPS reference time as defined in 25.215. TRUE means capable
Support for IPDL	MP		Boolean	Defines if a UE has the capability to use IPDL to enhance its 'SFN-SFN observed time difference –type 2' measurement. TRUE means supported

10.3.3.21 Maximum bit rate

NOTE: Only for FDD.

Indicates the maximum user bit rate allowed on a DCH controlled by DRAC procedure for the transmission period (Transmission time validity).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum bit rate	MP		integer(0..512 by step of 16)	=kbit/s

10.3.3.22 Measurement capability

For all IEs of type Boolean TRUE means capable.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Need for downlink compressed mode	MP			
>FDD measurements DL	MP		Boolean	
>TDD measurements DL	CV *tdd_sup*		Boolean	
> GSM measurements DL	CV *gsm_sup*		Boolean	
>> GSM 900 DL	MP		Boolean	
>> DCS 1800 DL	MP		Boolean	
>> GSM 1900 DL	MP		Boolean	
> Multi-carrier measurement DL	CV *mc_sup*		Boolean	
Need for uplink compressed mode	MP			
>FDD measurements UL	MP		Boolean	
>TDD measurements UL	CV *tdd_sup*		Boolean	
> GSM measurements UL	CV *gsm_sup*		Boolean	
>> GSM 900 UL	MP		Boolean	
>> DCS 1800 UL	MP		Boolean	
>> GSM 1900 UL	MP		Boolean	
> Multi-carrier measurement UL	CV *mc_sup*		Boolean	

Condition	Explanation
tdd_sup	Presence is mandatory if IE Multi-mode capability = TDD. Otherwise this field is not needed in the message.
gsm_sup	Presence is mandatory if IE Multi-RAT capability = GSM. Otherwise this field is not needed in the message.
mc_sup	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in the message.

10.3.3.23 Number of RRC Message Transmissions

This IE indicates how many times the receiver of a message containing this IE shall transmit the RRC response message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Number of RRC Message Transmissions	MP		Integer(1..8)	

10.3.3.24 Paging cause

Cause for a CN originated page.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging cause	MP		Enumerated(Terminating Speech Call, Terminating CS Data Call, Terminating PS Data Call, SMS, Unspecified)	At least 3 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.25 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Paging originator	MP			
> CN originator				
>> Paging cause	MP		Paging cause 10.3.3.24	
>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>CHOICE UE Identity	MP			At least 3 spare choice, Criticality: reject, are needed
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.18	
>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP) 10.3.1.13	
>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
> UTRAN originator				
>>U-RNTI	MP		U-RNTI 10.3.3.45	

Condition	Explanation
CHOICE *Paging originator*	**Condition under which the given *paging originator* is chosen**
CN Originating	For CN originating pages (idle mode)
UTRAN Originating	For UTRAN originating pages (connected mode)

10.3.3.26 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported
Supported algorithm types	OP	1 to <maxAlgoTypeCount>		Indicates whether header compression algorithms are supported by the UE or not.
>CHOICE *algorithm type*				This IE shall be defined as extendable (at least 3 spare choices)
>>RFC2507				
>>>Maximum MAX_HEADER	MD		Integer (60..65535)	The largest header size in octets that may be compressed by the UE. Default value is 65535.
>>>Maximum TCP_SPACE	MD		Integer (3..255)	Maximum stored number of headers for TCP connections. Default value is 255.
>>>Maximum NON_TCP_SPACE	MD		Integer (3..65535)	Maximum stored number of headers for non-TCP connections. Default value is 65535.

Multi Bound	Explanation
MaxAlgoTypeCount	Maximum number of algorithm types specified in TS 25.323.

10.3.3.27 Physical channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>> Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>> Max no physical channel bits received	MP		~~Enumerated~~Integer (300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600, 67200)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) At least 4 spare values needed
>>Support for SF 512	MP		Boolean	TRUE means supported
>>Support of PDSCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH and DPCH	MP		Boolean	TRUE means supported
>>Max no of S-CCPCH RL	CV-if_sim_rec		~~Enumerated~~Integer(1)	Maximum number of simultaneous S-CCPCH radio links At least 7 spare values needed.
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum number of timeslots per frame	MP		Integer (1..14)	At least 2 spare values needed.
>>Maximum number of physical channels per frame	MP		Integer (1..224)	At least 32 spare values needed
>>Minimum SF	MP		~~Enumerated~~ Integer (1, 16)	
>>Support of PDSCH	MP		Boolean	TRUE means supported
Uplink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of DPDCH bits transmitted per 10 ms	MP		~~Enumerated~~ Integer (150, 300, 600, 1200, 2400, 4800. 9600, 19200. 28800, 38400, 48000, 57600)	At least 4 spare values needed
>>Support of PCPCH	MP		Boolean	TRUE means supported
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum Number of timeslots per frame	MP		Integer (1..14)	At least 2 spare values needed
>>Maximum number of physical	MP		~~Enumerated~~I	

channels per timeslot			nteger (1, 2)	
>>Minimum SF	MP		~~Enumerated~~I nteger (1, 2, 4, 8, 16)	At least 3 spare values needed
>>Support of PUSCH	MP		Boolean	TRUE means supported

Condition	Explanation
if_sim_rec	Presence is mandatory if IE capability Simultaneous reception of SCCPCH and DPCH = True. Otherwise this field is not needed in the message.

10.3.3.28 Protocol error cause

This IE indicates the cause for a message or information which was not comprehended.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Protocol error cause	MP		Enumerated (Transfer syntax error, Message type non-existent or not implemented, Message not compatible with receiver state, Information element value not comprehended, Message extension not comprehended)	At least 3 spare values are needed.

10.3.3.29 Protocol error indicator

This IE indicates whether a message was transmitted due to a protocol error or not.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Protocol error indicator	MP		Boolean	TRUE means a protocol error occurred. FALSE means a protocol error did not occur.

10.3.3.30 Redirection info

This IE is used to redirect the UE to another frequency or other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Redirection Information	MP			At least one spare choice, Criticality: reject, is needed.
>Frequency info			Frequency info 10.3.6.24	
>Inter-system info			Inter-system info 10.3.7.25	

10.3.3.31 Re-establishment timer

This information element indicates timers T314 and T315.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T314	MP		Integer ~~Enumerated~~ (0, 10, 20, 30,60, 180, 600, 1200, 1800)	Maximum RRC Connection re-establishment time for radio bearers using Tr and UM RLC. Value in seconds
T315	MP		Integer ~~Enumerated~~ (0,10, 30, 60, 180, 600, 1200, 1800)	Maximum RRC Connection re-establishment time for radio bearers using AM RLC. Value in seconds

10.3.3.32 Rejection cause

Cause for rejection of RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Rejection cause	MP		Enumerated(congestion, unspecified)	At least 2 spare values, Criticality: reject, are needed

10.3.3.33 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject)	At least 3 spare values, Criticality: reject, are needed

10.3.3.34 RF capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>UE power class	MP		Enumerated(1..4)	as defined in 25.101 subclause 6.2.1
>>Tx/Rx frequency separation	MP		Enumerated(190, 174.8-205.2, 134.8-245.2)	In MHz as defined in 25.101 subclause 5.3. NOTE: Not applicable if UE is not operating in frequency band a (as defined in 25.101). At least 1 spare value needed
>TDD				
>>UE power class	MP		Enumerated (1..4)	as defined in 25.102 subclause 6.2.1
>>Radio frequency bands	MP	1 to <MaxFrequencybands Count>	Enumerated(a, b, c)	as defined in 25.102 subclause 5.2 At least 1 spare value needed
>>Chip rate capability	MP		Enumerated(3.84Mcps,1.28Mcps)	as defined in 25.102

Multi Bound	Explanation
MaxFrequencybandsCount	Maximum number of frequency bands supported by the UE as defined in 25.102

10.3.3.35 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size	MP		~~Enumerated~~Integer (2,10,50,100,150,500,1000)	Total receiving and transmitting RLC AM buffer capability in kBytes At least 1 spare value needed
Maximum number of AM entities	MP		~~Enumerated~~Integer (2,3,4,8,16,32)	At least 2 spare values needed

10.3.3.36 RLC re-configuration indicator

This IE is used to re-configure AM RLC on c-plane and u-plane.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC re-configuration indicator	MP		Boolean	TRUE means reconfiguration required

10.3.3.37 Security capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering algorithm capability	MP		Ciphering algorithm 10.3.3.4	
Integrity protection algorithm capability	MP		Integrity protection algorithm 10.3.3.18	

10.3.3.38 Transmission probability

NOTE: Only for FDD.

Indicates the probability for a mobile to be allowed to transmit on a DCH controlled by DRAC procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission probability	MP		Real(0.125.. 1.0 by step of 0.125)	probability

10.3.3.39 Transport channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink transport channel capability information elements				
Max no of bits received	MP		~~Enumerated~~Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed.
Max convolutionally coded bits received	MP		~~Enumerated~~Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed
Max turbo coded bits received	CV *turbo_dec_sup*		~~Enumerated~~Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms At least 3 spare values are needed
Maximum number of simultaneous transport channels	MP		~~Enumerated~~Integer(4, 8, 16, 32)	
Max no of received transport blocks	MP		~~Enumerated~~Integer(4, 8, 16, 32, 48, 64, 96, 128, 256, 512)	Maximum total number of transport blocks received within TTIs that end at within the same 10ms interval At least 6 spare values needed
Maximum number of TFC in the TFCS	MP		~~Enumerated~~Integer(16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 7 spare values needed
Maximum number of TF	MP		~~Enumerated~~Integer(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo decoding	MP		Boolean	TRUE means supported
Uplink transport channel capability information elements				
Max no of bits transmitted	MP		~~Enumerated~~Integer(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 received	MP		~~Enumerated~~Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time At least 3 spare values needed
Max turbo coded bits received	CV *turbo_enc_sup*		~~Enumerated~~Integer(640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840)	Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time At least 3 spare values needed
Maximum number of simultaneous transport channels	MP		~~Enumerated~~Integer(2, 4, 8, 16, 32)	At least 3 spare values needed
Max no of transmitted transport blocks	MP		Integer ~~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		Integer ~~Enumerated~~(4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024)	At least 5 spare values needed
Maximum number of TF	MP		Integer ~~Enumerated~~(32, 64, 128, 256, 512, 1024)	At least 2 spare values needed
Support for turbo encoding	MP		Boolean	TRUE means supported

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

10.3.3.40 UE multi-mode/multi-RAT capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Multi-RAT capability	OP	1 to <maxRAT Count>	Enumerated (GSM, multi-carrier)	At least 2 spare values needed
Multi-mode capability	MP		Enumerated (TDD, FDD, FDD/TDD)	

Multi Bound	Explanation
MaxRATCount	Maximum number of Radio Access Technologies supported by the UE

10.3.3.41 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Conformance test compliance	MP		Enumerated(R99)	Indicates the release of TS 34.108 the UE has declared compliance to. At least 7 spare values needed
PDCP capability	MP		PDCP capability 10.3.3.26	
RLC capability	MP		RLC capability 10.3.3.35	
Transport channel capability	MP		Transport channel capability 10.3.3.39	
RF capability	MP		RF capability 10.3.3.34	
Physical channel capability	MP		Physical channel capability 10.3.3.27	
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.40	
Security capability	MP		Security capability 10.3.3.37	
LCS capability	MP		LCS capability 10.3.3.20	
CHOICE *mode*	MP			
>FDD				
>>Measurement capability	MP		Measurement capability 10.3.3.22	
>TDD				(no data)

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(100, 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~~Integer(~~(no update,~~ 5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes Infinity means no update
T306	MP		~~Enumerated~~Integer(~~no update,~~ 5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes Infinity means no update
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~~ Integer (1, 50, 100, 200, 400, 600, 800, 1000)	
T313	MP		Integer (0..15)	Value in seconds
N313	MP		~~Enumerated~~ Integer (1, 50, 100, 200, 400, 600, 800, 1000)	
T314	MP		~~Enumerated~~Integer(0,	Value in seconds

			10, 20, 30, 60, 180, 600, 1200, 1800)	
T315	MP		~~Enumerated~~ Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds
N315	MP		~~Enumerated~~ Integer (1, 50, 100, 200, 400, 600, 800, 1000)	

10.3.3.43 UE Timers and Constants in idle mode

This information element indicates timers and constants used by the UE in idle mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T300	MP		Integer(1... 8)	Value in seconds
N300	MP		Integer(1.. 8)	
T312	MP		Integer(0 .. 15)	Value in seconds
N312	MP		Integer ~~Enumerated~~ (1, 50, 100, 200, 400, 600, 800, 1000)	

10.3.3.44 URA update cause

Indicates the cause for s URA update.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
URA update cause	MP		Enumerated(change of URA, periodic URA update, re-entered service area)	At least 5 spare values Criticality: reject, are needed

10.3.3.45 U-RNTI

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI	MP		bit string(20)	

10.3.3.46 U-RNTI Short

The U-RNTI (UTRAN Radio Network Temporary Identity) is allocated to an UE having a RRC connection and identifies the UE within UTRAN.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SRNC identity	MP		bit string(12)	
S-RNTI 2	MP		~~Integer(0..1023)~~bit string(10)	

10.3.3.47 Wait time

Wait time defines the time period the UE has to wait before repeating the rejected procedure.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Wait time	MP		Integer(0..15)	Wait time in seconds The value 0 indicates that repetition is not allowed.

10.3.4 Radio Bearer Information elements

10.3.4.1 Downlink RLC STATUS info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_Status_Prohibit	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Minimum time in ms between STATUS reports At least 16 spare values with criticality reject is needed
Timer_EPC	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Time in ms At least 16 spare values with criticality reject is needed
Missing PU Indicator	MP		Boolean	Value true indicates that UE should send a STATUS report for each missing PU that is detected
Timer_STATUS_periodic	OP		Integer(100, 200, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds

10.3.4.2 PDCP info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	CV-*LosslessCriteria*		Boolean	TRUE means support
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 *algorithm type*	MP			7 spare values needed, criticality: reject
>>RFC2507				Header compression according to IETF standard RFC2507
>>>F_MAX_PERIOD	MD		Integer (1..65535)	Largest number of compressed non-TCP headers that may be sent without sending a full header. Default value is 256.
>>>F_MAX_TIME	MD		Integer (1..255)	Compressed headers may not be sent more than F_MAX_TIME seconds after sending last full header. Default value is 5.
>>>MAX_HEADER	OP		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 expected".

Condition	Explanation
LosslessCriteria	This IE is present only if the IE "RLC mode" is "Acknowledged" and the IE "In-sequence delivery " is "True".

Multi Bound	Explanation
AlgorithmCount	The number of algorithm types configured for PDCP entity.

10.3.4.3 PDCP SN info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Receive PDCP sequence number	MP		Integer(0..65 535)	The PDCP sequence number which the sender of the message is expecting next to be received.

10.3.4.4 Polling info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timer_poll_prohibit	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Minimum time between polls in ms 16 spare values needed, criticality: reject
Timer_poll	OP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	Time in ms. 16 spare values needed, criticality: reject
Poll_PU	OP		Integer(1,2,4 ,8,16,32,64,1 28)	Number of PUs, interval between pollings 8 spare values needed, criticality: reject
Poll_SDU	OP		Integer(1,4,1 6,64)	Number of SDUs, interval between pollings 4 spare values needed, criticality: reject
Last transmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in transmission buffer
Last retransmission PU poll	MP		Boolean	TRUE indicates that poll is made at last PU in retransmission buffer
Poll_Window	OP		Integer(50,6 0,70,80,85,9 0,95,100)	Percentage of transmission window, threshold for polling 8 spare values needed, criticality: reject
Timer_poll_periodic	OP		Integer100,2 00, 300, 400, 500, 750, 1000, 2000)	Time in milliseconds Timer for periodic polling. 8 spare values needed, criticality: reject

10.3.4.5 Predefined configuration identity

This information element identifies a pre- defined radio parameter configuration.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Predefined radio configuration identity	MP		~~Enumerated~~ Integer (0..15)	

10.3.4.6 Predefined configuration value tag

This information element is used to identify different versions of a radio bearer configuration as may be used within one PLMN e.g. to support different UTRAN implementations.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Predefined configuration value tag	MP		Integer(0..15)	

10.3.4.7 Predefined RB configuration

This information element concerns a pre- defined configuration of radio bearer parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Signalling radio bearer information	MP	1 to <maxSRBcount>		For each signalling radio bearer
>RB identity	MP		RB identity 10.3.4.11	
>CHOICE RLC info type	MP			At least one spare value is needed for future extensions with criticality reject
>>RLC info	MP		RLC info 10.3.4.18	Allowed when the value of IE "RB identity" is between 0 and 31, inclusive
>RB mapping info	MP		RB mapping info 10.3.4.16	
RB information				Only one RAB supported
>RB information list	OP	1 to <MaxRBcount>		For each RB belonging to the RAB
>>RB identity	MP		RB identity 10.3.4.11	
>>PDCP info	OP		PDCP info 10.3.4.2	
>>RLC info	MP		RLC info 10.3.4.18	
>>RB mapping info	MP		RB mapping info 10.3.4.16	

Multi Bound	Explanation
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRBcount	Maximum number of RBs

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	

10.3.4.9 RAB information for setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RAB info	MP		RAB info 10.3.4.8	
RB information to setup list	MP	1 to <MaxSetup RBcount>		
>RB information to setup	MP		RB information to setup 10.3.4.15	

Multi Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

10.3.4.10 RB activation time info

This IE contains the time, in terms of RLC sequence numbers, when a certain configuration shall be activated, for a number of radio bearers.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Radio bearer activation time	OP	1 to <maxReco nRBs>		
>RB identity	MP		RB identity 10.3.4.11	
>RLC sequence number	MP		Integer (0.. 4095)	RLC SN [TS 25.322]

Multi Bound	Explanation
MaxReconRBs	For each radio bearer that is reconfigured

10.3.4.11 RB identity

An identification number for the radio bearer affected by a certain message.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		Integer(0..31)	Values 0-3 shall only be used for signalling radio bearers

10.3.4.12 RB information to be affected

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
RB mapping info	MP		RB mapping info 10.3.4.16	

10.3.4.13 RB information to reconfigure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP info	OP		PDCP info 10.3.4.2	
PDCP SN info	C PDCP		PDCP SN info 10.3.4.3	PDCP sequence number info from the network. Present only in case of lossless SRNS relocation.
CHOICE *RLC info type*	OP			
>RLC info			RLC info 10.3.4.18	
RB mapping info	OP		RB mapping info 10.3.4.16	
RB suspend/resume	OP		Enumerated(suspend, resume)	

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

10.3.4.14 RB information to release

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	

10.3.4.15 RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP info	OP		PDCP info 10.3.4.2	
RLC info	MP		RLC info 10.3.4.18	
RB mapping info	MP		RB mapping info 10.3.4.16	

Multi Bound	Explanation
MaxSetupRBcount	The maximum number of RBs to setup.

10.3.4.16 RB mapping info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to <maxMuxOptionsCount>		
>Number of RLC logical channels	CV-*UL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>Transport channel identity	OP		Transport channel identity 10.3.5.16	This is the ID of a transport channel that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..16)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	OP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). The different priorities for this user's RBs are mapped (through the MAC's C/T MUX) to the TFC selection algorithm. Priority 1 shall have the highest priority and priority 8 the lowest.
>Number of RLC logical channels	CV-*DL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH)	
>>Transport channel identity	OP		Transport channel identity 10.3.5.16	
>>Logical channel identity	OP		~~Enumerated~~Integer(1..15~~6~~)	16 is reserved

Multi Bound	Explanation
MaxMuxOptionsCount	Maximum number of allowed multiplexing options that can be sent is 8

Condition	Explanation
UL-RLC info	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.

10.3.4.17 RB with PDCP information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.11	
PDCP SN info	MP		PDCP SN info 10.3.4.3	PDCP sequence number info from the UE for lossless SRNS relocation.

10.3.4.18 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Uplink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.20	
>>Transmission window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072, 3584,4096)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. One spare value needed, criticality: reject
>>Timer_RST	MP		Integer ~~Enumerated~~(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Integer ~~Enumerated~~(1, 4, 6, 8, 12 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard10.3.4.20	
>TM RLC				(no specific data)
CHOICE *Downlink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072, 3584,4096)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. At least one spare value with criticality reject needed
>>Downlink RLC status Info	OP			
>UM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>TM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are

				delivered.

10.3.4.19 Signalling RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MD		RB identity 10.3.4.11	Default value is the smallest value not yet used as default in the message (e.g., 0, then 1, and so on)
CHOICE *RLC info type*	MP			
>RLC info			RLC info 10.3.4.18	
RB mapping info	MP		RB mapping info 10.3.4.16	

10.3.4.20 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SDU Discard Mode	MP			Different modes for discharge the RLC buffer on the transmitter side; Timer based with explicit signalling, Timer based without explicit signalling or Discard after Max_DAT retransmissions. For unacknowledged mode only Timer based without explicit signalling is applicable. If No_discard is used, reset procedure shall be done after Max_DAT retransmissions
>Timer based explicit				
>>Timer_MRW	MP		Integer ~~Enumerated~~(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. 16 spare values needed, criticality: reject
>>Timer_discard	MP		Integer ~~Real~~(~~0.~~100, 0~~.~~250, ~~0.~~500, ~~0.~~750, 1000, 1~~.~~250, 1~~.~~500, 1~~.~~750, 2000, 2~~.~~500, 3000, 3~~.~~500, 4000, 4~~.~~500, 5000, 7~~.~~500)	Elapsed time in milliseconds before a SDU is discarded.
>>MaxMRW	MP		Integer ~~Enumerated~~(1, 4, 6, 8, 12 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command 8 spare values needed, criticality: ffs
>Timer based no explicit				
>>Timer_discard	MP		Integer ~~Real~~(~~0.~~100, ~~0.~~250, ~~0.~~500, ~~0.~~750, 1000, 1~~.~~250, 1~~.~~500, 1~~.~~750, 2000, 2~~.~~500, 3000, 3~~.~~500, 4000, 4~~.~~500, 5000, 7~~.~~500)	Elapsed time in milliseconds before a SDU is discarded.
>Max DAT retransmissions				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded.
>No discard				(no data)

CHOICE *SDU Discard Mode*	**Condition under which the given *SDU Discard Mode* is chosen**
Timer based explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based with explicit signalling"
Timer based no explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based without explicit signalling" For unacknowledged mode, only Timer based without explicit signalling is applicable.
Max DAT retransmissions	If the modes for discharge of the RLC buffer on the transmitter side is "Discard after Max_DAT retransmissions"
No discard	If the modes for discharge the of RLC buffer on the transmitter side is "Reset procedure shall be done after Max_DAT retransmissions"

10.3.5 Transport CH Information elements

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	**Need**	**Multi**	**Type and reference**	**Semantics description**
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)
DCH quality target	OP		Quality target 10.3.5.13	
Transparent mode signalling info	OP		Transparent mode signalling info 10.3.5.15	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.3 Bit mode RLC size info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Bit mode RLC size*	MP			
>Size type 1				1 bit granularity
>>Size part 1	MP		Integer(1..127)	in bits
>Size type 2				8 bit granularity
>>Size part 1	MP		Integer(128..248 by step of 8)	in bits
>>Size part 2	OP		Integer (1..7)	Bits added to size part 1.
>Size type 3				16 bit granularity
>>Size part 1	MP		Integer(256..1008 by step of 16)	in bits
>>Size part 2	OP		Integer (1..15)	Bits added to size part 1.
>Size type 4				64 bit granularity
>>Size part 1	MP		Integer(1024..4992 by step of 64)	in bits
>>Size part 2	OP		Integer (1..63)	Bits added to size part 1.

10.3.5.4 CPCH set ID

NOTE: Only for FDD.

This information element indicates that this transport channel may use any of the Physical CPCH channels defined in the CPCH set info which contains the same CPCH set ID. The CPCH set ID associates the transport channel with a set of PCPCH channels defined in a CPCH set info IE and a set of CPCH persistency values. The CPCH set info IE(s) and the CPCH persistency values IE(s) each include the CPCH set ID and are part of the SYSTEM INFORMATION message

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CPCH set ID	MP		Integer(1...<maxCPCHsetcount>)	Identifier for CPCH set info and CPCH persistency value messages

Multi Bound	Explanation
MaxCPCHsetcount	Maximum number of CPCH sets per Node B

10.3.5.5 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.6 Deleted UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.7 DL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCCPCH TFCS	OP		Transport Format Combination Set 10.3.5.17	
CHOICE *mode*	OP			
>TDD				
>>Individual DL CCTrCH information	OP	1 to >MaxDLCCTrCHCount>		
>>>DL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>DL DCH TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>DL DCH TFCS	OP		Transport Format Combination Set 10.3.5.17	

Multi Bound	Explanation
MaxDLCCTrCHCount	Maximum number of DL CCTrCHs currently supported by this UE.

10.3.5.8 DRAC Static Information

NOTE: Only for FDD.

Contains static parameters used by the DRAC procedure. Meaning and use is described in subclause 14.6.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission Time Validity	MP		Integer(1..256)	number of frames
Time duration before retry	MP		Integer(1..256)	number of frames
DRAC Class Identity	MP		Enumerated(1..MaxDRACclasses)	Indicates the class of DRAC parameters to use in SIB10 message

Multi Bound	Explanation
MaxDRACclasses	Maximum number of UE classes which would require different DRAC parameters

10.3.5.9 Gain Factor Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Gain Factors*	MP			
>Signalled Gain Factors				The values for gain factors β_c and β_d are signalled directly for a TFC.
>>Gain Factor β_c	MP		Integer (0.. 15)	For DPCCH or control part of PRACH
>>Gain Factor β_d	MP		Integer (0..15)	For DPCCH or data part of PRACH
>>Reference TFC number	OP		Integer (0..15)	If this TFC is a reference TFC, indicates the reference number.
>Computed Gain Factors				The gain factors β_c and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.
>>Reference TFC number	MP		Integer (0.. 15)	Indicates the reference TFC to be used to calculate the gain factors for this TFC.

10.3.5.10 Octet mode RLC size info type1

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Octet mode RLC size*	MP			
>Size type 1				8 bit granularity
>>Size Part 1	MP		Integer (16..264 by step of 8)	
>Size type 2				32 bit granularity
>>Size Part 1	MP		Integer (272..1008 by step of 32)	
>>Size Part 2	OP		Integer (1..3)	Octets added to size part 1.
>Size type 3				64 bit granularity
>>Size Part 1	MP		Integer(1040 ..4944 by step of 64)	
>>Size Part 2	OP		Integer (1..7)	Octets added to size part 1.

10.3.5.11 Octet mode RLC size info type2

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport block size*	MP			
>Size type 1			Integer(48..296 by step of 8)	In bits
>Size type 2			Integer(312..1320 by step of 16)	In bits
>Size type 3			Integer(1384 ..4968 by step of 64)	In bits

10.3.5.12 Predefined TrCH configuration

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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UL Transport channel information common for all transport channels				
Uplink TFCS	OP		Transport formation combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Uplink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	
Added or Reconfigured TrCH information				
Added or Reconfigured UL TrCH information	OP	1 to <MaxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
DL Transport channel information common for all transport channels				
Downlink TFCS	OP		Transport format combination set 10.3.5.17	
CHOICE mode	MP			
>TDD				
>>Downlink TFCS Identity	OP		Transport format combination set identity 10.3.5.18	
Downlink transport channels				
TrCH information	OP	1 to <MaxTrCH>		
>Transport channel identity	MP		Transport channel identity 10.3.5.16	
>TFS	MP		Transport format set 10.3.5.20	
>Quality target			Quality target 10.3.5.13	
>Transparent mode signalling info			Transparent mode signalling info 10.3.5.15	

Multi Bound	Explanation
MaxTrCH	Maximum number of transport channels

10.3.5.13 Quality Target

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER Quality value	MP		~~Enumerated (0,1,..63)~~ Real(0.00 ..1.00, by step of 0.02)	In dB= -Log10(Transport channel BLER) ~~The BLER quality value shall be set in the range 0 ≤ TrCH BLER ≤ 1 in the unit BLER_dB where:~~ ~~BLER_dB_0: TrCH BLER = 0~~ ~~BLER_dB_1: -∞ < Log10(TrCH BLER) < -4.03~~ ~~BLER_dB_2: -4.03 ≤ Log10(TrCH BLER) < -3.965~~ ~~BLER_dB_3: -3.965 ≤ Log10(TrCH BLER) < -3.9 ... BLER_dB_61: -0.195 ≤ Log10(TrCH BLER) < -0.13~~ ~~BLER_dB_62: -0.13 ≤ Log10(TrCH BLER) < -0.065~~ ~~BLER_dB_63: -0.065 ≤ Log10(TrCH BLER) ≤ 0~~

10.3.5.14 Semi-static Transport Format Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission time interval	MP		Integer(10, 20, 40, 80)	In ms
Type of channel coding	MP		Enumerated(No coding, Convolutional, Turbo)	
Coding Rate	CV-Coding		Enumerated(1/2, 1/3)	
Rate matching attribute	MP		Integer(1..maxRM)	
CRC size	MP		Integer(0, 8, 12, 16, 24)	in bits

Multi Bound	Explanation
MaxRM	Maximum number that could be set as rate matching attribute for a transport channel is 256.

Condition	Explanation
Coding	This IE is only present if IE "Type of channel coding" is "Convolutional"

10.3.5.15 Transparent mode signalling info

This information element points out a transport channel that is used for transparent mode signalling, and which type of message that is sent on the DCCH mapped on that channel.

There are two modes of this transparent mode signaling. Mode 1 controls all transport channels for one UE. Mode 2 only control a subset of the transport channels for one UE.

Information Element	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	Transport channel used for transparent mode signalling DCCH
CHOICE *Transparent signalling mode*	MP			
>Mode 1				
>>Message type	MP		Enumerated (TRANSPORT FORMAT COMBINATION CONTROL)	Indicates which type of message sent on the transparent mode signalling DCCH
>Mode 2				
>>Controlled transport channels list	MP	1 to <MaxTrChCount>		The transport channels that are effected by the rate control commands sent on this transparent mode DCCH
>>>Controlled transport channels	MP		Transport channel identity, 10.3.5.16	

10.3.5.16 Transport channel identity

This information element is used to distinguish transport channels (both common and dedicated transport channels).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		~~Enumerated~~Integer(1..64)	

10.3.5.17 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats and the mapping between these allowed TFCs and the corresponding TFCI values.

For FDD, Where the UE is assigned access to one or more DSCH transport channels then the UTRAN has the choice of two methods for signalling the mapping between TFCI(field 2) values and the corresponding TFC:

Method #1 - TFCI range

The mapping is described in terms of a number of groups, each group corresponding to a given transport format combination (value of CTFC_DSCH). The CTFC_DSCH value specified in the first group applies for all values of TFCI(field 2) between 1 and the specified 'Max TFCI(field2) value'. The CTFC_DSCH value specified in the second group applies for all values of TFCI(field 2) between the 'Max TFCI(field2) value' specified in the last group plus one and the specified 'Max TFCI(field2) value' in the second group. The process continues in the same way for the following groups with the TFCI(field 2) value used by the UE in constructing its mapping table starting at the largest value reached in the previous group plus one.

Method #2 - Explicit

The mapping between TFCI(field 2) value and CTFC_DSCH is spelt out explicitly for each value of TFCI (field2).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *DSCH*	MP			
>FDD without access to DSCH assigned or TDD				This choice is made if the UE is not assigned any DSCH transport channels
>>CHOICE TFCS representation	MP			
>>>Complete reconfiguration		1 to MaxTFCcount		
>>>>CTFC	MP		Integer(0..MaxCTFC)	The first instance of the parameter *Transport format combination* corresponds to Transport format combination 0, the second to transport format combination 1 and so on. Integer number calculated according to clause 14.
>>>>Gain Factor Information	MP			
>>>>Power offset P p-m	MP		~~Real~~ Integer (-5..10 ~~by step of 1~~)	In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part)
>>>Removal		1 to MaxDelTFCcount		
>>>>TFCI	MP		Integer(0..MaxTFCIValue)	Removal of TFCI. The integer number(s) is a reference to the transport format combinations to be removed.
>>>Addition		1 to MaxAddTFCcount		
>>>>AddCTFC	MP		Integer(0..MaxCTFC)	Addition of TFCI. The integer number(s) is the calculated transport format combination that is added. The new TFC(s) is inserted into the first available position(s) in the TFCI (counting from zero).
>>>>Gain Factor Information	MP			

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>Power offset P p-m	MP		~~Real~~ Integer (-5..10 ~~by step of 1~~)	In dB. Power offset between the last transmitted preamble and the control part of the message (added to the preamble power to receive the power of the message control part)
>FDD with access to DSCH assigned				This choice is made if the UE is assigned one or more DSCH transport channels
>>Length of TFCI2	MP		Integer (1..9)	This IE indicates the length measured in number of bits of TFCI(field2)
>>Transport format combination_DCH	MP	1 to <MaxTFCI_1_Combs>		The first instance of the parameter *Transport format combination_DCH* corresponds to TFCI (field 1) = 1, the second to TFCI (field 1) = 2 and so on.
>>>CTFC_DCH	MP		Integer(0..MaxCTFC_DCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DSCH transport channels which may be assigned
>>Choice *Signalling method*	MP			
>>>TFCI range				
>>>>TFC mapping on DSCH	MP	1 to <MaxNoTFCIGroups>		
>>>>>Max TFCI(field2) value	MP		Integer(1..512)	This is the Maximum value in the range of TFCI(field2) values for which the specified CTFC_DSCH applies
>>>>>>CTFC_DSCH	MP		Integer(0..MaxCTFC_DSCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned
>>>Explicit				
>>>>Transport format combination_DSCH	MP	1 to <MaxTFCI_2_Combs>		The first instance of the parameter *Transport format combination_DSCH* corresponds to TFCI (field2) = 1, the second to TFCI (field 2) = 2 and so on.
>>>>>CTFC_DSCH	MP		Integer(0..MaxCTFC_DSCH)	Integer number calculated according to clause 14. The calculation of CTFC ignores any DCH transport channels which may be assigned

Multi Bound	Explanation
MaxCTFC	Maximum value number of the CTFC value is calculated according to the following: $\sum_{i=1}^{I}(L_i - 1)P_i$ with the notation according to clause 14.
MaxTFCCount	Maximum number of Transport Format Combinations.
MaxTFCIValue	The max value of the Transport Format Combinations that currently is defined for this UE.
MaxAddTFCIcount	Maximum number of Transport Format Combinations to be added.
MaxDelTFCcount	Maximum number of Transport Format Combinations

Multi Bound	Explanation
	to be removed.
MaxTFCI_1_Combs	Maximum number of TFCI (field 1) combinations (given by 2 raised to the power of the length of the TFCI (field 1))
MaxTFCI_2_Combs	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI (field 2))
MaxNoTFCIGroups	Maximum number of groups, each group described in terms of a range of TFCI(field 2) values for which a single value of CTFC_DSCH applies
MaxCTFC_DCH	Maximum value of CTFC_DCH is calculated according to the following: $\sum_{i=1}^{I}(L_i - 1)P_i$ with the notation according to clause 14 where only the DCH transport channels are taken into account in the calculation.
MaxCTFC_DSCH	Maximum value of CTFC_DSCH is calculated according to the following: $\sum_{i=1}^{I}(L_i - 1)P_i$ with the notation according to clause 14 where only the DSCH transport channels are taken into account in the calculation..

10.3.5.18 Transport Format Combination Set Identity

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFCS ID	MD		~~Enumerated~~ Integer (1...8)	Indicates the identity of every TFCS within a UE. Default value is 1.
Shared Channel Indicator	MP		Boolean	TRUE indicates the use of shared channels.

10.3.5.19 Transport Format Combination Subset

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Subset representation	MP			
>Minimum allowed Transport format combination index	MP		Integer(0..MaxTFCValue-1)	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Allowed transport format combination list	MP	1 to <maxTFCcount>		
>>Allowed transport format combination	MP		Integer(0..MaxTFCValue-1)	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Non-allowed transport format combination list	MP	1 to <MaxTFCcount>		
>>Non-allowed transport format combination	MP		Integer(0..MaxTFCValue)	The integer number is a reference to the *Transport format combination,* which arrived at that position in the *Transport Format Combination Set.*
>Restricted TrCH information	MP	1 to <MaxRstTrCHcount>		
>>Restricted TrCH identity	MP		Integer(0..MaxTrCHValue)	The integer number(s) is a reference to the transport channel that is restricted.
>>Allowed TFIs	OP	1 to <MaxTFcount>		
>>>Allowed TFI	MP		Integer(0..MaxTFValue)	The integer number is a reference to the transport format that is allowed. If no elements are given, all transport formats or the TrCH with non-zero rate are restricted.

Multi Bound	Explanation
MaxTFCcount	Maximum number of Transport Format Combinations that could be sent as the limited set that the UE is allowed to use is 1023.
MaxTFCValue	The max value of the Transport Format Combinations that currently is defined for this UE.
MaxRstTrCHcount	Maximum number of Transport Channels that could be restricted.
MaxTrCHValue	Maximum value of the Transport Channels that currently is defined for this UE.
MaxTFcount	Maximum number of the Transport Formats that is defined.
MaxTFValue	Maximum value of the Transport Formats that is defined.

10.3.5.20 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport channel type*	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..4095)	Note
>>>CHOICE *RLC mode*	OP			
>>>> Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	The RLC entity mapped to this transport channels can generate bit specific RLC PDU sizes
>>>> Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	The RLC entity mapped to this transport channels can only generate octet aligned RLC PDU sizes
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	
>Common transport channels				The transport channel that is configured with this TFS is of a type not equal to DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..4095)	Note
>>>CHOICE mode	MP			
>>>>FDD				
>>>>>Octet mode RLC size info type2	OP		Octet mode RLC size info type2 10.3.5.11	
>>>>TDD				
>>>>>CHOICE *RLC mode*	OP			
>>>>>>Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	
>>>>>>Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	

Multi Bound	Explanation
MaxTFcount	Maximum number of different transport formats that can be included in the Transport format set for one transport channel is 32.

NOTE: The parameter "rate matching attribute" is in line with the RAN WG1 specifications. However, it is not currently in line with the description in 25.302.

NOTE: For dedicated channels, sizes reflect RLC PDU sizes. In FDD for common channels sizes reflect actual TB size. In TDD for common channels since MAC headers are not octet aligned, to calculate TB size the MAC header bit offset is added to the specified size (similar to the dedicated case). Therefore for TDD DCH TrCHs the 4 bit C/T is added if MAC multiplexing is applied, for FACH the 3 bit TCTF offset is added and for RACH the 2 bit TCTF offset is added.

NOTE: If the number of transport blocks <> 0, and Optional IE "CHOICE RLC mode" or "CHOICE Transport block size is absent, it implies that no RLC PDU data exists but only parity bits exist. If the number of transport blocks = 0, it implies that neither RLC PDU data nor parity bits exist.

10.3.5.21 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MD		Transport Format Combination Subset 10.3.5.19	Default value is the complete existing set of transport format combinations
CHOICE *mode*	OP			
>TDD				
>>Individual UL CCTrCH information	OP	1 to <MaxULCCTrCHCount>		
>>>UL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>DL DCH TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>UL DCH TFCS	MP		Transport formation combination set 10.3.5.17	

Multi Bound	Explanation
MaxULCCTrCHCount	Maximum number of UL CCTrCHs currently supported by this UE.

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		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~~Integer(-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
2nd interleaving mode	MD		Enumerated(Frame, Timeslot)	Frame timeslot related interleaving. Default value is "Frame"
TFCI coding	MD		Integer ~~Enumerated~~(4,8,16,32)	Describes the way the TFCI bits are coded in bits~~.~~ Default is no TFCI bit ~~0 TFCI bits are not coded.~~ 4 means 1 TFCI bit is coded with 4 bits 8 means~~.~~ 2 TFCI bits are coded with 8 bits. 16 means 3 – 5 TFCI bits are coded with 16 bits 32 means~~.~~ 6 – 10 TFCI bits are 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 <maxSubChNum>		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~~ Integer (0..11)	
Available CD signatures	OP	1 to <maxSigNum>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		~~Enumerated~~ Integer (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~~ Integer (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 <maxAPSigNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		~~Enumerated~~ Integer (0..15)	
>>>Available AP access slot subchannel	OP	1 to <maxSubChNum>		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~~ Integer (0..11)	
VCAM info	CV-CAA			
> Available Minimum Spreading Factor	MP	1 to <maxSFNum		
>> Minimum Spreading Factor	MP		~~Enumerated~~ Integer (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 <maxAPSigNum>		Signatures for AP preamble in UL.
>>> AP signature			~~Enumerated~~ Integer (0..15)	
>> Available AP sub-channel	OP	1 to < maxAP		AP sub-channels for the given AP signature in UL. Note: if not

		subCH		present, all subchannels are to be used without access delays.
>>> AP sub-channel	MP		~~Enumerated~~ Integer (0..11)	

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

Multi Bound	Explanation
MaxSubChNum	Maximum number of available sub channels (max = 12 subchannels)
MaxCDSigNum	Maximum number of available signatures for CD (max = 16 signatures)
MaxSFNum	Maximum number of available SFs. In case of single code, max=7.
MaxPCPCHs	Maximum number of PCPCH channels in a CPCH Set.
MaxAPSigNum	Maximum number of available signatures for AP (max = 16 signatures)
MaxAPsubCH	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~~Integer(4, 8, 16, 32, 64, 128, 256, 512)	
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE *SF*				
> 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)

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

10.3.6.15 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *mode*	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.45	
>>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
>>>Code number	MP		Integer(0..max CodeNum)	
>>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~~Integer(1~~ slot~~, 2 ~~slot~~)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	CV HO list length	1..<maxCCTrCHcount>		
>>>TFCS Identity	CV HO Needed			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
HO list length	MaxCCTRCHcount is 8 in case of handover, otherwise it is equal to one.
HO presence	The element is only present in case of handover

Multi Bound	Explanation
MaxChancount	Maximum number of channelisation codes used for DL DPCH
MaxCodeNum	Maximum number of codes for one spreading factor (SF) is equal to SF-1.
MaxTimeslotcount	Maximum number of timeslots used for DPCHs = 14
MaxCodesCount	Maximum number of codes for one timeslots = 16
MaxMidambleShift	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 *mode*	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~~Integer(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)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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		Integer(~~Enumerated~~(4, 8,16)	Maximum number of midamble shifts for bursttype 1. Default value is 8.
Midamble burst type 2	MD		Integer(~~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 *signalling method*	MP			
>code range				
>>PDSCH code mapping	MP	1 to <MaxNoCodeGroups>		
>>>Spreading factor	MP		~~Enumerated~~Integer(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>multi-code info	MP		Integer(1..16)	This parameter indicates the number of PDSCH transmitted to the UE. The PDSCH codes all have the same SF as denoted by the 'Spreading factor' parameter. Contiguous codes are assigned, starting at the channelisation code 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)

Information Element/Group name	Need	Multi	Type and reference	Semantics description
				values for which the specified PDSCH code applies
>>>Spreading factor (for PDSCH code)	MP		~~Enumerated~~Integer(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..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 *PDSCH code* corresponds to TFCI (field2) = 0, the second to TFCI(field 2) = 1and so on.
>>>Spreading factor (for PDSCH code)	MP		~~Enumerated~~Integer(4, 8, 16, 32, 64, 128, 256)	At least 1 spare value needed Criticality: reject is needed
>>>Code number (for PDSCH code)	MP		Integer(0..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~~Integer(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
MaxCodeNumComp	Maximum number of codes at the defined spreading factor, within the complete code tree.
MaxTFCI_2_Combs	Maximum number of TFCI (field 2) combinations (given by 2 raised to the power of the length of the TFCI field 2)
MaxNoTFCIGroups	Maximum number of groups, each group described in terms of a range of TFCI(field 2) values for which a single PDSCH code applies.
MaxNoCodeGroups	Maximum number of groups, each group described in terms of a range of PDSCH channelisation code values for which a single spreading factor applies.
MaxReplaceCount	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 <maxTimeslotCount>		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)..(16/16))	

Multi Bound	Explanation
MaxTimeslotcount	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 .. <maxPDSCHcount>		
>PDSCH info	MP		PDSCH info 10.3.6.30	
>DSCH TFS	OP		Transport format set 10.3.5.20	

Multi Bound	Explanation
MaxPDSCHcount	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~~ Real(0.9 ~~..,~~ ~~0.8, 0.7, 0.6, 0.5, 0.4, 0.3,~~ 0.2 by step of –0.1)	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 *mode*	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		Integer ~~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.
>>N_{GAP}	MD		Integer(2, 4, 8)	Number of frames between the last frame carrying PICH for this Paging Occasion and the first frame carrying paging messages for this Paging Occasion. Default value is 4.
>>N_{PCH}	MD		Integer(1 .. 8)	Number of paging groups. Default value is 2.

10.3.6.35 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~~Integer(-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 *mode*	MP			
>FDD				
>>Available Signature	MP	1 to <maxSigNum>		
>>>Signature	MP		~~Enumerated~~ Integer (0~~,1,2,...~~..15)	
>>Available SF	MP		~~Enumerated~~ Integer (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		Integer(~~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
MaxSubChNum	Maximum number of available sub channels = 12
MaxSigNum	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~~ Integer (1..8)	Power step when no acquisition indicator is received in dB
Preamble Retrans Max	MP		Integer (1..64)	Maximum number of preambles in one preamble ramping cycle

10.3.6.39 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	MP		Transport format set 10.3.5.20	
>RACH TFCS	MP		Transport Format Combination Set 10.3.5.17	
>CHOICE *mode*	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 10.3.6.42	
>>>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
MaxPRACHcount	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~~Integer(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~~Integer(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		Integer(~~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 *mode*	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~~Integer(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~~Integer(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~~Integer(-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 <maxTimeslotCount>		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
MaxTimeslotcount	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
MaxPUSCHcount	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		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~~Integer(4, 8, 16, 32, 64, 128, 256)	
>>Code number	MP		Integer(0..Spreading factor - 1)	
>>Pilot symbol existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>TFCI existence	MD		Boolean	TRUE means the existence. Default value is "TRUE"
>>Fixed or Flexible Position	MD		Enumerated (Fixed, Flexible)	Default value is "Flexible"
>>Timing Offset	MD		Integer(~~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 <maxFACHcount>		
>>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
MaxSCCPCHcount	Maximum number of secondary CCPCHs
MaxFACHcount	Maximum number of FACH 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~~Integer(0..255)	

10.3.6.55 Secondary scrambling code

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

10.3.6.56 SSDT cell identity

NOTE: Only for FDD.

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

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

10.3.6.57 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~~ Integer (1, 2)	in bits
Code Word Set	MP		Enumerated (long, medium, short, SSDT off)	

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

10.3.6.58 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~~ Integer (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 DPCCH of a newly added radio link should be soft combined with the others in the TFCI (field 2) combining set. This IE can only be sent when the UE is in CELL_DCH state with a DSCH transport channel assigned and when there is a 'hard' split in the TFCI field (such that TFCI1 and TFCI2 have their own separate block coding).

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

10.3.6.61 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~~ Integer(0..5)	Radio links with the same index have TPC bits, which for the UE are known to be the same.

10.3.6.63 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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~~ Integer (-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 *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number			Integer(0..77 7215 by step of 16)	
>>Number of DPDCH	CV-Single	1 to <maxDPDCHcount>		maxDPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>>DPDCH channelisation code	MP		~~Enumerated~~Integer(4, 8, 16, 32, 64, 128, 256)	SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	CH		Integer (1, 2)	In bits. Number of FBI bits is needed if SSDT or FB Mode Transmit Signalling is supported.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>UL CCTrCH List	CH	1 to <maxULCCTrCHcount>		maxULCCTrCHcount is 1 if not in TDD - TDD handover procedure.
>>>TFCS Identity	MD			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)..(16/1 6))	

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			Integer(0..8191)	Sub-range of values for initial use upon handover to UTRAN.
>>DPDCH channelisation code	MP		~~Enumerated~~Integer(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 *mode*	MP			
>FDD				
>>DPCCH Power offset	MP		~~Enumerated~~Integer(-164,..-6 by step of 2)	In dB
>>PC Preamble	CV		Integer(~~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		Integer(~~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
algo	The IE is mandatory if "Power Control Algorithm" is set to "algorithm 1", otherwise the IE is not needed
HO case	This IE shall be present in the case of handover

Multi Bound	Explanation
TS Count	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 *mode*	MP			
>FDD				
>>DPCCH Power offset	MP		~~Enumerated~~Integer(-164..-6 by step of 2)	In dB
>>PC Preamble	CV		~~Enumerated~~ Integer (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		Integer(~~Enumerated~~ (1~~dB~~, 2~~dB~~)	In dB
>TDD				(no data)

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

10.3.6.69 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

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
MaxAdditionalMeas	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 *mode*	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 *mode*	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 *signalling option*	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>$Qoffset_{s,n}$	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 *mode*	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
>>CPICH Ec/N0	OP		Integer ~~Enumerated~~(-20..0)	In dB
>>CPICH RSCP	OP		Integer ~~Enumerated~~(-115..-40)	In dBm
>>CPICH SIR	OP		Integer ~~Enumerated~~(-10..20)	In dB Note 1
>>Pathloss	OP		Integer ~~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 <maxTStoMEASURE count>		ISCP measurements for each timeslot indicated by the UTRAN
>>>ISCP	OP			

Multi Bound	Explanation
MaxCCTrCHcount	Maximum number of DL CCTrCH allocated to an UE
MaxTSperCCTrCHcount	Maximum number of TS on which a single DL CCTrCH is mapped on
MaxTStoMEASUREcount	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 *mode*	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
MaxCellCount	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 *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.

10.3.7.6 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		Integer~~Enumerated~~(0..9830399)	Number of chip

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE event result	MP			
>Intra-frequency measurement event results			Intra-frequency measurement event results 10.3.7.37	
>Inter-frequency measurement event results			Inter-frequency measurement event results 10.3.7.17	
>Inter-system measurement event results			Inter-system measurement event results 10.3.7.28	For IS-2000 results, include fields of the *Pilot Strength Measurement Message* from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.95	
>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	

CHOICE *event result*	Condition under which the given *event result* is chosen
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-system measurement event results	If measurement type = inter-system measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
LCS measurement event results	If measurement type = LCS measurement

10.3.7.8 FACH measurement occasion info

This IE is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
k_UTRA	MP		DRX cycle length coefficient 10.3.3.9	
Other RAT present in inter-system cell info		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)	

Multi Bound	Explanation
MaxInterRat	Maximum number of other radio access technologies that can be present in the inter-system cell info

10.3.7.9 Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Integer ~~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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Penalty_time	MD		Integer ~~Enumerated~~(0~~not used~~, 10, 20, 30, 40, 50, 60)	Default value is 0 which means~~=~~ not used In seconds
Temporary_offset	CV-*Penalty used*		Integer ~~Enumerated~~(10, 20, 30, 40, 50, 60, 70, infinity)	In seconds

Condition	Explanation
Penalty used	Not allowed if IE Penalty time equals 'not used' else MP

10.3.7.11 HCS neighbouring cell information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q_{HCS}	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information 10.3.7.10	

10.3.7.12 HCS Serving cell information

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q_{HCS}	MD		Integer(0..99)	Default value = 0
T_{CRmax}	MD		Integer ~~Enumerated~~(~~not used~~0, 30, 60, 120, 180, 240)	[s] Default value is 0 which means ~~=~~ not used
N_{CR}	CV-*UE speed detector*		Integer(1..16)	Default value = 8
$T_{CrmaxHyst}$	CV-*UE speed detector*		Integer ~~Enumerated~~(~~not used~~0, 10~~, 20~~..70 by step of 10)	[s] Default value is 0 which means ~~=~~ not used

Condition	Explanation
UE Speed detector	Not allowed if T_{Crmax} equals 'not used' else MP

10.3.7.13 Inter-frequency cell info list

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
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~~Integer(-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
maxNumFreq	Maximum number of frequencies with inter-frequency cells that can be included in a measurement report
maxInterCells	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	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

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	MP	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
MaxFreqCount	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 *reporting criteria*	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement quantity	MP		Intra-frequency measurement quantity 10.3.7.38	
>Inter-frequency reporting criteria				
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>CHOICE *mode*	MP			
>>>FDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(CPICH Ec/N0, CPICH RSCP)	
>>>TDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(Primary CCPCH RSCP)	

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

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

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

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

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

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxEventcount>		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0			
>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		Integer ~~Enumerated~~(1, 2, 4, 8, 16, 32, 64, infinity)	
>Reporting interval	MP		Integer ~~Enumerated~~(0, ~~0.~~250, ~~0.~~500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied. Interval in seconds
>Parameters required for each non-used frequency	OP	1 to <maxNonusedfrequency>		
>>Threshold non used frequency	CV – clause 1			
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	2a,2b, 2d, or 2f, otherwise the IE is not needed
Clause 1	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2^e, otherwise the IE is not needed

Multi Bound	Explanation
maxEventcount	Maximum number of events that can be listed in measurement reporting criteria
maxNonusedfrequency	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	

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
Update	The IE is mandatory if IE"UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

Multi bound	Explanation
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	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 *Radio Access Technology*	MP			At least one spare choice, Criticality: Reject, is needed.
>>GSM				
>>>$Qoffset_{s,n}$	MD		Integer (-50..50)	Default value if the value of the previous $Qoffset_{s,n}$ in the list (NOTE: the first occurrence is then MP)
>>>HCS Neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
>>>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, *Candidate Frequency Neighbor List Message*

Multi Bound	Explanation
MaxInterSysCells	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 <maxInterSys>		
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
MaxInterSys	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	
CHOICE report criteria	MP			
>Inter-system measurement reporting criteria			Inter-system measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

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
MaxCellCount	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 *system*	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
Clause 0	The IE is mandatory if " Inter-system event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-system event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

Multi Bound	Explanation
maxEventcount	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 *system*	MP			At least one spare choice, criticality = reject, required
>GSM				
>>Pathloss	MP		Boolean	
>>Observed time difference to GSM cell	MP		Boolean	
>>GSM Carrier RSSI	MP		Boolean	
>>BSIC	MP		Boolean	

10.3.7.33 Intra-frequency cell info list

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Removed intra-frequency cells	OP	1 .. <MaxIntraCells>		
>Intra-frequency cell id	MP		Integer(0 .. MaxIntraCells>	
New intra-frequency cell	OP	1 to <MaxIntraCells>		
>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
MaxIntraCells	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,1 I,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
MaxIntraCells	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	
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	
>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 *mode*	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(CPICH 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(Primary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP If used in inter-frequency measurement quantity RSSI is not allowed.

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 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, 1h, 1i or 1j.
>Reporting deactivation threshold	CV - clause 3		Integer~~Enumerated(not applicable~~0,	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. 0 means not applicable .
>Replacement activation threshold	CV - clause 4		Integer ~~Enumerated~~(0~~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. 0 means not applicable
>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		Integer ~~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		Integer ~~Enumerated~~(0~~no periodical reporting~~, ~~0.~~250, ~~0.~~500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds 0 means no periodical reporting

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", "1b", "1c", "1d", "1g", "1h", "1i" or "1j", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed

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 *mode*	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^{11})	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^{8})	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^{th} order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1^{st} order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100, 200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..19)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Integer ~~Enumerated~~(1023,1,2 ,3,4,6,8,12,16,24,32,4 8,64,96,128,192)	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 (δi), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <MAX_N_SAT>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>δi	MP		Bit string(16)	
>e	MP		Bit string(16)	
>M_0	MP		Bit string(24)	
>$A^{1/2}$	MP		Bit string(24)	
>$OMEGA_0$	MP		Bit string(24)	
>OMEGADOT	MP		Bit string(16)	
>ω	MP		Bit string(24)	
>af_0	MP		Bit string(11)	
>af_1	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^{11})	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~~Real(-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 μsec/sec (ppm) and a range of ±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 (ΔT)	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_SAT		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 ≤ 1.0 m, 1.0m < UDRE ≤	User Differential Range Error. This field provides an estimate of the uncertainty (1-σ) in the corrections for the particular

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	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 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~~Integer(-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
α_0	MP		Bit string(8)	
α_1	MP		Bit string(8)	
α_2	MP		Bit string(8)	
α_3	MP		Bit string(8)	
β_0	MP		Bit string(8)	
β_1	MP		Bit string(8)	
β_2	MP		Bit string(8)	
β_3	MP		Bit string(8)	

10.3.7.50 LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW	MP		Integer(0..6.047*10^8)	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_SAT>*		
>Satellite ID	MP		Enumerated(0..63)	
>C/N_o	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

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

10.3.7.51 LCS GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
N_SAT	MP		Integer ~~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(1))	
>>>t_{oe}	MP		Bit string(16(1))	
>>>C_{rc}	MP		Bit string(16)	
>>>C_{rs}	MP		Bit string(16)	
>>>C_{ic}	MP		Bit string(16)	
>>>C_{is}	MP		Bit string(16)	
>>>C_{uc}	MP		Bit string(16)	
>>>C_{us}	MP		Bit string(16)	
>>>e	MP		Bit string(32(1))	
>>>M_0	MP		Bit string(32)	
>>>$(A)^{1/2}$	MP		Bit string(32(1))	
>>>Δn	MP		Bit string(16)	
>>>$OMEGA_0$	MP		Bit string(32)	
>>>OMEGAdot	MP		Bit string(24)	
>>>I_0	MP		Bit string(32)	
>>>Idot	MP		Bit string(14)	
>>>ω	MP		Bit string(32)	
>>>t_{oc}	MP		Bit string(16(1))	
>>>Af_0	MP		Bit string(22)	
>>>Af_1	MP		Bit string(16)	
>>>Af_2	MP		Bit string(8)	
>>compressed				Compressed format as defined in 14.11.1
>>>IODE	MP		Bit string(4)	
>>>t_{oe}	MP		Bit string(7)	
>>>C_{rc}	MP		Bit string(12)	
>>>C_{rs}	MP		Bit string(12)	
>>>C_{ic}	MP		Bit string(9)	
>>>C_{is}	MP		Bit string(9)	
>>>C_{uc}	MP		Bit string(11)	
>>>C_{us}	MP		Bit string(11)	
>>>e	MP		Bit string(16)	
>>>M_0	MP		Bit string(22)	
>>>$(A)^{1/2}$	MP		Bit string(13)	
>>>Δn	MP		Bit string(11)	
>>>$OMEGA_0$	MP		Bit string(14)	
>>>OMEGAdot	MP		Bit string(12)	
>>>I_0	MP		Bit string(15)	
>>>Idot	MP		Bit string(11)	
>>>ω	MP		Bit string(21)	
>>>t_{oc}	MP		Bit string(7)	
>>>Af_0	MP		Bit string(7)	
>>>Af_1	MP		Bit string(3)	
>>>Af_2	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
status	Group Included unless status is ES_SN

Multi Bound	Explanation
N_SAT	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
MAX_BAD_N_SAT	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[1] [1])	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_0	MP		Bit string(32)	
A_1	MP		Bit string(24)	
Δt_{LS}	MP		Bit string(8)	
t_{ot}	MP		Bit string(8)	
WN_t	MP		Bit string(8)	
WN_{LSF}	MP		Bit string(8)	
DN	MP		Bit string(8)	
Δt_{LSF}	MP		Bit string(8)	

10.3.7.55 LCS IPDL parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		~~Enumerated~~Integer(5,7,10,15,20,30,40,50)	The IPs are repeated every IP spacing frame.
IP length	MP		~~Enumerated~~Integer(5,10)	The length in symbols of the idle periods
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T_cell defined in 25.402
Seed	MP		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	The frame number where the 1st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.
>Burst Length	MP		Integer(10..25)	Number of Idle Periods in a 'burst' of Idle Periods
>Burst freq	MP		Integer(1..16)	Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.

The function IP_position(x) described below yields the position of the x^{th} Idle Period relative to a) the start of the SFN cycle when continuous mode or b) the start of a burst when in burst mode. The operator "%" denotes the modulo operator. Regardless of mode of operation, the Idle Period pattern is reset at the start of every SFN cycle. Continuous mode can be considered as a specific case of the burst mode with just one burst spanning the whole SFN cycle. Note also that x will be reset to x=1 for the first idle period in a SFN cycle for both continuous and burst modes and will also, in the case of burst mode, be reset for the first Idle Period in every burst.

Max_dev=150-IP length

rand(x)= (106.rand(x-1) + 1283)mod6075,

rand(0)=seed

IP_position(x) = x*IP_spacing*150 + rand(xmod64)modMax_dev+IP_offset

10.3.7.56 LCS measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
LCS Multiple Sets	OP		LCS Multiple Sets 10.3.7.59	
LCS reference cell Identity	OP		Primary CPICH Info 10.3.6.43	
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	
CHOICE reporting criteria	MP			
>LCS reporting criteria			LCS reporting criteria 10.3.7.66	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement
LCS OTDOA assistance data	OP		LCS OTDOA assistance data 10.3.7.60	
LCS GPS assistance data	OP		LCS GPS assistance data 10.3.7.46	

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		Integer ~~Enumerated~~(10, 20, 30, 40, 50, 60,70, infinity~~more~~)	Specifies the maximum size of the search window in chips. Infinity means more
Reference Cell Position	MP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
LCS IPDL parameters	OP		LCS IPDL parameters 10.3.7.55	If this element is not included there are no idle periods present
Cells to measure on	MP	1 to <*MAX NoCells*>		
>SFN-SFN drift	OP		~~Enumerated~~Real(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~~Real(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based In chips
>Cell Position	MD			Default = Same as previous cell
>>Relative North	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative East	MP		Integer(-32767..327676)	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 In chips
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~~Integer(10..320 by step of 10)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	MP		~~Enumerated~~Integer(50..1600 by step of 50)	Std of TOA measurements from the cell
>CPICH Ec/N0				
>>CPICH Ec/N0	MP		Enumerated(<–24, -24 dB ≤ CPICH Ec/No < –23 dB,.. –1 dB ≤ CPICH Ec/No < –0 dB, >=0 dB)	CPICH Ec/N0 for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	MP		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.
Neighbors	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		Integer ~~Enumerated~~(10, 20, 30, 40, 50, 60,70, infinity~~more~~)	Specifies the maximum size of the search window in chips. Infinity means more
Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

10.3.7.64 LCS OTDOA reference cell for assistance data

This IE defines the cell used for time references in all OTDOA measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Primary CPICH info	MP		Primary CPICH info 10.3.6.43	
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^{11})	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
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the LCS reporting quantity and if the method was UE-based GPS

10.3.7.66 LCS reporting criteria

The triggering of the event-triggered reporting for an LCS measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assisted methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <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		Integer ~~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		Integer ~~Enumerated~~(5,15,60,300, 900,1800,3600,7200)	Indicates how often the UE should make the measurement In seconds
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	MP		Integer ~~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		Integer ~~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 *OTDOA/GPS Measurement Information Sets*. The maximum number of measurement sets is three. This is field is mandatory. UE is expected to include the current measurement set.
Environment Characterisation	OP		Enumerated(possibly heavy multipath and NLOS conditions, no or light multipath and usually LOS conditions, not defined or mixed environment)	The first category correspond to e.g. Urban or Bad Urban channels. The second category corresponds to Rural or Suburban channels

Multi Bound	Explanation
N_SAT	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 *mode*	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 *mode*	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
MaxMeasTypeCount	Maximum number of measurement types
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.
MaxIntraCells	Maximum number of intra-frequency cells in a measurement control.
MaxInterCells	Maximum number of inter-frequency cells in a measurement control
MaxInterSysCells	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			

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
Resume	This IE is mandatory if "Resume/Release" = Resume, otherwise the IE is not needed

10.3.7.77 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Real(0.0..4095*3060/(4096*13 by step of 3060/(4096*13))	In ms

10.3.7.78 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Amount of reporting	OP		Integer ~~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~~Integer(~~0.~~250, ~~0.~~500, 1000, 2000, 3000, 4000, 6000, 8000, 12000, 16000, 20000, 24000, 28000, 32000, 64000)	Indicates the interval of periodical report. Interval in milliseconds

10.3.7.79 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.~~1.00, by step of 0.02)	In dB= -Log10(Transport channel BLER)
SIR	OP		Integer(-10..20)	In dB

Multi Bound	Explanation
MaxBLER	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	
CHOICE report criteria	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
MaxBLER	Maximum number of transport channels with BLER measurements that can be included in a measurement report

Condition	Explanation
BLER reporting	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 *accuracy*	MP			
>40 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 40)	In chips
>256 chips				
>>Reference time difference	MP		Integer(0.. 38400 by step of 256)	In chips
>2560 chips				
>>Reference time difference	MP		Integer ~~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 *type*	MP			
>Type 1			Integer ~~Enumerated~~(0..9830399)	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		Integer ~~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
MaxTraf	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	
CHOICE report criteria	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)	

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		Integer ~~Real~~(~~0.~~250, ~~0.~~500, 1000, 2000, 4000, 8000, 16000)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again. Time in milliseconds
Tx interruption after trigger	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)~~Real(0.25, 0.5, 1, 2, 4, 8, 16)~~	Time in milliseconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.
Amount of reporting	OP		~~Enumerated~~Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	Measurement is "released" after the indicated amount of reporting from the UE itself.
Reporting interval	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)~~Real(0, 0.25, 0.5, 1, 2, 4, 8, 16)~~	Interval in milliseconds. Indicates the interval of periodical report during the event is in the detected state.

Multi Bound	Explanation
MaxTrCHcount	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 *mode*	MP			
>FDD				
>>UE Transmitted Power	OP		~~Real~~Integer(-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 <maxUsedUplTScount>		UE transmitted power for each used timeslot (TDD)

Multi Bound	Explanation
MaxUsedRLcount	Maximum number of radio links that can be included in a measurement report for Rx-Tx time difference
MaxUsedUplTScount	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	
CHOICE report criteria	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

CHOICE *report criteria*	Condition under which the given *report criteria* is chosen
UE internal measurement reporting criteria	Chosen when UE internal measurement event triggering is required
Periodical reporting criteria	Chosen when periodical reporting is required
No reporting	Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.104 UE internal measurement event results

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		UE internal event identity 10.3.7.101	
CHOICE *mode*	MP			
>FDD				
>Primary CPICH info	CV - clause 1		Primary CPICH info 10.3.6.43	
>TDD				(no data)

Condition	Explanation
Clause 1	This IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

10.3.7.105 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
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 DPCCH/DPDCH frame transmission and the first significant path, of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference	MP		Integer(876..1172)	In chips. ~~Number of chips.~~

10.3.8 Other Information elements

10.3.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP			
BCCH Modification time	OP		Integer (0..4094 by step of 2)	Even SFN values.

10.3.8.2 BSIC

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Base transceiver Station Identity Code (BSIC)	MP			[TS 23.003]~~GSM TS 03.03~~
>Network Colour Code (NCC)	MP		~~Integer (0..7)~~bit string(3)	
>Base Station Colour Code (BCC)	MP		~~Integer (0..7)~~bit string(3)	

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq 4096 - K$, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

10.3.8.4 Cell Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Value tag	MP		~~Enumerated~~ Integer (1..4)	

10.3.8.5 Inter-System handover failure

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-System handover failure cause	MD		Enumerated(Configuration unacceptable, physical channel failure, protocol error, unspecified)	Default value is "unspecified". At least 3 spare values, criticality = default, are required
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.9	
Inter-System message	OP		Inter-System message 10.3.8.6	

Condition	Explanation
ProtErr	If the IE "Inter-system handover failure cause" has the value "Protocol error"

10.3.8.6 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
System type	MP		Enumerated (GSM, cdma2000)	At least 14 spare values, Criticality: reject, are needed
CHOICE *system*	MP			At least 14 spare choices, Criticality: reject, are needed
>GSM				
>>Message(s)	MP	1..<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to GSM specifications
>cdma2000				
>>cdma2000Message	MP	1..<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bitstring (8)	Formatted and coded according to cdma2000 specifications
>>>cdma2000Messagepayload(s)	MP		Bitstring (1..512)	Formatted and coded according to cdma2000 specifications

Multi Bound	Explanation
MaxInterSysMessages(=4)	Maximum number of Inter System Messages to send

10.3.8.7 MIB Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB Value tag	MP		~~Enumerated~~ Integer (1..8)	

10.3.8.8 PLMN Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Value tag	MP		~~Enumerated~~ Integer (1..256)	

10.3.8.9 Protocol error information

This information element contains diagnostics information returned by the receiver of a message that was not completely understood.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE diagnostics type	MP			At least one spare choice is needed.
> Protocol error cause			Protocol error cause 10.3.3.28	

10.3.8.10 References to other system information blocks

Information element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <MaxSysInfoBlockCount>		
>Scheduling information	MD		Scheduling information, 10.3.8.11	

Multi bound	Explanation
MaxSysInfoBlockCount	Maximum number of references to other system information blocks

10.3.8.11 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP			
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.8	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "PLMN" in table 8.1.1. a value tag is used to indicate changes in the system information block.
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "cell" in table 8.1.1. - a value tag is used to indicate changes in the system information block.
Scheduling	MD			see below for default value
>SEG_COUNT	MD		SEG COUNT 10.3.8.12	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		~~Enumerated~~ Integer (2~~, 4, 6,~~ ..32 by step of 2)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments.
Scheduling	The default value is the scheduling of the SIB as specified in another SIB.

10.3.8.12 SEG COUNT

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SEG_COUNT	MP		Integer (1..16)	Number of segments in the system information block

10.3.8.13 Segment index

Each system information segment has an individual segment index.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Segment index	MP		Integer (0..15)	Segments of a system information block are numbered starting with 0 for the first part.

10.3.8.14 SIB data

Contains the result of the IE 'SIB Content' after segmentation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data	MP		Bit string (1..MaxDataLength)	

Multi Bound	Explanation
MaxDataLength	Maximum length of a BCH- or FACH transport block used for broadcast of system information.

10.3.8.15 SIB type

The SIB type identifies a specific system information block.

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

The list of values to encode is:

Master information block,

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

System Information Type 8,

System Information Type 9,

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 16

in addition, at least 12 spare values, criticality : ignore, are needed.

10.3.9 ANSI-41 Information elements

10.3.9.1 ANSI 41 Core Network Information

Information element	Need	Multi	Type and reference	Semantics description
P_REV	MP		P_REV 10.3.9.9	
MIN_P_REV	MP		MIN_P_REV 10.3.9.7	
SID	MP		SID 10.3.9.10	
NID	MP		NID 10.3.9.8	

10.3.9.2 ANSI-41 Global Service Redirection information

This Information Element contains ANSI-41 Global Service Redirection information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Global Service Redirection information	MP		Bit string ~~(size~~ (1..MaxLength)~~)~~	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.3 ANSI-41 NAS system information

This Information Element contains ANSI-41 system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NAS (ANSI-41) system information	MP		Bit string ~~(size~~ (1..MaxLength)~~)~~	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.4 ANSI-41 Private Neighbor List information

This Information Element contains ANSI-41 Private Neighbor List information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 Private Neighbor List information	MP		Bit string ~~(size~~ (1..MaxLength)~~)~~	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.5 ANSI-41 RAND information

This Information Element contains ANSI-41 RAND information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 RAND information	MP		Bit string ~~(size~~ (1..MaxLength)~~)~~	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.6 ANSI-41 User Zone Identification information

This Information Element contains ANSI-41 User Zone Identification information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
ANSI-41 User Zone Identification information	MP		Bit string ~~(size~~ (1..MaxLength)~~)~~	Formatted and coded according to the 3GPP2 document "G3G CDMA DS on ANSI-41"

10.3.9.7 MIN_P_REV

This Information Element contains minimum protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIN_P_REV	MP			Minimum protocol revision level

10.3.9.8 NID

This Information Element contains Network identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
NID	MP			Network identification

10.3.9.9 P_REV

This Information Element contains protocol revision level.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
P_REV	MP			Protocol revision level

10.3.9.10 SID

This Information Element contains System identification.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SID	MP			System identification

3GPP RAN WG2 Meeting #12
Seoul, Korea, April 10-13 2000

***Document* R2-000926**
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	348	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 13/04/00

Subject: Modification of Cell (Re)Selection Parameters

Work item:

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

Reason for change:
- No values for mapping function parameters have been specified so far.
- Mapping function can be defined over 3 intervals.
- S thresholds for TDD mode need correction.
- CPICH RSCP is used instead of CPICH SIR for cell (re)selection
- Qqualmin and Qrxlevmin are introduced and replace Qmin

Clauses affected: 10.3.2.3, 10.3.2.4, 11.3.2, 10.3.7.2, 10.3.7.23, 11.3.7

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

Other comments:

help.doc

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

10.3.2.3 Cell selection and re-selection info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Mapping Info	MDP		Mapping info 10.3.2.4	Contains mapping function for quality measurements. Default is an implicit mapping: $Q_{map} = Q_{meas,LEV}$, TS 25.304.
CHOICE *mode*	MP			
>FDD				
>>Cell_selection_and_reselection_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCPSIR)	Choice of measurement (CPICH Ec/N0 or CPICH RSCPSIR) to use as quality measure Q. Note 1.
>>$S_{intrasearch}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>$S_{intersearch}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>$S_{searchHCS}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>RAT List	OP	1 to <MaxRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>$S_{search,RAT}$	MP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>>>$S_{HCS,RAT}$	OP		Integer (-32..20 by step of 2)	TS 25.304 [dB]
>TDD				
>>$S_{intrasearch}$	OP		Integer (-120..90105..91 by step of 52)	TS 25.304 [dBm]

>>$S_{intersearch}$	OP		Integer (-~~120..90~~105..91 by step of ~~5~~2)	TS 25.304 [dB~~m~~]
>>$S_{searchHCS}$	OP		Integer (-~~120..90~~105..91 by step of ~~5~~2)	TS 25.304 [dB~~m~~]
>>RAT List	OP	1 to <MaxRAT>		
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)	At least 2 spare values Criticality: reject are needed
>>>$S_{search,RAT}$	~~OP~~MP		Integer (-~~120..90~~105..91by step of ~~5~~2)	TS 25.304 [dB~~m~~]
>>>$S_{HCS,RAT}$	OP		Integer (-~~120..90~~105..91 by step of ~~5~~2)	TS 25.304 [dB~~m~~]
$Qhyst_s$	MP		Real (0..40 by step of 2)	~~[dB]~~
$Treselection_s$	MP		Integer (0..31)	[s]
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12	
Cell Selection and Reselection parameters	OP			Used in Alternative 2 in TS 25.304
>Decoding range	OP			Decoding is done only when the cell measurement exceeds the neighbour cell decoding range.
$>Qoffset_s$	OP			Offset for UEs decoding this cell for cell reselection measurement
>OffsetExp	CV – if Qoffset			Expiration timer for UEs decoding the $Qoffset_s$

~~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

10.3.2.4 Mapping Info

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Mapping List	MP	1 to <MaxRAT>		
>RAT	MP		Enumerated (UTRA FDD, UTRA TDD, GSM, cdma2000)	
>Mapping Function Parameter List	MP	1 to <MaxIntervals>		~~Note 1~~
>> Function type	MP		Enumerated (linear, function type 2, function type 3, function type 4)	Type of the function within the interval. ~~Note 1~~
>>Map_parameter_1	~~MP~~MD		~~Enumerated~~ Integer(0..99~~15~~)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. Default value is zero for the first interval or otherwise the value of Map_parameter_2 of the interval before. ~~Depending on function type and RAT, suitable values can be addressed via this parameter.~~
>>Map_parameter_2	MP		Integer~~Enumerated~~ (0..99~~15~~)	Parameter describing the mapping function between the quality measurement and the representing quality value, see TS 25.304. ~~Depending on function type and RAT, suitable values can be addressed via this parameter.~~
>>Upper_limit	CV - MaxInt		Integer~~Enumerated~~ (1..MaxMeas~~0..15~~)	Upper limit of interval for which the M~~m~~ap_parameter_1 and M~~m~~ap_parameter_2 are valid. MaxMeas = 25 if RAT = UTRA FDD / CPICH Ec/N0, MaxMeas = 91 if RAT = UTRA TDD or if RAT = UTRA FDD/ CPICH RSCP, MaxMeas = 63 if RAT = GSM. ~~Depending on function type and RAT, suitable values can be addressed via this parameter.~~

Multi Bound	Explanation
MaxRAT	Maximum number of Radio Access Technologies / Modes (UTRA FDD, UTRA TDD, GSM) that have to be considered in the neighbour cell measurements. Maximum number is 4.
MaxIntervals	Maximum number of intervals that define the mapping function between the measurement for the cell quality value ~~Q~~ of a cell and the representing quality value. Maximum number is 31. ~~Note 1~~

Condition	Explanation
MaxInt	This information is only sent if Mapping Function Parameter List has not reached MaxIntervals.

~~NOTE 1: More work may be needed for the elaboration of the mapping function parameters. Thus, MaxIntervals can be extended if needed and function types other than linear can be included.~~

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 *mode*	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 *mode*	MP			
>>FDD				
>>>Qqualmin	MD		Integer (-20..0)	Ec/N0, [dB] Default value is Qqualmin for the serving cell
>>>Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>>TDD				
>>> Qrxlevmin	MD		Integer (-115..-25 by step of 2)	RSCP, [dBm] Default value is Qrxlevmin for the serving cell
>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 *signalling option*	MP			
>>Alternative 1				Used when Alternative 1 according to TS 25.304 of how offset parameters should be signalled
>>>Qoffset$_{s,n}$	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	

10.3.7.23 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 *Radio Access Technology*	MP			At least one spare choice, Criticality: Reject, is needed.
>>GSM				
>>>$Qoffset_{s,n}$	MD		Integer (-50..50)	Default value if the value of the previous $Qoffset_{s,n}$ in the list (NOTE: the first occurrence is then MP)
>>>HCS Neighbouring cell information	OP		HCS Neighbouring cell information 10.3.7.11	
>>>Qrxlevmin	MP			
>>>Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.27	
>>> 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, *Candidate Frequency Neighbor List Message*

Multi Bound	Explanation
MaxInterSysCells	Maximum number of Inter-System cells in a inter-system cell info list

11.3.2 UTRAN mobility information elements

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

BEGIN

IMPORTS

    maxIntervals,
    maxRAT,
    maxURAcount
FROM Constant-definitions;

AccessClassBarred ::=               ENUMERATED {
                                        barred, notBarred }

AccessClassBarredList ::=           SEQUENCE (SIZE (16)) OF
                                        AccessClassBarred

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

CellBarred ::=                      CHOICE {
    barred                              T-Barred,
    notBarred                           NULL
}

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

CellSelectQualityMeasure ::=        ENUMERATED {
                                        cpich-Ec-N0, cpich-RSCP~~SIR~~ }

CellSelectReselectInfo ::=          SEQUENCE {
    mappingInfo                         MappingInfo                         OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            cellSelectQualityMeasure            CellSelectQualityMeasure,
            s-Intrasearch                       S-SearchFDD                 OPTIONAL,
            s-Intersearch                       S-SearchFDD                 OPTIONAL,
            s-SearchHCS                         S-SearchFDD                 OPTIONAL,
            rat-List                            RAT-FDD-InfoList            OPTIONAL
        },
        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..9~~9~~15)                   OPTIONAL

MapParameter2 ::=                   INTEGER (0..9~~9~~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
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 {
                                        utra-FDD,
                                        utra-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                      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 * 2+15
S-SearchTDD ::=                     INTEGER (-24..18-53..45)

T-Barred ::=                        INTEGER (0..63)
```

```
T-Reselection-S ::=              INTEGER (0..31)

UpperLimit ::=                   INTEGER (10..MaxMeas15)

URA-Identity ::=                 BIT STRING (SIZE (16))

URA-IdentityList ::=             SEQUENCE (SIZE (1..maxURAcount)) 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,
    maxUsedUplTScount
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 ::=          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                                 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 1,
    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 ::=                    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
        }
```

```
    }
}

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

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 }

Event1a ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList,
    w                                   W,
    hysteresis                          Hysteresis                          OPTIONAL,
    reportDeactivationThreshold         ReportDeactivationThreshold
}

Event1b ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList,
    w                                   W,
    hysteresis                          Hysteresis                          OPTIONAL
}

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

Event2a ::=                         SEQUENCE {
```

```
    usedFreqThreshold               Threshold,
    usedFreqW                       W,
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingAmount                 ReportingAmount,
    reportingInterval               ReportingInterval,
    nonUsedFreqParameterList        NonUsedFreqParameterList        OPTIONAL
}

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

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

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

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

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

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

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

Event3c ::=                         SEQUENCE {
    thresholdOtherSystem            Threshold,
    hysteresis                      Hysteresis,
    timeToTrigger                   TimeToTrigger,
    reportingAmount                 ReportingAmount,
    reportingInterval               ReportingInterval
}

Event3d ::=                         SEQUENCE {
    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-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-1msec ::=                   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               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 ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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                                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 {
    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-TDD           IntraFreqMeasQuantity-TDD
        }
    }
}

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

IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-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 {
                                        ipl5, ipl10 }

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

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

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

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

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-1msec                   GPS-TOW-1msec,
```

```
    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 ::=              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-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    cpich-SIR                           CPICH-SIR,
                    pathloss                            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 ::=       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,
    neignborQuantity                    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
                                        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 (-40..40)


Q-Qualmin-FDD ::=                   INTEGER (-20..0)

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

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

-- Actual value = IE value * 2 - 115
Q-Rxlevmin-FDD ::=                  INTEGER (0..45)


-- Actual value = IE value * 2 - 115
Q-Rxlevmin-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, ri1, ri2, ri4, ri8, ri16 }

ReportingIntervalLong ::=           ENUMERATED {
                                    ril0, ril0-25, ril0-5, ril1,
                                    ril2, ril3, ril4, ril6, ril8,
                                    ril12, ril16, ril20, ril24,
                                    ril28, ril32, ril64 }

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

Resume-Release ::=                  CHOICE {
    resume                          UE-State,
    release                         NULL
}

RL-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 ::=                            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                 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                        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
}

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-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxTraf)) 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 ::=                 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,
                                        utra-Carrier-RSSI,
                                        ue-RX-TX-TimeDifference }

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

UE-RX-TX-ReportEntryList ::=        SEQUENCE (SIZE (1..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
```

3GPP TSG RAN WG2#13
Hawaii, USA, 22-26 May 2000

Document R2-001164
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	350r1	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: *list expected approval meeting # here ↑*		for approval	X	strategic		*(for SMG use only)*
		for information		non-strategic		

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

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

Source: Telelogic AB **Date:** 2000-05-16

Subject: GPS time-of-week represented as milliseconds and fractions of milliseconds

Work item: 6.11

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

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	X		Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change:

In some parts of the RRC standard, GPS time-of-week measured in microseconds is represented as an integer number, the range of which exceeds 32 bit integers. In other parts of the RRC standard, GPS microsecond time-of-week is represented as two numbers, time-of-week in milliseconds and an (optional) fraction part to increase resolution to microseconds. Both numbers are within a 32 bit value range.

The handling of numbers larger than 32 bits frequently causes problems for tools currently in use, specifically for compilers and runtime systems on the UE side. Representing microsecond time-of-week consistently as two numbers, milliseconds and fractions of milliseconds, removes these problems. Changing to a consistent two-number representation is a good technical solution in its own right, and need not be seen as a concession to external considerations that ought not, in principle, to influence the standard.

The upper limits for time-of-week constants were frequently one too large, this is also corrected.

Clauses affected: 10.3.7.44, 10.3.7.47, 10.3.7.50, 10.3.7.53, 10.3.7.65, 11.3.7

Other specs affected:

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

Other comments:

In principle, suppliers of compilers and libraries should handle arbitrarily large numbers, without sacrificing efficiency for small numbers. In practice, this will not be the case in time for Release'00 implementations, if ever.

help.doc

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

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 Time of Week counted in microseconds, given as GPS TOW in milliseconds and GPS TOW remainder in microseconds. UTRAN reference time = 1000 * GPS TOW msec + GPS TOW rem usec
>>GPS TOW msec	MP		Integer(0..6.048~~7~~*10^8^ ~~11~~-1)	GPS Time of Week in milliseconds ~~with scaling factor of 1 usec~~(rounded down to the nearest millisecond unit).
>>GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
>>SFN	MP		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	MP		Integer(0..6.048~~7~~*10^8^ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).~~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^th^ order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1^st^ order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100, 200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..19)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Enumerated(1023,1,2 ,3,4,6,8,12,16,24,32,4 8,64,96,128,192)	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

10.3.7.47 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..6.048~~7~~*10^8^ ~~11~~-1)	GPS Time of Week ~~with scaling factor of 1 usec~~rounded down to the nearest millisecond unit. This field time-stamps the start of the frame with SFN=0. GPS Time of Week in microseconds = 1000 * Reference GPS TOW + GPS TOW rem usec
GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
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 µsec/sec (ppm) and a range of ±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 (ΔT)	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_SAT		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

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
				ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	MP		Enumerated(UDRE ≤ 1.0 m, 1.0m < UDRE ≤ 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 Status field to determine the final UDRE estimate for the particular 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

10.3.7.50 LCS GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	MP		Integer(0..6.048~~7~~*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit)~~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 Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW ~~high resolution~~rem usec	CV-capability and request		Integer(0..999)	~~Gives higher resolution of the previous field~~ GPS Time of Week in microseconds MOD 1000.
Measurement Parameters	MP	*1 to <MAX_N_SAT>*		
>Satellite ID	MP		Enumerated(0..63)	
>C/N_o	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

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

10.3.7.53 LCS GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW msec	MP		Integer(0..6.048~~7~~*10^11 -1)	GPS Time of Week- in milliseconds (rounded down to the nearest millisecond unit).~~with scaling factor of 1 usec~~ GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
SFN	MP		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	OP	1 to <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

10.3.7.65 LCS position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	CV-Capability and request		Integer(0..6.048~~7~~*10^9^-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit)~~with scaling factor of 1 usec~~. This time-stamps the beginning of the frame defined in Reference SFN GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	CV-Capability and request		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
Position estimate	MP		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the LCS reporting quantity and if the method was UE-based GPS

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,
    maxUsedUplTScount
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 ::=          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                                 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 1,
    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 ::=                    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
        }
    }
}

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

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 }

Event1a ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList,
    w                                   W,
    hysteresis                          Hysteresis                          OPTIONAL,
```

```
    reportDeactivationThreshold         ReportDeactivationThreshold
}

Event1b ::=                             SEQUENCE {
    triggeringCondition                     TriggeringCondition,
    reportingRange                          ReportingRange,
    forbiddenAffectCellList                 ForbiddenAffectCellList,
    w                                       W,
    hysteresis                              Hysteresis                          OPTIONAL
}

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

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

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

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

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

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

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

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

```
}

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

Event3c ::=                         SEQUENCE {
    thresholdOtherSystem                Threshold,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval
}

Event3d ::=                         SEQUENCE {
    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-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-1msec ::=                   INTEGER (0..604799999700000)

GPS-TOW-1usec ::=                   SEQUENCE {
    tow-1msec                           GPS-TOW-1msec,
    tow-rem-usec                        GPS-TOW-rem-usec
}

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

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

GPS-TOW-rem-usecHighResolution ::=          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               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 ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}
```

```
InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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                                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 {
    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-TDD       IntraFreqMeasQuantity-TDD
        }
    }
}

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

IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-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 {
                                        ipl5, ipl10 }

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

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

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

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

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..604799999700000)
    },
    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-1msec                       GPS-TOW-1msec,
    gps-TOW-HighResolutionrem-usec              GPS-TOW-HighResolutionrem-usec
    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                             GPS-TOW-1usecINTEGER (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                             GPS-TOW-1usecINTEGER (0..604700000000),
    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-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    cpich-SIR                           CPICH-SIR,
                    pathloss                            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 ::=       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,
    neignborQuantity                    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
                                        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 (-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 ::=                GPS-TOW-1usecINTEGER (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, ri1, ri2, ri4, ri8, ri16 }

ReportingIntervalLong ::=           ENUMERATED {
                                        ril0, ril0-25, ril0-5, ril1,
                                        ril2, ril3, ril4, ril6, ril8,
                                        ril12, ril16, ril20, ril24,
                                        ril28, ril32, ril64 }

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

Resume-Release ::=                  CHOICE {
    resume                              UE-State,
    release                             NULL
}

RL-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 ::=                            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                     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                            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
}

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-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxTraf)) 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 ::=                 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,
                                        utra-Carrier-RSSI,
                                        ue-RX-TX-TimeDifference }

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

UE-RX-TX-ReportEntryList ::=        SEQUENCE (SIZE (1..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                             GPS-TOW-1usec~~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
```

3GPP TSG-RAN WG2 Meeting #13
Kapolei, HI, USA, 22-26 May, 2000

Document R2-001261
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	351r2	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 25 May, 2000

Subject: CPCH corrections

Work item:

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

The following corrections are included in the attached CR:

1. Like DCH, the UE requires a parameter for CPCH which indicates the PC algorithm and PC step size; power control algorithm and step size are added to CPCH parameter list.
2. PCPCH reference is added to open loop power control procedure.
3. Based on decision at R1#11, CPCH Power Control Preamble(PCP) Slot format is not needed since the PCP slot format will be the same as that for the UL DPCCH in the message part which follows the PCP; PCP slot format is deleted.
4. Based on decision at R1#11, a single slot format is used for DL DPCCH for CPCH; the DL DPCCH parameter is removed from CPCH set info
5. Scrambling code range for AP Preamble, CD Preamble and UL DPCCH are corrected to (0..79).
6. Scrambling code IEs for AP-Aich, CD/CA-ICH and DL DPCCH are corrected to MD with optional secondary scrambling code parameter.
7. Nesting levels are corrected in UCSM and VCAM information blocks.
8. VCAM mapping rule is clarified.
9. Delta UL transmit power from CD Preamble to message part (DeltaPp-m) is added to CPCH set info.

10. CSICH power offset is added to SIB Type 6.

Clauses affected: 8.5.9, 10.3.3.6, 10.3.6, 11.3.3, 11.3.4, 11.3.6, 11.3.8, 14.11

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:

help.doc

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

8.5.9 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall calculate the power for the first preamble as:

Preamble_Initial_Power = Primary CPICH DL TX power – CPICH_RSCP + UL interference + Constant Value

Where

Primary CPICH DL TX power shall have the value of IE "Primary CPICH DL TX power",

UL interference shall have the value of IE "UL interference"; and

Constant Value shall have the value of IE "Constant Value".

The IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" shall be read on system information in system information block 6 and system information block 7.

The value for the CPICH_RSCP shall be measured by the UE.

As long as the physical layer is configured for PRACH or PCPCH transmission, the UE shall continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes. The new Preamble_Initial_Power shall then be resubmitted to the physical layer.

For TDD the UE shall calculate the UL transmit power according to the following formulas for the PRACH, DPCH and USCH continuously while the physical channel is active:

$P_{PRACH} = L_{PCCPCH} + I_{BTS}$ + RACH Constant value

And for uplink dedicated physical channels:

$P_{DPCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET}$ + DPCH Constant value

And for uplink shared physical channels:

$P_{USCH} = \alpha L_{PCCPCH} + (1-\alpha)L_0 + I_{BTS} + SIR_{TARGET}$ + USCH Constant value

Where:

P_{PRACH}, P_{DPCH}, & P_{USCH}: Transmitter power level in dBm,

L_{PCCPCH}: Measure representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in system information block 14).

L_0: Long term average of path loss in dB

I_{BTS}: Interference signal power level at cell's receiver in dBm ("UL Interference" is broadcast on BCH in system information block 14 for each active uplink timeslot).

α: α is a weighting parameter, which represents the quality of path loss measurements. α may be a function of the time delay between the uplink time slot and the most recent down link PCCPCH time slot. α is calculated at the UE.

SIR_{TARGET}: Target SNR in dB. This value is individually signaled to UEs in UL DPCH Power Control Info and PUSCH Power Control Info IEs.

RACH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

DPCH Constant value: This value is broadcast on BCH and shall be read on system information block 14.

USCH Constant Value: This value is broadcast on BCH and shall be read on system information block 14.

10.2.49.4.8 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	
PhyCH information elements				
Frequency info	OP		Frequency info 10.3.6.24	
Maximum allowed UL TX power	OP		Maximum allowed UL TX power 10.3.6.27	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.41	Note 1
CHOICE *mode*	MP			
>FDD				
>>PICH Power offset	MP		PICH Power offset 10.3.6.35	
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>>CSICH Power offset	OP		CSICH Power offset 10.3.6.X	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.48	
>>PDSCH system information	OP		PDSCH system information 10.3.6.31	
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

10.3.3.6 CPCH Parameters

NOTE: Only for FDD.

These parameters are used by any UE using any CPCH set allocated to the Node B that is broadcasting this system information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Initial Priority Delay	OP	8		Initial delays for ASC priority.
>NS_{IP}	MP		Integer (0…28)	Number of slots for initial fixed delay for each ASC priority level
Backoff control parameters	MP			
>$N_{ap\_retrans\_max}$	MP		Integer (1…64)	Max number of AP transmissions without AP-AICH response, a PHY parameter.
>N_{access_fails}	MP		Integer (1…64)	Max number of preamble ramping cycles when NAK response received, a MAC parameter.
>$NF_{bo\_no\ aich}$	MP		Integer (0…31)	Number of frames for UE backoff after $N_{ap\_retrans\_max}$ unsuccessful AP access attempts, a MAC parameter.
>NS_{bo_busy}	MP		Integer (0…63)	Number of slots for UE fixed backoff after access attempt to busy CPCH, a MAC parameter.
>$NF_{bo\_all\_busy}$	MP		Integer (0…31)	Max number of frames for UE backoff after access attempt to last busy CPCH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_all_busy)
>$NF_{bo\_\ mismatch}$	MP		Integer (0…127)	Max number of frames for the UE backoff after received mismatch on CD/CA-ICH, a MAC parameter. UE randomly selects backoff value from range (0..NF_bo_mismatch)
>T_{CPCH}	MP		Enumerated (0, 1)	CPCH channel timing used to determine Tau, a PHY parameter
Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
TPC step size	CV algo		Integer (1, 2)	In dB

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

10.3.6.X CSICH Power offset

NOTE: Only for FDD.

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

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

10.3.6.11 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..79~~255~~)	Preamble scrambling code for AP in UL
AP-AICH scrambling code	M~~DP~~		~~Integer (0..255)~~Secondary Scrambling Code 10.3.6.55	Default is the same scrambling code as for the primary CPICH.~~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..79~~255~~)	Preamble scrambling code for CD in UL
CD/CA-ICH scrambling code	M~~DP~~		~~Integer (0..255)~~Secondary Scrambling Code 10.3.6.55	Default is the same scrambling code as for the primary CPICH.~~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 <maxSubChNum>		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 <maxSigNum>		Signatures for CD preamble in UL. Note: if not present, all signatures are available for use.
>CD signatures	MP		Enumerated (0..15)	
DeltaPp-m	MP		Integer (-10..10)	In dB. Power offset between the transmitted CD preamble and UL DPCCH of the power control preamble or message part (added to the preamble power to calculate the power of the UL DPCCH)
~~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 in power control preamble and in message part
~~>DL DPCCH Slot Format~~	~~MP~~		~~Enumerated~~	~~Slot format for DL DPCCH~~

			~~(0, 1)~~	
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 VCAM mapping rule (14.11) shall be used.
CPCH status indication mode	MP		Enumerated (PCPCH availability, PCPCH availability and minimum available Spreading Factor)	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)
PCPCH Channel Info.	MP	1 to <maxPCPCHs>		
> UL scrambling code	MP		Integer (0..79~~255~~)	For PCPCH message part
> DL channelisation code	MP		Integer (0…511)	For DL DPCCH for~~in~~ PCPCH message part
> DL scrambling code	MD~~OP~~		~~Integer (0…255)~~Secondary Scrambling Code 10.3.6.55	Default is the same scrambling code as for the primary CPICH.~~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)	The UE may use this PCPCH at any Spreading Factor equal to or greater than the indicated minimum Spreading Factor. The Spreading Factor for initial access is the minimum Spreading Factor.
>> NF_max	MP		Integer (1…64)	Maximum number of frames for PCPCH message part
>> Channel request parameters for UCSM	MP~~OP~~	~~1 to <maxSigNum>~~		Required in UE channel selection mode.
>>>Available AP signature	MP	1 to <maxAPSigNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Enumerated (0..15)	
>>>Available AP access slot subchannel	OP	1 to <maxSubChNum>		Lists the set of subchannels to be used for AP access preambles in combination with

				the above AP signature(s). Note: if not present, all subchannels are to be used without access delays.
>>>> AP access slot subchannel	MP		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 <maxAPSigNum>		Signatures for AP preamble in UL.
>>> AP signature			Enumerated (0..15)	
>>> Available AP sub-channel	OP	1 to < maxAP subCH		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
CDSigPresent	This IE may be included if IE "Available CD signatures" is present.
NCAA	This IE is included if IE "Channel Assignment Active" is not present
CAA	This IE is included if IE ""Channel Assignment Active" is present.

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

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

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,
    powerControlAlgorithm               PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
}

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 ::=                  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 {
                                        rl1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=        ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=        ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }

-- TABULAR: Used range in Release99 is 1..224
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 ::=                    CHOICE {
    cn-Page                         SEQUENCE {
        pagingCause                     PagingCause,
        cn-DomainIdentity               CN-DomainIdentity,
        cn-pagedUE-Identity             CN-PagedUE-Identity
    },
    utran-Page                      SEQUENCE {
        u-RNTI                          U-RNTI
    }
}

PagingRecordList ::=                SEQUENCE (SIZE (1..pageCount)) OF
```

```
                                        PagingRecord

PDCP-Capability ::=                 SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportedHC-AlgoTypeList            SupportedHC-AlgoTypeList
}

PhysicalChannelCapability ::=       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityFDD,
            uplinkPhysChCapability              UL-PhysChCapabilityFDD
        },
        tdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityTDD,
            uplinkPhysChCapability              UL-PhysChCapabilityTDD
        }
    }
}

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 ::=           SEQUENCE {
    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, s10, s20, s30, s60,
                                        s180, s600, s1200, s1800 }

T-315 ::=                           ENUMERATED {
                                        s0, s50, s100, s200, s400,
                                        s600, s800, s1000 }

T-CPCH ::=                          ENUMERATED {
                                        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=            SEQUENCE {
    tmsi                                TMSI-GSM-MAP,
    lai                                 LAI
}

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

TotalRLC-AM-BufferSize ::=          ENUMERATED {
                                        kb2, kb10, kb50, kb100,
                                        kb150, kb500, kb1000,
                                        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=         INTEGER (1..8)

TransportChannelCapability ::=      SEQUENCE {
    dl-TransChCapability                DL-TransChCapability,
    ul-TransChCapability                UL-TransChCapability
}

TurboSupport ::=                    CHOICE {
    notSupported                        NULL,
    supported                           MaxNoBits
}

TxRxFrequencySeparation ::=         ENUMERATED {
                                        mhz190, mhz174-8-205-2,
                                        mhz134-8-245-2, spare1 }

U-RNTI ::=                          SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI                              S-RNTI
```

```
}

U-RNTI-Short ::=                    SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI-2                            S-RNTI-2
}

UE-ConnTimersAndConstants ::=       SEQUENCE {
    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 ::=      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?
    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           BOOLEAN,
    pdcp-PDU-Header                     PDCP-PDU-Header                     OPTIONAL,
    headerCompressionInfoList           HeaderCompressionInfoList           OPTIONAL
}

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

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

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

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

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

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

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

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

UL-LogicalChannelMapping ::=        SEQUENCE {
    ul-TransportChannelType             UL-TransportChannelType,
    transportChannelIdentity            TransportChannelIdentity        OPTIONAL,
    logicalChannelIdentity              LogicalChannelIdentity          OPTIONAL,
    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
```

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..79255)

AP-Signature ::=                    INTEGER (0..15)

AP-Signature-VCAM ::=                       SEQUENCE {
    ap-Signature                        AP-Signature,
    availableAP-SubchannelList          AvailableAP-SubchannelList          OPTIONAL
}

AP-Subchannel ::=                   INTEGER (0..11)

ASC ::=                             SEQUENCE {
    accessServiceClass                  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-Signature-VCAMList ::=      SEQUENCE (SIZE (1..maxAP-SigNum)) OF
                                        AP-Signature-VCAM

AvailableAP-SubchannelList ::=      SEQUENCE (SIZE (1..maxAP-SubCH)) OF
                                        AP-Subchannel

AvailableMinimumSF-VCAM ::=         SEQUENCE {
    minimumSpreadingFactor              MinimumSpreadingFactor,
```

```
    nf-Max                              NF-Max,
    maxAvailablePCPCH-Number            MaxAvailablePCPCH-Number,
    availableAP-Signature_VCAMList          AvailableAP-Signature-VCAMList,
    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..79255)

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          OPTIONAL
}

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              SecondaryScramblingCode             OPTIONALAP-AICH-
ScramblingCode,
    ap-AICH-ChannelisationCode          AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode           CD-PreambleScramblingCode,
    cd-CA-ICH-ScramblingCode            SecondaryScramblingCode             OPTIONALCD-CA-ICH-
ScramblingCode,
    cd-CA-ICH-ChannelisationCode        CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList         CD-AccessSlotSubchannelList         OPTIONAL,
    cd-SignatureCodeList                CD-SignatureCodeList                OPTIONAL,
    deltaPp-m                           DeltaPp-m,
    ul-DPCCH-SlotFormat                 UL-DPCCH-SlotFormat,
    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 }

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

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

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

-- Actual value = IE value * 0.5
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,
    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                   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                                     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)

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                   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..79255),
    pcpch-DL-ChannelisationCode         INTEGER (0..511),
    pcpch-DL-ScramblingCode             SecondaryScramblingCode             OPTIONAL 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                          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              OPTIONAL
        }
    }
}

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                                 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-mode1 }

PuncturingLimit ::=                 ENUMERATED {
                                        pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                        pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                        pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }

PUSCH-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 {
                                        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 {
                                    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 ::=                    INTEGER (0..1)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,
    minimumSpreadingFactor              MinimumSpreadingFactor,
    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 {
        dpcch-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
        }                                                                   OPTIONAL
    }
}

UL-DPCH-PowerControlInfoHO ::=      CHOICE {
    fdd                                 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
```

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 ::=                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                            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 ::=                    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,
```

```
                csich-PowerOffset               CSICH-PowerOffset           OPTIONAL
            },
            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
```

14.11 Versatile Channel Assignment Mode (VCAM) mapping rule (FDD only)

When Versatile Channel Assignment Method (VCAM) is used in the CPCH procedure, the following mapping rules shall be used to specify one PCPCH.

If the number of PCPCHs is less than or equal to 16, there is a one to one mapping between the CA index and the PCPCH index. Thus a suitable AP signature (and/or AP sub-channel) number is transmitted for the required spreading factor based on the broadcast system information, and the assigned PCPCH index (having the requested spreading factor) corresponds to the received CA index.

When the number of PCPCHs is greater than 16, a combination of an AP signature (and/or AP sub-channel) number and a CA signature number specifies one PCPCH as follows:

In VCAM mapping rule, a combination of an AP signature (and/or AP sub-channel) number and a CA signature number specifies one PCPCH. In a CPCH set, there are K available PCPCHs which are numbered k=0,1,…, K-1, and there are R available Minimum Spreading Factor A_r, r=0,1,…,R-1, that a UE can request and use. The maximum available number of PCPCHs and the number of available AP signatures (and/or AP sub-channels) for A_r are denoted as $P0_r$ ~~P_r~~ and S_r, respectively, for r=0,1,…,R-1. Let P_r be equal to 16 if $P0_r$ is less than 16 and to $P0_r$ otherwise. T_r ~~T_r~~ represents the number of CA signatures for A_r which are needed for specifying PCPCH. The default value of T_r ~~T_r~~ is 16.

S_r always satisfies $S_r \geq \min\{s : s \times T_r \geq P_r\}$. :

The list of available AP signatures (and/or AP sub-channels) for each A_r is renumbered from signature index 0 to signature index S_r -1, starting with the lowest AP signature (and/or AP sub-channel) number, and continuing in sequence, in the order of increasing signature numbers.

Then for given AP signature (and/or AP sub-channel) number and CA signature number, the number k that signifies the assigned PCPCH is obtained as:

$$k = \{[(i+n) \bmod S_r] + j\, S_r\} \bmod P_r,$$

where i (i=0,1,…,S_r-1) is the AP signature (and/or AP sub-channel) index for A_r, j (j=0,1,…,min(P_r,T_r)-1) is the CA signature number for A_r and n is a nonnegative integer which satisfies

$$n M_r S_r \leq i + j S_r < (n+1) M_r S_r \text{ where } M_r = \min\{m : (m S_r) \bmod P_r = 0\}.$$

An example of the above mapping rule is shown in subclause 18.1.

3GPP TSG RAN WG2#13
Oahu, HI, USA, May 22th-26th, 2000

***Document* R2-001012**
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	352	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-22

Subject: PLMN type selection

Work item:

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

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	X		Release 99	X
				Release 00	

Reason for change: Some RRC procedures depend on which PLMN type that is selected (GSM-MAP or ANSI-41). How the PLMN type is selected is specified in TS 25.304. This CR includes text for setting the value of the variable SELECTED_PLMN as a reference to TS 25.304.

Clauses affected: 8.5.15 (new)

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.

8.5.14 Mapping of Access Classes to Access Service Classes

Access Classes shall only be applied at initial access, i.e. when sending an RRC CONNECTION REQUEST message. A mapping between Access Class (AC) and Access Service Class (ASC) shall be indicated by the information element "AC-to-ASC mapping" in SIB 5. The correspondence between AC and ASC shall be indicated as follows.

AC	**0 - 9**	**10**	**11**	**12**	**13**	**14**	**15**
ASC	1st IE	2nd IE	3rd IE	4th IE	5th IE	6th IE	7th IE

In the table, "n^{th} IE" designates an ASC number *i* in the range 0 - 7 to AC.

For the random access, the parameters implied by the respective ASC shall be employed. In case the UE is member of several ACs it shall select the ASC for the highest AC number. In connected mode, AC shall not be applied.

8.5.15 PLMN Type Selection

The UE shall perform PLMN selection and reselection as stated in 3G TS 25.304 and store the identifier of the chosen PLMN in the variable SELECTED_PLMN as follows:

- If a GSM-MAP type of PLMN is selected, the UE shall set the “PLMN Type” in the variable SELECTED_PLMN to “GSM-MAP”and store the PLMN identity of that PLMN.
- If a ANSI-41 type of PLMN is selected, the UE shall set the “PLMN Type” in the variable SELECTED_PLMN to “ANSI-41” and store the System identification (SID) of that PLMN.

3GPP RAN WG2#13
Oahu, Hawaii, May 22nd to 26th, 2000

***Document* R2-001290**
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	353r3	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	strategic		*(for SMG use only)*
for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-22

Subject: Paging and Establishment cause values

Work item:

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The following changes are proposed:
- Change of cause values to align with QoS classes in 23.107

Clauses affected: 8.1.2.3, 8.1.3.2, 10.3.3.11, 10.3.3.24, 10.3.3.25, 11.2, 11.3.3

Other specs affected:

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

Other comments:


help.doc

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

8.1.2 Paging

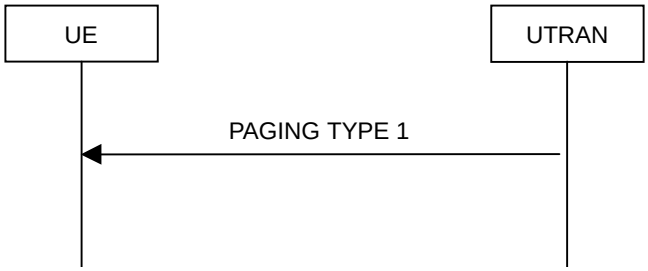

Figure 5: Paging

8.1.2.1 General

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

8.1.2.2 Initiation

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

UTRAN may repeat paging of a UE in several paging occasions to increase the probability of proper reception of a page.

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

UTRAN shall not set more than one IE "Paging record" for same UE in one PAGING TYPE 1 message.

8.1.2.3 Reception of an PAGING TYPE 1 message by the UE

The UE shall in idle mode, CELL_PCH state and URA_PCH state receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in 8.5.7.1.1. For an UE in CELL_PCH state and URA_PCH state the paging occasions depend also on the IE "UTRAN DRX Cycle length coefficient" and the IE "DRX indicator", as specified in subclauses 8.5.7.3.2 and 8.5.7.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall check each occurrence of the IE "Paging record"

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

An idle mode UE shall:

- if the IE "paging originator" is CN, compare the included identities of type CN UE identity with all of its allocated CN UE identities.
- for each match, forward the identity and paging cause to the upper layer entity indicated by the IE "CN domain identity".
- ~~store the paging cause to be included in the RRC connection establishment procedure.~~
- if the IE "paging originator" is UTRAN, ignore that paging record.

A connected mode UE shall;

- if the IE "paging originator" is UTRAN, compare the included identities of type " Connected mode identity" with its allocated U-RNTI.
- for each match,, the UE shall enter CELL_FACH state and perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.
- if the IE "paging originator" is CN, ignore that paging record.

If the IE "BCCH modification info" is included, the UE shall perform the actions as specified in subclause 8.1.1

***** Next modified section *****

8.1.3 RRC connection establishment

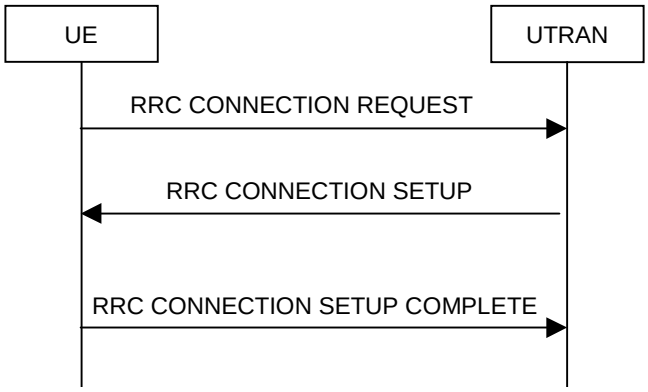

Figure 6: RRC Connection Establishment, network accepts RRC connection

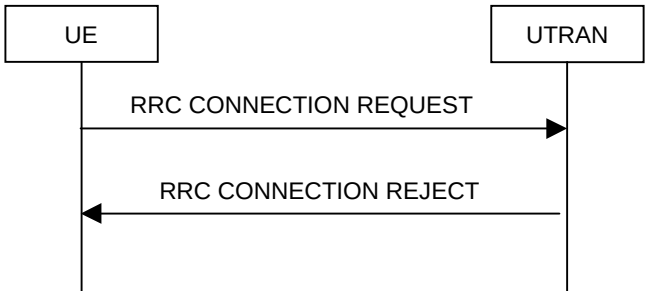

Figure 7: RRC Connection Establishment, network rejects RRC connection

8.1.3.1 General

The purpose with this procedure is to establish an RRC connection.

8.1.3.2 Initiation

The non-access stratum in the UE may request the establishment of at most one RRC connection per UE.

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

The UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH, reset counter V300, and start timer T300.

The UE shall perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.14, and shall apply the given Access Service Class when accessing the RACH.

The UE shall set the IE "Establishment cause" according to indications from the upper layers.~~non-access stratum or according to the paging cause received from the PAGING TYPE 1 message.~~

The UE shall set the IE "Initial UE identity" according to subclause 8.5.1.

The UE shall indicate its capability in the IE "Initial UE capability".

The UE shall set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR.

The UE shall include a measurement report, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 11.

***** Next modified section *****

10.2.17 PAGING TYPE 2

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
Paging cause	MP		Paging cause 10.3.3.24	
CN Information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
Paging Record Type Identifier	MP		Paging Record Type Identifier 10.3.1.10	

***** Next modified section *****

10.3.3.11 Establishment cause

Cause for an RRC connection establishment request.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Establishment cause	MP		Enumerated(Originating Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call, ~~Originating Speech Call,~~ ~~Originating CS Data Call,~~ ~~Originating PS Data Call,~~ Terminating ~~Speech~~ Conversational Call, Terminating ~~CS Data~~Streaming Call, Terminating ~~PS Data~~Interactive Call, Terminating Background Call, Emergency Call, Inter-system cell re-selection, Registration, ~~Location Update (LAU & RAU),~~ ~~IMSI~~ Detach, SMS, Call re-establishment~~,~~ ~~unspecified~~)	At least ~~3~~ 18 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

***** Next modified section *****

10.3.3.24 Paging cause

Cause for a CN originated page.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Paging cause	MP		Enumerated(Terminating ~~Speech~~ Conversational Call, Terminating ~~CS Data~~Streaming Call, Terminating ~~PS Data~~Interactive Call, Terminating Background Call, SMS~~,~~ ~~Unspecified~~)	At least 3 spare values, Criticality: reject, are needed

NOTE: These causes shall be aligned with causes received from higher layers.

10.3.3.25 Paging record

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Paging originator	MP			
> CN originator				
>> Paging cause	MP		Paging cause 10.3.3.24	
>> CN domain identity	MP		CN domain identity 10.3.1.1	
>>CHOICE UE Identity	MP			At least 3 spare choice, Criticality: reject, are needed
>>>IMSI (GSM-MAP)			IMSI (GSM-MAP) 10.3.1.6	
>>>TMSI (GSM-MAP)			TMSI (GSM-MAP) 10.3.1.18	
>>>P-TMSI (GSM-MAP)			P-TMSI (GSM-MAP) 10.3.1.13	
>>>IMSI (DS-41)			TIA/EIA/IS-2000-4	
>>>TMSI (DS-41)			TIA/EIA/IS-2000-4	
> UTRAN originator				
>>U-RNTI	MP		U-RNTI 10.3.3.45	

Condition	Explanation
CHOICE *Paging originator*	**Condition under which the given *paging originator* is chosen**
CN Originating	For CN originating pages (idle mode)
UTRAN Originating	For UTRAN originating pages (connected mode)

***** Next modified section *****

11.2 PDU definitions

```
-- **************************************************
--
-- 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
}
```

***** Next modified section *****

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 {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,originatingSpeechCall,
                                        originatingCS-DataCall,
                                        originatingPS-DataCall,
```

```
                                    terminatingSpeechCallterminatingConversationalCall,
                                    terminatingCS-DataStreamingCall,
                                    terminatingPS-DataInteractiveCall,
                                    terminatingBackgroundCall,
                                    emergencyCall,
                                    interSystemCellReselection,
                                    registration,locationUpdate,
                                    imsi-Ddetach,
                                    sms,
                                    callRe-establishment,
                                    unspecified,
                                    spare1, spare2, spare3, spare4,
                                    spare5, spare6, spare7, spare8,
                                    spare9, spare10, spare11, spare12,
                                    spare13, spare14, spare15, spare16
                                    spare17, spare18 }

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 ::=                  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 {
                                        rl1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=        ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=        ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }

-- TABULAR: Used range in Release99 is 1..224
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 {
                                        terminatingSpeechCallterminatingConversationalCall,
                                        terminatingCS-DataStreamingCall,
                                        terminatingPS-DataInteractiveCall,
                                        terminatingBackgroundCall,
                                        sms,
                                        unspecified,
                                        spare1, spare2, spare3 }

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

PagingRecordList ::=                SEQUENCE (SIZE (1..pageCount)) OF
                                        PagingRecord
```

3GPP RAN WG2#13
Oahu, Hawaii, May 22nd to 26th, 2000

Document R2-001014
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	354	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source:	TSG-RAN WG2		**Date:**	2000-05-22	
Subject:	Common channel configurations				
Work item:					

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

Reason for change:	Corrections on mapping onto common transport channels need to be done versus RAN3 specifications. Clarification of common transport channels.
Clauses affected:	10.3.4.16, 10.3.5.16, 11.3.4

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

Other comments:	

help.doc

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

8.5.7.4.1 RB mapping info

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

- If any, delete all previously stored multiplexing options for that radio bearer;
- Store each new multiplexing option for that radio bearer.

***** Next modified section *****

10.3.4.16 RB mapping info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to <maxMuxOptionsCount>		
>Number of RLC logical channels	CV-*UL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>Transport channel identity	~~OP~~CV-*UL-DCH*		Transport channel identity 10.3.5.16	This is the ID of a ~~transport channel~~DCH that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..16)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	OP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). The different priorities for this user's RBs are mapped (through the MAC's C/T MUX) to the TFC selection algorithm. Priority 1 shall have the highest priority and priority 8 the lowest.
>Number of RLC logical channels	CV-*DL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH)	
>>Transport channel identity	CV-*DL-DCH/DSCH*~~OP~~		Transport channel identity 10.3.5.16	
>>Logical channel identity	OP		Enumerated(1..16)	

Multi Bound	Explanation
MaxMuxOptionsCount	Maximum number of allowed multiplexing options that can be sent is 8

Condition	Explanation
UL-RLC info	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
UL-DCH	If IE "Uplink transport channel type" is equal to "DCH" this IE is MP. Otherwise the IE is not needed.
DL-DCH/DSCH	If IE "Downlink transport channel type" is equal to "DCH" or "DSCH" this IE is MP. Otherwise the IE is not needed.

***** Next modified section *****

10.3.5.16 Transport channel identity

This information element is used to distinguish transport channels. Transport channels of different type (RACH, CPCH, USCH, FACH/PCH, DSCH or DCH) have separate series of identities. This also holds for uplink and downlink transport channel identities (i.e. for DCH). Depending on in which context a transport channel identity *n* that is sent, it will have different meaning. ~~(both common and dedicated transport channels).~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Enumerated(1..~~64~~32)	

***** Next modified section *****

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?
    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           BOOLEAN,
    pdcp-PDU-Header                     PDCP-PDU-Header                     OPTIONAL,
    headerCompressionInfoList           HeaderCompressionInfoList           OPTIONAL
}
```

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

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

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

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

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

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

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

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

UL-LogicalChannelMapping ::=        SEQUENCE {
    ul-TransportChannelType             UL-TransportChannelType,
    transportChannelIdentity            TransportChannelIdentity            OPTIONAL,
    logicalChannelIdentity              LogicalChannelIdentity              OPTIONAL,
    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
```

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 ::=                        SEQUENCE {
    ctfc                                CTFC,
    gainFactorInformation               GainFactorInformation,
    powerOffsetPp-m                     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 ::=             CHOICE {
    sizeType1                           INTEGER (1..127),
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..15),
        part2                               INTEGER (1..7)                  OPTIONAL
        -- Actual size = (part1 * 8) + 128 + part2
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..47),
        part2                               INTEGER (1..15)                 OPTIONAL
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4                           SEQUENCE {
        part1                               INTEGER (0..62),
        part2                               INTEGER (1..63)                 OPTIONAL
        -- Actual size = (part1 * 64) + 1024 + part2
    }
}

BLER-QualityValue ::=               INTEGER (0..63)

ChannelCodingType ::=               CHOICE {
    noCoding                            NULL,
    convolutional                       CodingRate,
    turbo                               NULL
}

CodingRate ::=                      ENUMERATED {
                                        half,
                                        third }

CommonDynamicTF-Info ::=            SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            octetModeRLC-SizeInfoType2          OctetModeRLC-SizeInfoType2
        },
        tdd                                 SEQUENCE {
            commonTDD-Choice                    CHOICE {
                bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
            }                                                               OPTIONAL
        }
    }
}
```

```
CommonDynamicTF-InfoList ::=        SEQUENCE (SIZE (1..maxTFcount)) OF
                                        CommonDynamicTF-Info

CommonTransChTFS ::=                SEQUENCE {
    dynamicTF-InformationList           CommonDynamicTF-InfoList,
    semistaticTF-Information            SemistaticTF-Information
}

CompleteReconf ::=                  SEQUENCE {
    ctfc                                CTFC,
    gainFactorInformation               GainFactorInformation,
    powerOffsetPp-m                     PowerOffsetPp-m
}

CompleteReconfList ::=              SEQUENCE (SIZE (1..maxTFC-Count)) OF
                                        CompleteReconf

ComputedGainFactors ::=             SEQUENCE {
    referenceTFC-Number                 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
        }
    }                                                               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 {
    trasportChannelIdentity             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 {
    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 {
        mode1                           SEQUENCE {
            messType                        MessType
        },
        mode2                           SEQUENCE {
            controlledTrChList              ControlledTrChList
        }
    }
}

TransmissionTimeInterval ::=        ENUMERATED {
                                        tti10, tti20, tti40, tti80 }

TransmissionTimeValidity ::=        INTEGER (1..256)

TransportChannelIdentity ::=        INTEGER (1..32~~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               OPTIONAL
        }
    }                                                                       OPTIONAL
}

UL-CommonTransChInfo ::=            SEQUENCE {
    tfc-Subset                          TFC-Subset                          OPTIONAL,
    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
```

3GPP TSG RAN WG2 meeting #13
Oahu, HI, USA, 22 - 26 May 2000

***Document* R2-001262**
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	355r2	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-10

Subject: Clarification of prioritisation of logical channels in UE

Work item:

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

1. The logical channel priority should be a mandatory parameter
2. The maximum UE transmitter power should be defined.
3. The text describing prioritisation of logical channels in UE should be moved to TS 25.321.
4. The timer discard without explicit signalling should be possible to use in transparent mode.
5. The Logical channel max loss (fraction of transport block formats that can be replaced by low priority data) shall be included in RRC signalling

Clauses affected: 8.5.7.6.6, 9.3.1.3, 10.3.4.16, 10.3.4.18, 10.3.4.20, 11.4

Other specs affected:

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

Other comments:


help.doc

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

8.5.7.6.6 Maximum allowed UL TX power

If the IE "Maximum allowed UL TX power" is included, the UE shall:

- Keep the UE uplink transmit power below the indicated power value. If the current UE uplink transmit power is above the indicated power value, the UE shall decrease the power to a level below the power value.

The maximum UE transmitter power is defined as the lower of the maximum output power of the UE power class and the maximum allowed UL TX power indicated in this IE. The maximum UE transmitter power shall not be exceeded.

9.3.1.3 Radio Resource Allocation tasks (CELL_DCH)

For the DCH, several physical channel allocation strategies may be applied. The allocations can be either permanent (needing a DCH release message) or based on time or amount-of-data.

Resource allocation can be done separately for each packet burst with fast signalling on the DCH

For each radio frame the UE and the network indicate the current data rate (in uplink and downlink respectively) using the transport format combination indicator (TFCI). However, in TDD, DCH and DSCH or USCH may be mapped on different CCTrCHs, their TFCI are totally independent. DCH transmission is not modified by the simultaneous existence of DSCH/USCH. If the configured set of combinations (i.e. transport format set for one transport channel) are found to be insufficient to retain the QoS requirements for a transport channel, the network initiates a reconfiguration of the transport format set (TFS) for that transport channel. This reconfiguration can be done during or in between data transmission. Further, the network can reconfigure the physical channel allowing an increase or decrease of the peak data rate.

For the uplink data transmission, the UE reports the observed traffic volume to the network in order for the network to re-evaluate the current allocation of resources. This report contains e.g. the amount of data to be transmitted or the buffer status in the UE.

~~For codecs that support variable rate operation the UE can be allowed by RRC in UTRAN to reduce transmission rate independently without requesting a new codec mode from the NW side within the limits defined by the NW in the current TFS for the impacted radio bearer.~~

~~The codec mode adaptation in the UE may be initialised e.g. when the maximum power level has been reached, or it is otherwise preferable from the UE point of view to decrease the power consumption by decreasing the data rate. The new Codec mode selected by the UE is signalled to the NW by means of the TFCI~~.

10.3.4.16 RB mapping info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to <maxMuxOptionsCount>		
>Number of RLC logical channels	CV-*UL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH, CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>Transport channel identity	OP		Transport channel identity 10.3.5.16	This is the ID of a transport channel that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..16)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>MAC logical channel priority	MO~~O~~P		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [TS 25.321]~~The different priorities for this user's RBs are mapped (through the MAC's C/T MUX) to the TFC selection algorithm. Priority 1 shall have the highest priority and priority 8 the lowest.~~
>>Logical channel max loss	MD~~M~~P		Integer(0,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85,90,95,100)	The maximum fraction of transport blocks (in percent) that may be blocked for transmission in favour of lower priority data [25.321]. Default value is 0.
>Number of RLC logical channels	CV-*DL-RLC info*	1 to 2		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH)	
>>Transport channel identity	OP		Transport channel identity 10.3.5.16	
>>Logical channel identity	OP		Enumerated(1..16)	

Multi Bound	Explanation
MaxMuxOptionsCount	Maximum number of allowed multiplexing options that can be sent is 8

Condition	Explanation
UL-RLC info	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.

10.3.4.18 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Uplink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.20	
>>Transmission window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072,3584,4096)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. One spare value needed, criticality: reject
>>Timer_RST	MP		Enumerated(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Enumerated(1, 4, 6, 8, 12 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard10.3.4.20	
>TM RLC				~~(no specific data)~~
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.20	
CHOICE *Downlink RLC mode*	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2048,2560,3072,3584,4096)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. At least one spare value with criticality reject needed
>>Downlink RLC status Info	OP			
>UM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>TM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall

				preserve the order of higher layer PDUs when these are delivered.

10.3.4.20 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SDU Discard Mode	MP			Different modes for discharge the RLC buffer on the transmitter side; Timer based with explicit signalling, Timer based without explicit signalling or Discard after Max_DAT retransmissions. For unacknowledged mode and transparent mode only Timer based without explicit signalling is applicable. If No_discard is used, reset procedure shall be done after Max_DAT retransmissions
>Timer based explicit				
>>Timer_MRW	MP		Enumerated(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. 16 spare values needed, criticality: reject
>>Timer_discard	MP		Real(0.1, 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 7.5)	Elapsed time in seconds before a SDU is discarded.
>>MaxMRW	MP		Enumerated(1, 4, 6, 8, 12 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command 8 spare values needed, criticality: ffs
>Timer based no explicit				
>>Timer_discard	MP		Integer (10,20,30,40 ,50,60,70,80, 90,100) ~~(10,20,40,80 ,160,320,640 ,1280)Real(0 .1, 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 7.5)~~	Elapsed time in milliseconds before a SDU is discarded.
>Max DAT retransmissions				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded.
>No discard				(no data)

CHOICE *SDU Discard Mode*	**Condition under which the given *SDU Discard Mode* is chosen**
Timer based explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based with explicit signalling"
Timer based no explicit	If the modes for discharge of the RLC buffer on the transmitter side is "Timer based without explicit signalling" For unacknowledged mode, only Timer based without explicit signalling is applicable.
Max DAT retransmissions	If the modes for discharge of the RLC buffer on the transmitter side is "Discard after Max_DAT retransmissions"
No discard	If the modes for discharge the of RLC buffer on the transmitter side is "Reset procedure shall be done after Max_DAT retransmissions"

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?
    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)

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

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 {
                                        dt10, dt20, dt40, dt80, dt160, dt320, dt640, dt1280
                                        dt10,dt20,dt30,dt40,dt50,dt60,dt70,dt80,dt90,dt100
                                        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           BOOLEAN,
    pdcp-PDU-Header                     PDCP-PDU-Header                 OPTIONAL,
    headerCompressionInfoList           HeaderCompressionInfoList       OPTIONAL
}

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

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

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

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

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

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

PollWindow ::=                      ENUMERATED {
                                        pw50, pw60, pw70, pw80, pw85,
                                        pw90, pw95, 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                         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..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,
```

```
    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 ::=         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 }

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

UL-LogicalChannelMapping ::=        SEQUENCE {
    ul-TransportChannelType             UL-TransportChannelType,
    transportChannelIdentity            TransportChannelIdentity            OPTIONAL,
    logicalChannelIdentity              LogicalChannelIdentity              OPTIONAL,
    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                      UL-TR-RLC-ModeNULL,
    spare                               NULL
}

UL-TransportChannelType ::=         ENUMERATED {
                                        dch, rach, cpch, usch }

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

UL-TR-RLC-Mode ::=                  SEQUENCE {
    transmissionRLC-Discard             TransmissionRLC-Discard }
```

END

3GPP TSG RAN WG2
Oahu, HI, USA, 22-26 May 2000

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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	357r2	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-22

Subject: UE capability corrections

Work item:

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

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

Release:

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

Reason for change:

1. The IE “Initial UE Capability” (which only includes “maximum number of AM entities) is removed. In the current version the only remaining purpose of this message is to inform UTRAN if two or only one NAS SRB could be used, prior to establishment of an RRC connection. However, as the minimum value of the IE “Maximum number of RLC AM entities” (which is part of the UE radio access capability message) is enough to always support two NAS SRBS, the IE “Initial UE Capability” is obsolete.
2. Alignment of IEs to changes made in TR 25.926 (CR003r1)
   - Added the parameter “Simultaneous reception of SCCPCH, DPCH and PDSCH”
   - Changed value ranges for “ Maximum number of AM entities”, “Maximum number of physical channel bits received” and “Maxium number of DPDCH bits transmitted per 10 ms”
3. As recommended by TSG-T1, the UE signals the version of TS-34.123-2 instead of TS-34.108 in order to inform UTRAN which reference RABs the UE has been tested against
4. Multi-RAT capability is changed to a list of booleans instead of “Multi” occurrence in order to save bits.
5. Major bit saving in the PDCP capability IE by replacing the RFC2507 specfic capability parameters related to header compression context space into one parameter that is general to any HC algorithm. With the proposed value range the parameter will only take up 3 bits which is to be compared with the current 40bits. This would also cover HC algorithms added to later releases whereas the solution in the current version of 25.331 would require an additional +xbits for each new HC algorithm that is added in later releases.
6. Minor editorial corrections

Clauses affected: 8.1.3.2, 10.2.41, 10.3.3.14, 10.3.3.22, 10.3.3.26, 10.3.3.27, 10.3.3.35, 10.3.3.40, 10.3.3.41, 11.2, 11.3.3, 11.4

Other specs affected:	Other 3G core specifications	X	→ List of CRs:	TR-25.926 CR003
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:

help.doc

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

8.1.3 RRC connection establishment

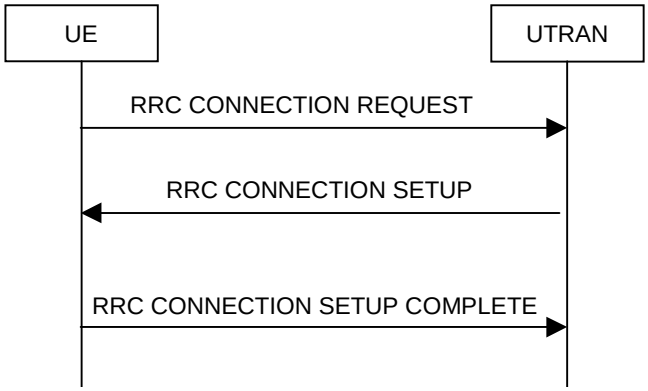

Figure 6: RRC Connection Establishment, network accepts RRC connection

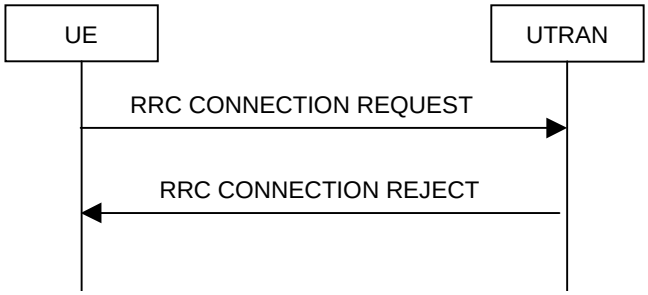

Figure 7: RRC Connection Establishment, network rejects RRC connection

8.1.3.1 General

The purpose with this procedure is to establish an RRC connection.

8.1.3.2 Initiation

The non-access stratum in the UE may request the establishment of at most one RRC connection per UE.

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

The UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH, reset counter V300, and start timer T300.

The UE shall perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.14, and shall apply the given Access Service Class when accessing the RACH.

The UE shall set the IE "Establishment cause" according to indications from the non-access stratum or according to the paging cause received from the PAGING TYPE 1 message.

The UE shall set the IE "Initial UE identity" according to subclause 8.5.1.

~~The UE shall indicate its capability in the IE "Initial UE capability".~~

The UE shall set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR.

The UE shall include a measurement report, as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in system information block type 11.

***** Next modified section *****

10.2.41 RRC CONNECTION REQUEST

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
~~Initial UE capability~~	~~MP~~		~~Initial UE capability 10.3.3.14~~	
Establishment cause	MP		Establishment cause 10.3.3.11	
Protocol error indicator	MD		Protocol error indicator 10.3.3.29	Default value is FALSE
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.70	

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

***** Next modified section *****

~~10.3.3.14 Initial UE capability~~

~~This is the UE capability information given in the RRC connection request message.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of AM entities	MP		Enumerated (2 to 3, 4 to 8, 16 to 32)	At least 1 spare values, Criticality: reject, are needed

***** Next modified section *****

10.3.3.22 Measurement capability

For all IEs of type Boolean TRUE means capable.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Need for downlink compressed mode	~~MP~~			
~~>~~FDD measurements DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on FDD
~~>~~TDD measurements DL	CV *tdd_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on TDD
~~>~~ GSM measurements DL	CV *gsm_sup*		~~Boolean~~	
~~>~~> GSM 900 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 900
~~>~~> DCS 1800 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on DCS 1800
~~>~~> GSM 1900 DL	MP		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on GSM 1900
~~>~~ Multi-carrier measurement DL	CV *mc_sup*		Boolean	TRUE means that the UE requires DL compressed mode in order to perform measurements on multi-carrier
Need for uplink compressed mode	~~MP~~			
~~>~~FDD measurements UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on FDD
~~>~~TDD measurements UL	CV *tdd_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on TDD
~~>~~ GSM measurements UL	CV *gsm_sup*		~~Boolean~~	
~~>~~> GSM 900 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 900
~~>~~> DCS 1800 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on DCS 1800
~~>~~> GSM 1900 UL	MP		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on GSM 1900
~~>~~ Multi-carrier measurement UL	CV *mc_sup*		Boolean	TRUE means that the UE requires UL compressed mode in order to perform measurements on multi-carrier

Condition	Explanation
tdd_sup	Presence is mandatory if IE Multi-mode capability = FDD/TDD. Otherwise this field is not needed in the message.
gsm_sup	Presence is mandatory if IE Multi-RAT capability = GSM. Otherwise this field is not needed in the message.
mc_sup	Presence is mandatory if IE Multi-RAT capability = multi-carrier. Otherwise this field is not needed in the message.

***** Next modified section *****

10.3.3.26 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported
~~Supported algorithm types~~	~~OP~~	~~1 to <maxAlgoTypeCount>~~		~~Indicates whether header compression algorithms are supported by the UE or not.~~
~~>CHOICE *algorithm type*~~				~~This IE shall be defined as extendable (at least 3 spare choices)~~
~~>~~>Support for RFC2507	MP		Boolean	TRUE means supported
Max HC context space	CV-*hc_sup*		~~Enumerated~~Integer(512, 1024, 2048, 4096, 8192)	Maximum header compression context space in bytes supported by the UE At least 3 spare values needed, criticality: reject
~~>>>Maximum MAX_HEADER~~	~~MD~~		~~Integer (60..65535)~~	~~The largest header size in octets that may be compressed by the UE. Default value is 65535.~~
~~>>>Maximum TCP_SPACE~~	~~MD~~		~~Integer (3..255)~~	~~Maximum stored number of headers for TCP connections. Default value is 255.~~
~~>>>Maximum NON_TCP_SPACE~~	~~MD~~		~~Integer (3..65535)~~	~~Maximum stored number of headers for non-TCP connections. Default value is 65535.~~

~~Multi Bound~~Condition	Explanation
~~*MaxAlgoTypeCount*~~*hc_sup*	~~Maximum number of algorithm types specified in TS 25.323.~~ Presence is mandatory if IE Support for RFC 2507 = TRUE. Otherwise this field is not needed in the message

10.3.3.27 ~~10.3.3.27~~ Physical channel capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Downlink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>> Max no DPCH/PDSCH codes	MP		Integer (1..8)	Maximum number of DPCH/PDSCH codes to be simultaneously received
>> Max no physical channel bits received	MP		Enumerated (~~300,~~ 600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800)	Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) At least ~~4~~ 1 spare values needed
>>Support for SF 512	MP		Boolean	TRUE means supported
>>Support of PDSCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH and DPCH	MP		Boolean	TRUE means supported
>>Simultaneous reception of SCCPCH, DPCH and PDSCH	CV-*if_sim_rec_pdsch_sup*		Boolean	TRUE means supported
>>Max no of S-CCPCH RL	CV-*if_sim_rec*~~if_sim_rec~~		Enumerated(1)	Maximum number of simultaneous S-CCPCH radio links At least 7 spare values needed.
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum number of timeslots per frame	MP		Integer (1..14)	At least 2 spare values needed.
>>Maximum number of physical channels per frame	MP		Integer (1..224)	At least 32 spare values needed
>>Minimum SF	MP		Enumerated (1, 16)	
>>Support of PDSCH	MP		Boolean	TRUE means supported
Uplink physical channel capability information elements				
CHOICE *mode*	MP			
>FDD				
>>Maximum number of DPDCH bits transmitted per 10 ms	MP		Enumerated (~~150, 300,~~ 600, 1200, 2400, 4800. 9600, 19200. 28800, 38400, 48000, 57600)	At least ~~4~~ 6 spare values needed
>>Support of PCPCH	MP		Boolean	TRUE means supported
>TDD				
>>Maximum number of simultaneous CCTrCH	MP		Integer (1..8)	
>>Maximum Number of	MP		Integer	At least 2 spare values needed

timeslots per frame			(1..14)	
>>Maximum number of physical channels per timeslot	MP		Enumerated (1, 2)	
>>Minimum SF	MP		Enumerated (1, 2, 4, 8, 16)	At least 3 spare values needed
>>Support of PUSCH	MP		Boolean	TRUE means supported

Condition	Explanation
if_sim_rec_pdsch_sup	Presence is mandatory if IE Simultaneous reception of SCCPCH and DPCH = True and IE Support of PDSCH = True. Otherwise this field is not needed in the message.
If_sim_rec	Presence is mandatory if IE ~~capability~~ Simultaneous reception of SCCPCH and DPCH = True. Otherwise this field is not needed in the message.

***** Next modified section *****

10.3.3.35 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size	MP		Enumerated (2,10,50,100 ,150,500,100 0)	Total receiving and transmitting RLC AM buffer capability in kBytes At least 1 spare value needed
Maximum number of AM entities	MP		Enumerated (~~2,~~3,4,5,6,8, 16,32)	At least ~~2~~ 1 spare value~~s~~ needed

***** Next modified section *****

10.3.3.40 UE multi-mode/multi-RAT capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Multi-RAT capability	~~OP~~	~~1 to <maxRAT Count>~~	~~Enumerated (GSM, multi-carrier)~~	~~At least 2 spare values needed~~
Support of GSM	MP		Boolean	
Support of multi-carrier	MP		Boolean	
Multi-mode capability	MP		Enumerated (TDD, FDD, FDD/TDD)	

~~Multi Bound~~	~~Explanation~~
~~*MaxRATCount*~~	~~Maximum number of Radio Access Technologies supported by the UE~~

10.3.3.41 UE radio access capability

Information Element/Group name	Need	Multi	Type and reference	Semantics description
~~Conformance test compliance~~ICS version	MP		Enumerated(R99)	Indicates the release version of TS 34.~~108~~123-2 (Implementation Conformance Statement (ICS) proforma specification) that is applicable for the UE ~~has declared compliance to.~~ At least 7 spare values needed
PDCP capability	MP		PDCP capability 10.3.3.26	
RLC capability	MP		RLC capability 10.3.3.35	
Transport channel capability	MP		Transport channel capability 10.3.3.39	
RF capability	MP		RF capability 10.3.3.34	
Physical channel capability	MP		Physical channel capability 10.3.3.27	
UE multi-mode/multi-RAT capability	MP		UE multi-mode/multi-RAT capability 10.3.3.40	
Security capability	MP		Security capability 10.3.3.37	
LCS capability	MP		LCS capability 10.3.3.20	
CHOICE *mode*	MP			
>FDD				
>>Measurement capability	MP		Measurement capability 10.3.3.22	
>TDD				(no data)

***** Next modified section *****

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
        }                                                                   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,
    -- 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,
    -- 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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
```

```
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        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
        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
        }                                                                   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
--
-- **************************************************

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

URAUpdateConfirm ::= 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
--
-- ************************************************

URAUpdateConfirm-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
```

***** Next modified section *****

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 ICS-version ::=       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 ::=                  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 }

MaxHcContextSpace ::=   ENUMERATED  {
                            by512, by1024, by2048, by4096, by8192, spare1, spare2, spare3 }

MaximumAM-EntityNumberRLC-Cap ::=   ENUMERATED {
                                        am2, am3, am4, am5, am6, 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, spare5, spare6 }

MaxNoBits ::=                       ENUMERATED {
                                        b640, b1280, b2560, b3840, b5120,
                                        b6400, b7680, b8960, b10240,
                                        b20480, b40960, b81920, b163840,
                                        spare1, spare2, spare3 }

MaxNoPhysChBitsReceived ::=         ENUMERATED {
                                        b300, b600, b1200, b2400, b3600
                                        b4800, b7200, b9600, b14400,
                                        b19200, b28800, b38400,
                                        b48000, b57600, b67200, b76800
                                        spare1, spare2, spare3, spare4 }

MaxNoSCCPCH-RL ::=                  ENUMERATED {
                                        rl1, spare1, spare2, spare3,
                                        spare4, spare5, spare6, spare7 }

MaxNumberOfTF ::=                   ENUMERATED {
                                        tf32, tf64, tf128, tf256,
                                        tf512, tf1024, spare1, spare2 }

MaxNumberOfTFC-InTFCS-DL ::=        ENUMERATED {
                                        tfc16, tfc32, tfc48, tfc64, tfc96,
                                        tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7 }

MaxNumberOfTFC-InTFCS-UL ::=        ENUMERATED {
                                        tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
                                        tfc96, tfc128, tfc256, tfc512, tfc1024,
                                        spare1, spare2, spare3, spare4,
                                        spare5 }

-- TABULAR: Used range in Release99 is 1..224
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 SEQUENCE {
    supportOfGsm                        BOOLEAN,
    supportOfMulticarrier               BOOLEAN
}
                                        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 ::=                    CHOICE {
    cn-Page                             SEQUENCE {
        pagingCause                         PagingCause,
        cn-DomainIdentity                   CN-DomainIdentity,
        cn-pagedUE-Identity                 CN-PagedUE-Identity
    },
    utran-Page                          SEQUENCE {
        u-RNTI                              U-RNTI
    }
}

PagingRecordList ::=                SEQUENCE (SIZE (1..pageCount)) OF
                                        PagingRecord

PDCP-Capability ::=                 SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportedHC-AlgoTypeList            SupportedHC-AlgoTypeList
    supportForRfc2507 ::=               CHOICE {
        notSupported                        NULL,
        supported                           MaxHcContextSpace
    }
}

PhysicalChannelCapability ::=       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityFDD,
            uplinkPhysChCapability              UL-PhysChCapabilityFDD
        },
        tdd                                 SEQUENCE {
            downlinkPhysChCapability            DL-PhysChCapabilityTDD,
            uplinkPhysChCapability              UL-PhysChCapabilityTDD
        }
    }
}

ProtocolErrorCause ::=              ENUMERATED {
                                        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 ::=           SEQUENCE {
    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                           SEQUENCE {MaxNoSCCPCH-RL
        maxNoSCCPCH-RL                      MaxNoSCCPCH-RL
        simultaneousSCCPCH-DPCH-DPDCH-Reception     BOOLEAN
            -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}


SRNC-Identity ::=                   BIT STRING (SIZE (12))

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, s400,
                                        s600, s800, s1000 }

T-CPCH ::=                          ENUMERATED {
                                        ct0, ct1 }

TMSI-and-LAI-GSM-MAP ::=            SEQUENCE {
    tmsi                                TMSI-GSM-MAP,
    lai                                 LAI
}

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

TotalRLC-AM-BufferSize ::=          ENUMERATED {
                                        kb2, kb10, kb50, kb100,
                                        kb150, kb500, kb1000,
                                        spare1 }

-- Actual value = IE value * 0.125
TransmissionProbability ::=         INTEGER (1..8)

TransportChannelCapability ::=      SEQUENCE {
    dl-TransChCapability                DL-TransChCapability,
    ul-TransChCapability                UL-TransChCapability
}

TurboSupport ::=                    CHOICE {
    notSupported                        NULL,
    supported                           MaxNoBits
}
```

```
TxRxFrequencySeparation ::=         ENUMERATED {
                                        mhz190, mhz174-8-205-2,
                                        mhz134-8-245-2, spare1 }

U-RNTI ::=                          SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI                              S-RNTI
}

U-RNTI-Short ::=                    SEQUENCE {
    srnc-Identity                       SRNC-Identity,
    s-RNTI-2                            S-RNTI-2
}

UE-ConnTimersAndConstants ::=       SEQUENCE {
    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 ::=      SEQUENCE {
    multiRAT-CapabilityList             MultiRAT-CapabilityList             OPTIONAL,
    multiModeCapability                 MultiModeCapability
}

UE-PowerClass ::=                   INTEGER (1..4)

UE-RadioAccessCapability ::=        SEQUENCE {
    ConformanceTestComplianceics-version            ICS-versionConformanceTestCompliance,
    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
```

***** Next modified section *****

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**
maxFACH-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**
maxURAcount                 INTEGER ::= 8

-- **TODO**
maxUsedUplTScount           INTEGER ::= 8

-- **TODO**
maxUsedRLcount              INTEGER ::= 8

-- **TODO**
pageCount                   INTEGER ::= 8

END
```

3GPP TSG RAN WG2#13
Oahu, HI, USA, 22nd-26th May, 2000

Document R2-001275
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	358r2	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source:	TSG-RAN WG2	**Date:**	2000-05-22

Subject:	Clarification of HFN

Work item:	

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

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

Release:

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

Reason for change:

1) A new section has been added 8.5.10a Hyper Frame Number where the HFN and the initialisation of COUNT-C and COUNT-I are clearly described.

2) The IE "Hyper frame number" has been clarified.

Clauses affected:	8.5.10a (new), 10.3.3.13

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.

8.5.10a Hyper Frame Number

~~There is one hyper frame number (HFN) for each CN Domain.~~ The hyper frame number (HFN) in the IE "Hyper frame number" is used to initialise both the ciphering sequence number (COUNT-C) and the integrity sequence number (COUNT-I) for the ciphering and integrity protection algorithms, respectively~~, for the corresponding service domain~~. There is a COUNT-C per radio bearer (uplink/downlink) and a COUNT-I per signalling radio bearer (uplink/downlink). COUNT-C and COUNT-I are defined in Security Architecture, -TS 33.102.

~~For ciphering, HFN forms the:~~

~~24 MSB of COUNT-C, for a RB using transparent mode RLC~~

~~25 MSB of COUNT-C, for a RB using unacknowledged mode RLC~~

~~20 MSB of COUNT-C, for a RB using acknowledged mode RLC~~

~~For integrity protection, HFN forms the 28 MSB of COUNT-I..~~

~~For each CN Domain:~~

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

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

8.5.11 Integrity protection

Integrity protection shall be performed independently on the RRC messages sent on each signalling radio bearer.

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

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

and two message sequence numbers,

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

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per signalling radio bearer (0-3).

8.5.11.1 Integrity protection in downlink

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

- check the value of the IE "RRC message sequence number" included in the IE "Integrity check info". If the RRC message sequence number is lower than or equal to the "Downlink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO, the UE shall increment "Downlink HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with one.
- calculate an expected message authentication code in accordance with 8.5.11.3.
- compare the expected message authentication code with the value of the received IE "message authentication code" contained in the IE 'Integrity check info'.
    - If the expected message authentication code and the received message authentication code are the same, the integrity check is successful.
    - If the calculated expected message authentication code and the received message authentication code differ, the message shall be discarded.

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

10.3.3.13 Hyper Frame Number

The hyper frame number (HFN) is used to initialise both ~~the~~ COUNT-C and COUNT-I for the ciphering ~~algorithm and the COUNT-I~~ and integrity protection algorithms, respectively.

~~For ciphering, HFN forms the most significant bits of COUNT. When the COUNT is initialised: COUNT = HFN (the LSB part of COUNT is set to zero).For integrity protection, the HFN forms the most significant bits of COUNT-I. When the COUNT-I is initialised: COUNT-I = HFN (the LSB part of COUNT-I is set to zero).~~

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

3GPP TSG RAN WG2#13
Oahu, HI, USA, 22nd-26th May, 2000

Document R2-001276
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	359r3	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-22

Subject: Clarification of Integrity Protection

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

1) This contribution clarifies the messages that are never integrity protected.

2) Integrity check info has been removed from the tabular description for the following messages:

PHYSICAL SHARED CHANNEL ALLOCATION
PUSCH CAPACITY REQUEST

No changes were required in the ASN.1 as the IE “Integrity check info” was not included.

3) When MEASUREMENT REPORT is sent on UM and if the UE is out of coverage then there could be problems with the synchronisation of the RRC SN if this is sent more than once, as there is no reponse message.
A note has been added that this needs to be studied.

4) Clarification of the calculation of the message authentication code. RRC padding is added after encoding and is therefore part of the message authentication code calculation.

NOTE:
a) The message SIGNALLING CONNECTION RELEASE REQUEST was included in CR315 to 25.331 but the tabular format is missing the IE “Integrity check info”.

Clauses affected: 8.5.11, 8.5.11.2, 8.5.11.3, 10.2.21, 10.2.22, 10.3.3.16

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.

8.5.11 Integrity protection

Integrity protection shall be performed ~~independently~~ on all ~~the~~ RRC messages ~~sent on each signalling radio bearer.~~ , with the following exceptions ~~(as stated in TS 33.102)~~:

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

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

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

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

and two message sequence numbers,

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

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per signalling radio bearer (0-3).

8.5.11.2 Integrity protection in uplink

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

- increment "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1. When "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO becomes 0, the UE shall increment "Uplink HFN" for RB#n in the variable INTEGRITY_PROTECTION_INFO with 1~~;~~
- calculate ~~a~~ the message authentication code in accordance with 8.5.11.3~~;~~

~~include the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO and~~

- replace the “Message authentication code“ in the IE "Integrity check info" in the message with the calculated message authentication code.

- replace the “RRC Message sequence number” in the IE "Integrity check info" in the message with contents set to the new value of the "Uplink RRC Message sequence number" for RB#n in the variable INTEGRITY_PROTECTION_INFO

8.5.11.3 Calculation of message authentication code

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

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

~~The UE shall apply, after encoding, all the information elements in the message except the IE "Integrity check info", together with the signalling radio bearer identity as a bitstring, which is appended to the encoded bitstring as the most significant bits, to form the input parameter MESSAGE (TS 33.102) for the integrity algorithm. Note that the bitstring (radio bearer identity) is not part of the PDU to be transmitted.~~

10.2.21 PHYSICAL SHARED CHANNEL ALLOCATION

NOTE: Only for TDD.

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

RLC-SAP: TM or UM

Logical channel: SHCCH

Direction: UTRAN → UE

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
~~Integrity check info~~	~~CH~~		~~Integrity check info 10.3.3.16~~	
C-RNTI	MP		C-RNTI 10.3.3.7	
Uplink timing advance	MD		Uplink Timing Advance 10.3.6.69	Default value is the existing value for uplink timing advance
Allocation period info	OP		Allocation period info 10.3.6.4	
PUSCH info	OP		PUSCH info 10.3.6.46	
PDSCH info	OP		PDSCH info 10.3.6.30	
Timeslot list	OP	1 .. 14		
>Timeslot number	MP		Integer(0 .. 14)	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.2.22 PUSCH CAPACITY REQUEST

NOTE: Only for TDD.

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

RLC-SAP: TM

Logical channel: SHCCH

Direction: UE → UTRAN

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
~~Integrity check info~~	~~CH~~		~~Integrity check info 10.3.3.16~~	
C-RNTI	MP		C-RNTI 10.3.3.7	
Traffic Volume	MP		Traffic Volume, measured results list 10.3.7.93	
Timeslot list	OP	1 .. 14		
>Timeslot number	MP		Integer(0 .. 14)	
>Timeslot ISCP	MP			
Primary CCPCH RSCP	OP			

10.3.3.16 Integrity check info

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

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

```
-- ************************************************
--
-- 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
}
```

3GPP TSG RAN WG2#13
Oahu, HI, USA, May 22th-26th, 2000

Document R2-001171
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	360r1	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-26

Subject: RRC message size optimisation regarding TrCH parameters

Work item:

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

This CR includes the following change proposals:

- "Number of Transport blocks": This IE is used in IE "Transport format set" has a value range of 0..4095. This is not in line with UE capabilities, which only allows upto 512 transport blocks per TTI. Moreover, in many cases it will just be set to 1 or 0. Therefore the proposal is to optimise the use of this parameter
- Transport Format Set: This IE is used in IE "Added or Reconfigured UL TrCH information List". In many cases the same values are used in UL & DL. Therefore, the proposal is to add for the UL IE the possibility to refer to the DL TrCH which applies the same TFS value
- Transport Format Combination Set: This IE is used in IE "UL Transport channel information common for all transport channels". In many cases the same values are used in UL & DL. Therefore, the proposal is to add the possibility to indicate that for the UL the same values apply as used for the DL. For the case of TDD, the possibility is added to refer to the DL CCTrCH which applies the same TFCS value
- UL Transport channel information common for all transport channels: editorial correction: DL DCH TFCS changed into UL DCH TFCS

The following changes are proposed in revision 1 of this CR

- For TFS and TFCS it has been agreed that the UL can be specified same as DL rather than the other way around. The change is because for TFCS, the DL version of the IE includes additional (gain factor-) information
- The encoding details proposed for the tabular format in the original version are

removed

Clauses affected:	10.3.5.1, 10.3.5.7, 10.3.5.20, 10.3.5.21, 11.3.5

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

Other comments:	


help.doc

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

10.3.5 Transport CH Information elements

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
CHOICE DL parameters				
>Independent				
>>TFS	MP		Transport Format Set 10.3.5.20	
>SameAsUL				
>>UL TrCH identity	MP		Transport channel identity 10.3.5.16	Same TFS applies as specified for indicated UL TrCH
CHOICE mode	OP			
>TDD				
>> DL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)
DCH quality target	OP		Quality target 10.3.5.13	
Transparent mode signalling info	OP		Transparent mode signalling info 10.3.5.15	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channel identity	MP		Transport channel identity 10.3.5.16	
TFS	MP		Transport Format Set 10.3.5.20	
CHOICE mode	OP			
>TDD				
>> UL DCH TFCS Identity	OP		Transport Format Combination Set Identity 10.3.5.18	
>FDD				(no data)

10.3.5.7 DL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SCCPCH TFCS	OP		Transport Format Combination Set 10.3.5.17	
CHOICE *mode*	OP			
>TDD				
>>Individual DL CCTrCH information	OP	1 to >MaxDLCCTrCHCount>		
>>>DL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>CHOICE DL parameters	MP			
>>>>Independent				
>>>>>DL DCH TFCS	MP		Transport format combination set 10.3.5.17	
>>>>SameAsUL				
>>>>>UL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	Same TFCS applies as specified for the indicated UL DCH TFCS identity except for information applicable for UL only
>FDD				
>>>CHOICE DL parameters	MP			
>>>>Independent				
>>>>DL DCH TFCS	OP		Transport Format Combination Set 10.3.5.17	
>>>>SameAsUL				
>>>>>UL DCH TFCS Identity	MP			(no data) Same TFCS applies as specified for the indicated UL DCH TFCS identity except for information applicable for UL only

Multi Bound	Explanation
MaxDLCCTrCHCount	Maximum number of DL CCTrCHs currently supported by this UE.

10.3.5.20 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport channel type*	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0..~~40 9~~512)	Note
>>>CHOICE *RLC mode*	OP			
>>>> Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	The RLC entity mapped to this transport channels can generate bit specific RLC PDU sizes
>>>> Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	The RLC entity mapped to this transport channels can only generate octet aligned RLC PDU sizes
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	
>Common transport channels				The transport channel that is configured with this TFS is of a type not equal to DCH
>>Dynamic Transport Format Information	MP	1 to maxTFcount		The first instance of the parameter *Dynamic transport format information* correspond to Transport format 0 for this transport channel, the second to transport format 1 and so on.
>>>Number of Transport blocks	MP		Integer(0.. ~~409~~512)	Note
>>>CHOICE mode	MP			
>>>>FDD				
>>>>>Octet mode RLC size info type2	OP		Octet mode RLC size info type2 10.3.5.11	
>>>>TDD				
>>>>>CHOICE *RLC mode*	OP			
>>>>>>Bit mode RLC size info			Bit mode RLC size info 10.3.5.3	
>>>>>>Octet mode RLC size info type1			Octet mode RLC size info type1 10.3.5.10	
>>Semi-static Transport Format Information	MP		Semi-static Transport Format Information 10.3.5.14	

Multi Bound	Explanation
MaxTFcount	Maximum number of different transport formats that can be included in the Transport format set for one transport channel is 32.

NOTE: The parameter "rate matching attribute" is in line with the RAN WG1 specifications. However, it is not currently in line with the description in 25.302.

NOTE: For dedicated channels, sizes reflect RLC PDU sizes. In FDD for common channels sizes reflect actual TB size. In TDD for common channels since MAC headers are not octet aligned, to calculate TB size the MAC header bit offset is added to the specified size (similar to the dedicated case). Therefore for TDD DCH TrCHs the 4 bit C/T is added if MAC multiplexing is applied, for FACH the 3 bit TCTF offset is added and for RACH the 2 bit TCTF offset is added.

NOTE: If the number of transport blocks <> 0, and Optional IE "CHOICE RLC mode" or "CHOICE Transport block size is absent, it implies that no RLC PDU data exists but only parity bits exist. If the number of transport blocks = 0, it implies that neither RLC PDU data nor parity bits exist.

10.3.5.21 UL Transport channel information common for all transport channels

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TFC subset	MD		Transport Format Combination Subset 10.3.5.19	Default value is the complete existing set of transport format combinations
CHOICE *mode*	OP			
>TDD				
>>Individual UL CCTrCH information	OP	1 to <MaxULCCTrCHCount>		
>>>UL DCH TFCS Identity	MP		Transport format combination set identity 10.3.5.18	
>>>~~DL~~ DCH TFCS	MP		Transport format combination set 10.3.5.17	
>FDD				
>>UL DCH TFCS	MP		Transport formation combination set 10.3.5.17	

Multi Bound	Explanation
MaxULCCTrCHCount	Maximum number of UL CCTrCHs currently supported by this UE.

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 ::=                        SEQUENCE {
    ctfc                                CTFC,
    gainFactorInformation               GainFactorInformation,
    powerOffsetPp-m                     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 ::=             CHOICE {
    sizeType1                           INTEGER (1..127),
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..15),
        part2                               INTEGER (1..7)                  OPTIONAL
        -- Actual size = (part1 * 8) + 128 + part2
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..47),
        part2                               INTEGER (1..15)                 OPTIONAL
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4                           SEQUENCE {
        part1                               INTEGER (0..62),
        part2                               INTEGER (1..63)                 OPTIONAL
        -- Actual size = (part1 * 64) + 1024 + part2
    }
}

BLER-QualityValue ::=               INTEGER (0..63)
```

```
ChannelCodingType ::=               CHOICE {
    noCoding                            NULL,
    convolutional                       CodingRate,
    turbo                               NULL
}

CodingRate ::=                      ENUMERATED {
                                        half,
                                        third }

CommonDynamicTF-Info ::=            SEQUENCE {
    numberOfTransportBlocks             NumberOfTransportBlocks,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            octetModeRLC-SizeInfoType2          OctetModeRLC-SizeInfoType2
        },
        tdd                                 SEQUENCE {
            commonTDD-Choice                    CHOICE {
                bitModeRLC-SizeInfo                 BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1          OctetModeRLC-SizeInfoType1
            }                                                               OPTIONAL
        }
    }
}

CommonDynamicTF-InfoList ::=        SEQUENCE (SIZE (1..maxTFcount)) OF
                                        CommonDynamicTF-Info

CommonTransChTFS ::=                SEQUENCE {
    dynamicTF-InformationList           CommonDynamicTF-InfoList,
    semistaticTF-Information            SemistaticTF-Information
}

CompleteReconf ::=                  SEQUENCE {
    ctfc                                CTFC,
    gainFactorInformation               GainFactorInformation,
    powerOffsetPp-m                     PowerOffsetPp-m
}

CompleteReconfList ::=              SEQUENCE (SIZE (1..maxTFC-Count)) OF
                                        CompleteReconf

ComputedGainFactors ::=             SEQUENCE {
    referenceTFC-Number                 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,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    transportFormatSet                  TransportFormatSet,
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            dl-DCH-TFCS-Identity                TFCS-Identity               OPTIONAL
        }
    }                                                                       OPTIONAL,
    dch-QualityTarget                   QualityTarget                       OPTIONAL,
    tm-SignallingInfo                   TM-SignallingInfo                   OPTIONAL
}

DL-AddReconfTransChInformation2 ::= SEQUENCE {
    trasportChannelIdentity             TransportChannelIdentity,
    tfs-SignallingMode                  CHOICE {
        explicit                            TransportFormatSet,
        sameAsULTrCH                        TransportChannelIdentity
    },
    transportFormatSet                  TransportFormatSet,
    qualityTarget                       QualityTarget
}

DL-CommonTransChInfo ::=            SEQUENCE {
    sccpch-TFCS                         TFCS                                OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfcs-SignallingMode                 CHOICE {
                explicit                            TFCS,
                sameAsUL                            NULL
            }                                                               OPTIONAL
            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 {
    trasportChannelIdentity             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,
    tfcs-SignallingMode                 CHOICE {
        explicit                            TFCS,
        sameAsUL                            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)
NumberOfTransportBlocks::=          CHOICE {
    zero                                NULL,
    one                                 NULL,
    small                               INTEGER (2..17),
    long                                INTEGER (18..512)
}

OctetModeRLC-SizeInfoType1 ::=      CHOICE {
    sizeType1                           INTEGER (0..31),
    -- Actual size = (8 * sizeType1) + 16
    sizeType2                           SEQUENCE {
        part1                               INTEGER (0..23),
        part2                               INTEGER (1..3)              OPTIONAL
        -- Actual size = (32 * part1) + 272 + (part2 * 8)
    },
    sizeType3                           SEQUENCE {
        part1                               INTEGER (0..61),
        part2                               INTEGER (1..7)              OPTIONAL
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
    }
}

OctetModeRLC-SizeInfoType2 ::=      SEQUENCE {
    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 {
        mode1                                   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               OPTIONAL
        }
    }                                                                           OPTIONAL
}

UL-CommonTransChInfo ::=                SEQUENCE {
    tfc-Subset                              TFC-Subset                          OPTIONAL,
```

```
    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
```

3GPP RAN WG2#12
Oahu, Hawaii, May 22th to 26th, 2000

***Document* R2-001021**
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	361	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source:	TSG-RAN WG2	**Date:** 2000-05-22
Subject:	Protocol extensions in ASN.1	
Work item:		

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

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

The following changes are proposed in the orginal revision of this CR

Protocol extensions

- The extension mechanism used at end of messages distinguishes critical and non- critical information in accordance with 10.1.1.2
- Extensions to choices should never contain open sequences; all extended information is to be included at the end of the message as agreed earlier

Clauses affected: 11.2, 11.3.1, 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.

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 for non- release99 information
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
        criticalExtension               SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
}

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

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo               OPTIONAL,
        rb-WithPDCP-InfoList            RB-WithPDCP-InfoList                OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

DownlinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        nas-Message                     NAS-Message,
    -- Extension mechanism for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

HandoverToUTRANComplete ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionHFN          HyperFrameNumber,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

InterSystemHandoverFailure ::= SEQUENCE {
    -- Other IEs
        interSystemHO-Failure           InterSystemHO-Failure               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentityNumber       MeasurementIdentityNumber,
        measuredResults                 MeasuredResults                     OPTIONAL,
        additionalMeasuredResults       MeasuredResultsList                 OPTIONAL,
        eventResults                    EventResults                        OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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
        }                                                                   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,
    -- Extension mechanism for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

```
RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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,
    -- Extension mechanism for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

-- **************************************************
--
-- RNTI REALLOCATION FAILURE
```

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

RNTIReallocationFailure ::= SEQUENCE {
    -- UE information elements
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                     OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
        non-Release99-Information       SEQUENCE {}                     OPTIONAL
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                     OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

RRCStatus ::= SEQUENCE {
    -- Other IEs
        protocolErrorInformation        ProtocolErrorInformation,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

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

SignallingConnectionRelease ::= SEQUENCE {
    -- Core network IEs
        signallingFlowInfoList          SignallingFlowInfoList,
    -- Extension mechanism for non- release99 information
        criticalExtensions              SEQUENCE {}                     OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        criticalExtensions              SEQUENCE {}                         OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

TransportFormatCombinationControl ::= SEQUENCE {
    channelRequirement                  CHOICE {
        dpch-TFCS-InUplink                  TFC-Subset,
        tfc-ControlDuration                 TFC-ControlDuration
    },
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

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

UECapabilityEnquiry ::= SEQUENCE {
    -- User equipment IEs
        capabilityUpdateRequirement     CapabilityUpdateRequirement,
    -- Extension mechanism for non- release99 information
       criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
        non-Release99-Information       SEQUENCE {}                        OPTIONAL
}

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

UECapabilityInformationConfirm ::= SEQUENCE {
    -- Extension mechanism for non- release99 information
       criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
        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 for non- release99 information
       criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
        non-Release99-Information       SEQUENCE {}                        OPTIONAL
}

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

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

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                             OPTIONAL
        non-Release99-Information       SEQUENCE {}                             OPTIONAL
}

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

URAUpdateConfirm ::= 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 for non- release99 information
        criticalExtensions               SEQUENCE {}                        OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

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

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

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

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

Digit ::=                           INTEGER (0..9)

FlowIdentifier ::=                  INTEGER (0..15)

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

IMSI-GSM-MAP ::=                    SEQUENCE (SIZE (6..15)) OF
                                        Digit

LAI ::=                             SEQUENCE {
    plmn-Identity                       PLMN-Identity,
    lac                                 BIT STRING (SIZE (16))
}

MCC ::=                             SEQUENCE (SIZE (3)) OF
                                        Digit

MNC ::=                             SEQUENCE (SIZE (2..3)) OF
                                        Digit

NAS-Message ::=                     OCTET STRING (SIZE (1..4095))

NAS-SystemInformationGSM-MAP ::=    OCTET STRING (SIZE (1..8))

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

PagingRecordTypeID ::=              ENUMERATED {
                                        imsi-GSM-MAP,
                                        tmsi-GSM-MAP-P-TMSI,
                                        imsi-DS-41,
                                        tmsi-DS-41 }

PLMN-Identity ::=                   SEQUENCE {
    mcc                                 MCC,
    mnc                                 MNC
}

PLMN-Type ::=                       CHOICE {
    gsm-MAP                             SEQUENCE {
        plmn-Identity                       PLMN-Identity
    },
```

```
    ansi-41                         SEQUENCE {
        p-REV                           P-REV,
        min-P-REV                       Min-P-REV,
        sid                             SID,
        nid                             NID
    },
    gsm-MAP-and-ANSI-41             SEQUENCE {
        plmn-Identity                   PLMN-Identity,
        p-REV                           P-REV,
        min-P-REV                       Min-P-REV,
        sid                             SID,
        nid                             NID
    },
    spare                           ~~SEQUENCE {}~~NULL
}

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

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

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

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

SignallingFlowInfo ::=              SEQUENCE {
    flowIdentifier                      FlowIdentifier
}

SignallingFlowInfoList ::=          SEQUENCE (SIZE (1..maxFlowID)) OF
                                        SignallingFlowInfo

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

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,
    maxUsedUplTScount
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 ::=              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                                     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 1,
    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 ::=                    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
        }
    }
}

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

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 }

Event1a ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList,
    w                                   W,
    hysteresis                          Hysteresis                          OPTIONAL,
    reportDeactivationThreshold         ReportDeactivationThreshold
}

Event1b ::=                         SEQUENCE {
    triggeringCondition                 TriggeringCondition,
    reportingRange                      ReportingRange,
    forbiddenAffectCellList             ForbiddenAffectCellList,
    w                                   W,
    hysteresis                          Hysteresis                          OPTIONAL
}

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

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

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

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

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

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

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

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

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

Event3c ::=                         SEQUENCE {
    thresholdOtherSystem                Threshold,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingAmount                     ReportingAmount,
    reportingInterval                   ReportingInterval
}

Event3d ::=                         SEQUENCE {
    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-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-1msec ::=                   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               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 ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    noReporting                         NULL
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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                                BOOLEAN
        },
        spare1                              SEQUENCE {}NULL
    }
}

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-TDD           IntraFreqMeasQuantity-TDD
        }
    }
}

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

IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-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 {
                                        ipl5, ipl10 }

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

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

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

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

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-1msec                       GPS-TOW-1msec,
    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 ::=              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-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    cpich-SIR                           CPICH-SIR,
                    pathloss                            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 ::=       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,
    neignborQuantity                    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
                                        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 (-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                   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, ri1, ri2, ri4, ri8, ri16 }

ReportingIntervalLong ::=           ENUMERATED {
                                        ril0, ril0-25, ril0-5, ril1,
                                        ril2, ril3, ril4, ril6, ril8,
                                        ril12, ril16, ril20, ril24,
                                        ril28, ril32, ril64 }

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

Resume-Release ::=                  CHOICE {
    resume                              UE-State,
    release                             NULL
}

RL-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 ::=                            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                     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                            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
}

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-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxTraf)) 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 ::=                 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,
                                        utra-Carrier-RSSI,
                                        ue-RX-TX-TimeDifference }

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

UE-RX-TX-ReportEntryList ::=        SEQUENCE (SIZE (1..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
```

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 ::=                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                            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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 {}NULL
}

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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType2 ::=                    SEQUENCE {
    -- UTRAN mobility IEs
        ura-IdentityList                URA-IdentityList,
    -- User equipment IEs
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType8 ::=                    SEQUENCE {
    -- User equipment IEs
        cpch-Parameters                 CPCH-Parameters,
    -- Physical channel IEs
        cpch-SetInfoList                CPCH-SetInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType9 ::=                    SEQUENCE {
    -- Physical channel IEs
        cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType10 ::=                   SEQUENCE {
```

```
    -- User equipment IEs
        drac-SysInfoList                DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType13-1 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-RAND-Information        ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType13-2 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType13-3 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-PrivateNeighborListInfo ANSI-41-PrivateNeighborListInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType13-4 ::=                 SEQUENCE {
    -- ANSI-41 IEs
        ansi-41-GlobalServiceRedirectInfo
                                        ANSI-41-GlobalServiceRedirectInfo,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        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 for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                         OPTIONAL
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SystemType ::=                      ENUMERATED {
                                        gsm, cdma2000,
                                        spare1, spare2, spare3, spare4,
                                        spare5, spare6, spare7, spare8,
                                        spare9, spare10, spare11,
                                        spare12, spare13, spare14 }

END
```

3GPP RAN WG2#12
Oahu, Hawaii, May 22th to 26th, 2000

Document R2-001252
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	362r1	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 2000-05-26

Subject: Downloading of pre- defined configurations via SIB 16

Work item:

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

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	X		Release 99	X
				Release 00	

Reason for change:

The following changes are proposed in the orginal revision of this CR

Downloading of predefined radio configurations via system information (SIB 16)

- SIB 16 to include single predefined configuration
- SIB 16 may occur multiple times, each with their own scheduling information and value tag
- PLMN value tag used for SIB 16 includes preconfiguration identity and preconfiguration value tag
- Clarification that UE shall store only one preconfigurations with the same identity; if the UE has a predefined configuration with the same identity as the newly received one, it shall discard/ overwrite the stored version (with another value tag)

NOTE: as regards to the change in SysInfoType16 (ASN.1) specification, this CR should take precedence over the CR HoTU

Power on

- The UE is allowed to re- use information stored prior to power on; power on should not be used as a reset

The following changes are proposed in revision 1 of this CR

1) Changes related to power on behaviour proposed in the original revision of this CR

2) Special value tag IE is created for predefined configurations

3) Clarification is added to 8.1.1.5.16 that the UE is not required to complete reading of SIB 16 before accessing the system

4) Column UE state/ mode in table 8.1.1 is changed from CELL_DCH to Idle Mode, CELL_FACH, CELL_PCH, URA_PCH

Clauses affected:	8.1.1.1.1, 8.1.1.1.2, 8.1.1.1.3, 8.1.1.1.4, 8.1.1.3, 8.1.1.3.1, 8.1.1.5.15 (NEW), 8.1.1.5.16 (NEW), 10.2.49.4.18, 10.3.8.8, 10.3.8.10, 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.

8.1.1 Broadcast of system information

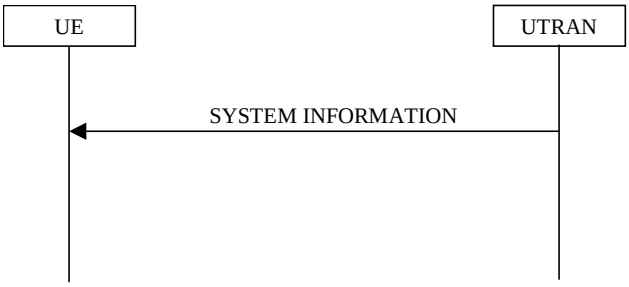

Figure 3: Broadcast of system information

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to idle mode- and connected mode UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.
The system information is organised as a tree. A *master information block* gives references to a number of system information blocks in a cell, including scheduling information for those system information blocks. The system information blocks contain the actual system information and/or references to other system information blocks including scheduling information for those system information blocks.
Some system information blocks may occur more than once with different content. In this case scheduling information is provided for each occurrence of the system information block. Presently this option is only allowed for system information block type 16.
Figure 4 illustrates the relationship between the master information block and the system information blocks in a cell.

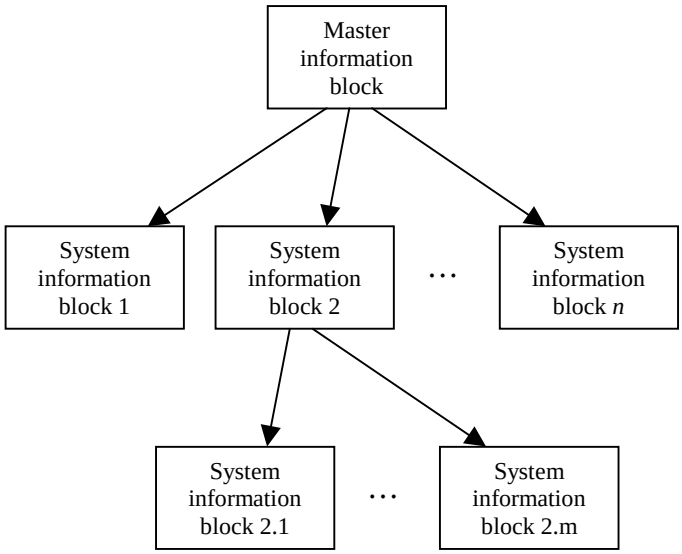

Figure 4: The overall structure of system information

8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.
The *area scope column* in table 8.1.1 specifies the area where a system information block is valid. If the area scope is *cell*, the UE shall read the system information block every time a new cell is selected. If the area scope is *PLMN*, the UE shall check the value tag for the system information block when a new cell is selected. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block in the old cell, the UE shall re-read the system information block.

System information blocks of which there are multiple occurrences, each have their own independent value tag; the UE- shall re- read occurrence n if the value tag of this occurrence has changed.

The *UE mode/state column* in table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block are valid. In state *CELL_DCH*, the UEs fulfilling the *Additional requirements column* shall use the IEs given by the system information block when in state CELL_DCH.

The *transport channel* column in table 8.1.1 specifies whether the system information block is broadcast on a BCH or a FACH transport channel.

The *scheduling information column* in table 8.1.1 specifies the position and repetition period for the SIB.

The *modification of system information* column in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information according to subclause 8.1.1.4.1 or 8.1.1.4.3. For system information blocks with an expiration timer, the UE shall update the information according to subclause 8.1.1.4.2.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	Modification of system information	Additional requirements
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	SIB_POS = 0 FDD: SIB_REP = [8] TDD: SIB_REP = [8, 16, 32, 64] [SIB_OFF=2]	Value tag	
		CELL_FACH	FACH	Scheduling not applicable	Value tag	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	PLMN	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5. If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	

System information block type 10	Cell	CELL_DCH	FACH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block shall only be acquired by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If the system information block is not broadcast in a cell, the DRAC procedures do not apply in this cell.
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11.
System information block type 13	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14 (TDD)	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurences

8.1.1.1.3 Segmentation and concatenation of system information blocks

A generic SYSTEM INFORMATION message is used to convey the system information blocks on the BCCH. A given BCCH may be mapped onto either a BCH- or a FACH transport channel. The size of the SYSTEM INFORMATION message shall fit the size of a BCH- or a FACH transport block.

The RRC layer in UTRAN performs segmentation and concatenation of system information blocks. If a system information block is larger than the size of a SYSTEM INFORMATION message, it will be segmented and transmitted in several messages. If a system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate several complete system information blocks into the same message.

Four different segment types are defined:

- First segment;
- Subsequent segment;

- Last segment;
- Complete.

Each of the types *First-*, *Subsequent-* and *Last segment* are used to transfer segments of a master information block or a system information block. The segment type *Complete* is used to transfer a complete master information block or a complete system information block.
Each segment consists of a header and a data field. The data field carries the actual system information elements. The header contains the following parameters:

- The number of segments in the system information block (SEG_COUNT). This parameter is only included in the header if the segment type is "First segment".
- SIB type. The SIB type uniquely identifies the master information block or a system information block.
- Segment index. This parameter is only included in the header if the segment type is "Subsequent segment" or "Last segment".

UTRAN may combine one or several segments of variable length in the same SYSTEM INFORMATION message. The following combinations are allowed:

1. First segment;
2. Subsequent segment;
3. Last segment;
4. Last segment + one or several Complete;
5. One or several Complete.

Not more than one segment from each master information block or system information block should be transmitted in the same SYSTEM INFORMATION message. When combination 3, 4 or 5 is used, padding should be inserted until the SYSTEM INFORMATION message has the same size as the BCH- or the FACH transport block.
For system information blocks of which multiple occurences are used, the segments of different occurences can not be distinguished. Therefore, the different occurences should be scheduled in such a manner that they should always be transmitted sequentially; the previous occurence has to be finished completely before transmission of a new occurence is started.

8.1.1.1.4 Re-assembly of segments

The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block or system information block shall be assembled in ascending order with respect to the segment index. For system information blocks of which multiple occurrences are used, each occurrence shall be re- assembled independently.

8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall receive SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in CELL_FACH state. In addition, UEs with support for simultaneous reception of one SCCPCH and one DPCH shall receive system information on a FACH transport channel when in CELL_DCH state.
Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.
The UE may store system information blocks (including their value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. This information is valid for a period of [TBD] hours after reception. All stored system information blocks shall be considered as invalid after the UE has been switched off.
When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks.

8.1.1.3.1 Reception of SYSTEM INFORMATION messages broadcast on a BCH transport channel

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.
On reception of the master information block, the UE shall:

- If the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN Type" has the value "GSM-MAP" or "GSM-MAP and ANSI-41", the UE shall. check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN, stored as "PLMN identity" in the variable SELECTED_PLMN.

- If the "PLMN type" in the variable SELECTED_PLMN has the value "ANSI-41 "and the IE "PLMN Type" has the value "ANSI-41" or "GSM-MAP and ANSI-41", the UE shall store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41.

- Store the "value tag" into the variable VALUE TAG for the master information block.

- Check and store the IE "value tag" for all system information blocks with PLMN scope that are to be used by the UE. If, for any system information blocks, the value tag is different from the value of the variable VALUE_TAG for that system information block or if no IEs from corresponding system information block have been stored, the UE shall read and store the IEs of that system information block.

- For system information blocks of which multiple occurences are used, check and store the IE "value tag" for each occurence of the system information blocks to be used by the UE. If, for any occurrence of the system information blocks, the value tag is different from the value of the variable VALUE_TAG for the same occurence of the system information block or if no IEs from corresponding occurence of the system information block have been stored, the UE shall read and store the IEs of that system information block.

- Read and store the IEs of all system information blocks with cell scope that are to be used by the UE if not previously stored for that cell.

The UE may use the scheduling information given by the master information to locate each system information block to be acquired.
Upon reception of a system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.5.15 System Information Block type 15

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 in a similar manner as specified for the scheduling information contained within the master information block.

- to be completed.

8.1.1.5.16 System Information Block type 16

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 in a similar manner as specified for the scheduling information contained within the master information block.

- compare for each predefined configuration the value tag of the stored predefined configuration, if any, with the preconfiguration value tag included in the PLMN value tag for the occurence of the SIB with the same predefined configuration identity.

- in case the UE has no predefined configuration stored with the same identity or in case the predefined configuration value tag is different, the UE shall store the predefined configuration information together with its identity and value tag. In case a predefined configuration with the same identity was stored, the UE shall overwrite this one with the new configuration received via system information

- the predefined configurations are stored for later use e.g. during handover to UTRAN.

- the above handling applies regardless of whether the stored predefined configuration information has been obtained via UTRA or via another RAT.

The UE is not required to complete reading of all occurances of system information block type 16 before initiating RRC connection establishment.

10.2.49.4.18 System Information Block type 16

The system information block type 16 contains radio bearer, transport channel and physical channel parameters to be stored by UE in idle and connected mode for use during handover to UTRAN. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and Reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	
RB information elements				
~~Predefined radio configurations list~~	~~MP~~	~~1 to <maxPredefConfigCount>~~		
~~>Predefined configuration identity~~	~~MP~~		~~Predefined configuration identity 10.3.4.5~~	
~~> Predefined configuration value tag~~	~~OP~~		~~Predefined configuration value tag 10.3.4.6~~	
~~>~~Predefined RB configuration	MP		Predefined RB configuration 10.3.4.7	
TrCH Information Elements				
~~>~~Predefined TrCH configuration	MP		Predefined TrCH configuration 10.3.5.12	
PhyCH Information Elements				
~~>~~Predefined PhyCH configuration	MP		Predefined PhyCH configuration 10.3.6.40	

Multi Bound	Explanation
MaxPredefConfigCount	Maximum number of predefined configurations
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRBcount	Maximum number of RBs
MaxTrCH	Maximum number of transport channels

10.3.8.11 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP			
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.8	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "PLMN" in table 8.1.1. - a value tag is used to indicate changes in the system information block. - the SIB type does not equal system information block type 16
>Predefined configuration identity and value tag			Predefined configuration identity and value tag 10.3.8.x	This IE is included if the following conditions are fulfilled: - the SIB type equals system information block type 16
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "cell" in table 8.1.1. - a value tag is used to indicate changes in the system information block.
Scheduling	MD			see below for default value
>SEG_COUNT	MD		SEG COUNT 10.3.8.12	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		Enumerated (2, 4, 6, ..32)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments.
Scheduling	The default value is the scheduling of the SIB as specified in another SIB.

10.3.8.8 PLMN Value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Value tag	MP		Enumerated (1..256)	

10.3.8.x Predefined configuration identity and value tag

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
Predefined configuration value tag	MP		Predefined configuration value tag 10.3.4.6	

10.3.8.10 References to other system information blocks

Information element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <MaxSysInfoBlockCount>		System information blocks for which multiple occurences are used, may appear more than once in this list
>Scheduling information	MD		Scheduling information, 10.3.8.11	

Multi bound	Explanation
MaxSysInfoBlockCount	Maximum number of references to other system information blocks

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

    PredefinedRB-ConfigurationPreDefRadioConfigurationList
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          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                            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)

PredefinedConfigIdentityAndValueTag ::=     SEQUENCE {
    predefinedConfigIdentity                    PredefinedConfigIdentity,
    predefinedConfigValueTag                    PredefinedConfigValueTag
}

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                       PredefinedConfigIdentityAndValueTagNULL
}

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 ::=                 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
        preDefRBconfigurationpreDefinedRadioConfigurations  PredefinedRB-
Configurationpre-DefRadioConfigurationList,
    -- 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
```

3GPP TSG RAN WG2 #12
Oahu, Hawaii, May 22th – 26th, 2000

Document R2-001173
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	363r1	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	X	strategic		(for SMG use only)
List expected approval meeting # here ↑		for information		non-strategic		

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

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

Source:	TSG-RAN WG2	**Date:**	26-05-2000

Subject:	Optimisation of System Information

Work item:	

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

Reason for change:

Changes proposed in this CR:

1) The tabular format in section 10.2.49 and 10.3.8.14 is updated in accordance with the ASN.1 changes proposed in CR 344 (System Information extensibility in ASN.1).

2) The option to concatenate a <first segment> after other segments in a transport block is introduced. Today the RRC layer inserts padding to fill the transport block for combinations ending with a <last segment> or a <complete>. With this option the remaining space in a transport block could instead be used to transfer the first part of another SIB.

The list of allowed combinations specified in subclause 8.1.1.3 is extended with three new combinations:

- Last segment + First segment
- Last segment + one or several complete + First segment
- One or several Complete + First segment

Note that the size of the first segment now could be of variable length. However, this will not generate any extra overhead since a <first segment> is already defined as a bitstring of variable length.

3) In order to optimise the usage of the BCH channel, the length field for segments filling the entire transport block is removed. To achieve this the IE "SIB data" is replaced with two new IEs – "SIB data fixed" defined as a bitstring of fixed length and "SIB data variable" defined as a variable bitstring.

4) The number of levels for SIB references is restricted to 2, i.e only the MIB and the SIBs referenced by the MIB could contain the IE “References to other system

information blocks". Additionally, the SIB numbering in Figure 4 (section 8.1.1.1.1) is removed to avoid misinterpretations related to the SIB references.

5) The IE "References to other system information blocks" is included as an optional field in all SIB types to make the SIB tree structure more general. In the current specification only SIBs with value tag and Cell scope could contain these references. However, it will only be possible to include references to SIBs using the same area scope and update mechanism as the "parent SIB".

6) SIBs are encoded before they are segmented (encoding is performed in two steps). This is clarified in section 8.1.1.1.3 and 10.3.8.

7) The period of validity for system information blocks is defined (section 8.1.1.3 and 8.1.1.4).

8) UEs entering state CELL_DCH directly from idle mode will never get the timer and constant values used in connected mode since they are currently only transmitted in SIB type 2. In this CR it is proposed to include the timers and constants used by the UE in state CELL_DCH in SIB type 1.

9) Default values for most of the timers and constants are specified.

10) The value range for the parameter SIB_REP is extended with the repetition period 4096 frames (= 1 SFN cycle).

11) Reporting criteria and measurement validity for Traffic volume measurements are included in SIB type 12 (and 11) in order to enable traffic volume measurements via system information.

12) The IE "Measurement reporting mode" is currently missing in the measurement control information transmitted in system information block type 11 and 12. This is corrected in this CR.

<u>The following changes are proposed in R1 of this CR:</u>

1) item (4) from the original version, reduction of number of levels for SIB references to 2, is removed from this CR

2) The need for PUSCH related timers and counters (T310, T311 and N310) is changed to optional

3) Timers and constants proposal is aligned with CR 285r1, R2-000916

4) Small editorial corrections

Clauses affected:	8.1.1.1.1, 8.1.1.1.3, 8.1.1.1.4, 8.1.1.3, 8.1.1.4, 8.1.1.5.1, 10.2.49, 10.3.3.42-43, 10.3.3.x (new), 10.3.7.89, 10.3.7.99, 10.3.8.11, 10.3.8.14, 10.3.8.x (new), 11.2, 11.3.3, 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:	

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

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

The system information is organised as a tree. A *master information block* gives references to a number of system information blocks in a cell, including scheduling information for those system information blocks. The system information blocks contain the actual system information and optionally~~/or~~ references to other system information blocks including scheduling information for those system information blocks. The referenced system information blocks must have the same area scope and use the same update mechanism as the parent system information block.

Figure 4 illustrates the relationship between the master information block and the system information blocks in a cell.

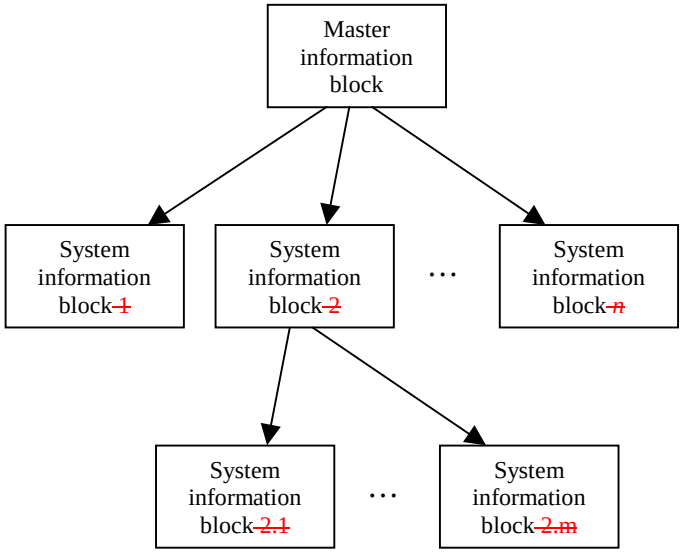

Figure 4: The overall structure of system information

8.1.1.1.3 Segmentation and concatenation of system information blocks

A generic SYSTEM INFORMATION message is used to convey the system information blocks on the BCCH. A given BCCH may be mapped onto either a BCH- or a FACH transport channel. The size of the SYSTEM INFORMATION message shall fit the size of a BCH- or a FACH transport block.

The RRC layer in UTRAN performs segmentation and concatenation of encoded system information blocks. If ~~a~~the encoded system information block is larger than the size of a SYSTEM INFORMATION message, it will be segmented and transmitted in several messages. If ~~a~~the encoded system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate several complete system information blocks into the same message.

Four different segment types are defined:

- First segment;
- Subsequent segment;
- Last segment;
- Complete.

Each of the types *First-*, *Subsequent-* and *Last segment* are used to transfer segments of a master information block or a system information block. The segment type *Complete* is used to transfer a complete master information block or a complete system information block.

Each segment consists of a header and a data field. The data field carries the encoded~~actual~~ system information elements. The header contains the following parameters:

- The number of segments in the system information block (SEG_COUNT). This parameter is only included in the header if the segment type is "First segment".
- SIB type. The SIB type uniquely identifies the master information block or a system information block.
- Segment index. This parameter is only included in the header if the segment type is "Subsequent segment" or "Last segment".

UTRAN may combine one or several segments of variable length in the same SYSTEM INFORMATION message. The following combinations are allowed:

1. No segment
2. ~~1.~~ First segment;
3. ~~2.~~ Subsequent segment;
4. ~~3.~~ Last segment;
5. Last segment+ First segment;
6. Last segment + one or several Complete;
7. Last segment + one or several Complete+ First segment;
8. One or several Complete; ~~.~~
9. One or several Complete+ First segment.

The “No segment” combination is used when there is no master information block or system information block scheduled for a specific BCH transport block.

~~Not more than one segment from each master information block or system information block should be transmitted in the same SYSTEM INFORMATION message. When combination 3, 4 or 5 is used, padding should be inserted until the SYSTEM INFORMATION message has the same size as the BCH or the FACH transport block.~~

8.1.1.1.4 Re-assembly of segments

The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block or system information block shall be assembled in ascending order with respect to the segment index. When all segments have been received, the UE shall perform decoding of the complete master information block or system information block.

8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall receive SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in CELL_FACH state. In addition, UEs with support for simultaneous reception of one SCCPCH and one DPCH shall receive system information on a FACH transport channel when in CELL_DCH state.

Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.

The UE may store system information blocks (including their value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. This information is valid for a period of 6~~[TBD]~~ hours after reception. All stored system information blocks shall be considered as invalid after the UE has been switched off.

When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks.

8.1.1.4 Modification of system information

Different rules apply for the updating of different types of system information blocks. If the system information block has a "value tag" in the master information block or higher level system information block, UTRAN shall indicate when any of the information elements are modified by changing the value of Value TAG. [Even if the value tag does not change, the UE shall consider the system information block to be invalid after a period of 6~~[TBD]~~ hours from reception.] In addition to this, there are system information block types that contain information elements changing too frequently to be indicated by change in value tag. This type of system information blocks is not linked to a value tag in the master information block or higher-level system information block. All stored system information blocks shall be considered as invalid after the UE has been switched off.

8.1.1.5 Actions upon reception of system information blocks

8.1.1.5.1 System Information Block type 1

If in idle mode, the UE should store all relevant IEs included in this system information block if the "PLMN Type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN type" in the Master Information Block has the value "GSM-MAP" or "GSM-MAP and ANSI-41". The UE shall also:

- forward the content of the IE "NAS system info" to the non-access stratum entity indicated by the IE "CN domain identity";
- use the IE "CN_DRX_cycle length" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.
- store the timer and constant values included in the IE “UE Timers and constant used in CELL_DCH”. The values shall be used by the UE when entering state CELL_DCH.

If in connected mode the UE shall not use the values of the IEs in this system information block (except for the timers and constant values given by the IE “UE Timers and constant in CELL_DCH”).

10.2.49 SYSTEM INFORMATION

Information Element	Need	Multi	Type and reference	Semantics description
Message type	OP		Message type	The message type is mandatory on the FACH, and absent on the BCH
CHOICE *mode*	MP			
>FDD				
>>SFNprime	CV channel		Integer(0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>TDD				(no data)
CHOICE Segment combination	MP			
>Combination 1				(no data)
>Combination 2~~1~~				
>>First Segment	MP		First Segment, 10.2.49.1	
>Combination 3~~2~~				
>>Subsequent Segment	MP		Subsequent ~~or last~~ Segment, 10.2.49.2	
>Combination 4~~3~~				
>>Last segment	MP		~~Subsequent or l~~Last segment, 10.2.49.x~~2~~	
>Combination 5~~4~~				
>>Last segment	MP		Last Segment 10.2.49.x	
>>First Segment	MP		First Segment (short), 10.2.49.x	
>Combination 6				
>>Last Segment	MP		Last Segment, 10.2.49.x	
>>Complete list	MP	1..16		Note 1
>>>Complete	MP		Complete SIB, 10.2.49.3	
~~>>Last Segment~~			~~Subsequent or last Segment, 10.2.49.2~~	
>Combination 7				
>>Last Segment	MP		Last Segment, 10.2.49.x	
>>Complete list	MP	1..16		Note 1
>>>Complete	MP		Complete SIB, 10.2.49.3	
>>First Segment	MP		First Segment (short), 10.2.49.x	
>Combination 8~~5~~				
>>Complete list	MP	1..16		Note 1
>>>Complete	MP		Complete SIB, 10.2.49.3	
>Combination 9~~6~~				~~(no data)~~
>>Complete list	MP	1..16		Note 1
>>>Complete	MP		Complete	

			SIB, 10.2.49.3	
>>First Segment	MP		First Segment (short), 10.2.49.x	

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

NOTE 1: If Combination 6 - 94 ~~or 5~~ contains a Master information block Master information shall be located as the first IE in the list.

10.2.49.1 First Segment

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

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SEG_COUNT	MP		SEG COUNT, 10.3.8.12	
SIB data fixed	MP		SIB data fixed, 10.3.8.14	

10.2.49.x First Segment (short)

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

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SEG_COUNT	MP		SEG COUNT, 10.3.8.12	
SIB data variable	MP		SIB data variable, 10.3.8.x	

10.2.49.2 Subsequent ~~or last~~ Segment

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

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
Segment index	MP		Segment Index, 10.3.8.13	
SIB data fixed	MP		SIB data fixed, 10.3.8.14	

10.2.49.x Last Segment

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

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
Segment index	MP		Segment Index, 10.3.8.13	
SIB data variable	MP		SIB data variable, 10.3.8.x	

10.2.49.3 Complete SIB

This segment type is used to transfer a non-segmented system information block.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.15	
SIB ~~content~~data variable	MP		SIB data variable, 10.3.8.x ~~SIB Content, 10.2.49.4.1~~	

10.2.49.4 System Information Blocks

10.2.49.4.1 SIB Content

SIB Segments are the result of the segmentation of a 'SIB Content' IE. The SIB content IE is developed hereafter:

Information Element	Need	Multi	Type and reference	Semantics description
CHOICE SIB type	MP			
>Master information block			10.2.49.4.2	
>System information block type 1			10.2.49.4.3	
>System information block type 2			10.2.49.4.4	
>System information block type 3			10.2.49.4.5	
>System information block type 4			10.2.49.4.6	
>System information block type 5			10.2.49.4.7	
>System information block type 6			10.2.49.4.8	
>System information block type 7			10.2.49.4.9	
>System information block type 8			10.2.49.4.10	
>System information block type 9			10.2.49.4.11	
>System information block type 10			10.2.49.4.12	
>System information block type 11			10.2.49.4.13	
>System information block type 12			10.2.49.4.14	
>System information block type 13			10.2.49.4.15	
>System information block type 13.1			10.2.49.4.15.1	
>System information block type 13.2			10.2.49.4.15.2	
>System information block type 13.3			10.2.49.4.15.3	
>System information block type 13.4			10.2.49.4.15.4	
>System information block type 14			10.2.49.4.16	
>System information block type 15			10.2.49.4.17	
>System information block type 16			10.2.49.4.18	

Condition	Explanation
SIB Type	The common value of the 'SIB type' field in the segment(s).

10.2.49.4.2 Master Information Block

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
MIB Value tag	MP		MIB Value tag 10.3.8.7	
CN information elements				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV GSM		PLMN Identity 10.3.1.11	
ANSI-41 information elements				
ANSI-41 Core Network Information	CV ANSI-41		ANSI-41 Core Network Information 10.3.9.1	
CHOICE mode	MP			
>TDD				
>>SFN prime	MP		Integer (0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
>FDD				(no data)
References to other system information blocks	MP		References to other system information blocks 10.3.8.10	

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

10.2.49.4.3 System Information Block type 1

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

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	Only system information blocks with area scope "PLMN" and update mechanism "value tag" may be referenced.
CN information elements				
CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
CN domain system information list	MP	1 to <maxCNdomains>		Send CN information for each CN domain.
>CN domain system information	MP		CN domain system information 10.3.1.2	
UE information				
UE Timers and constants in CELL_DCH	MP		UE Timers and constants in CELL_DCH 10.3.3.x	
UE Timers and constants in idle mode	MP		UE Timers and constants in idle mode 10.3.3.43	

Multi Bound	Explanation
MaxCNdomains	Maximum number of CN domains

10.2.49.4.4 System Information Block type 2

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "PLMN" and update mechanism "value tag" may be referenced.
UTRAN mobility information elements				
URA identity list	MP	1 ..<maxURAcount>		
>URA identity	MP		URA identity 10.3.2.5	
UE information elements				
UE Timers and constants in connected mode	MP		UE Timers and constants in connected mode 10.3.3.42	

Multi Bound	Explanation
MaxURAcount	Maximum number of URAs in a cell

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	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info 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	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
UTRAN mobility information elements				
Cell identity	MP		Cell identity 10.3.2.2	
Cell selection and re-selection info	MP		Cell selection and re-selection info 10.3.2.3	
Cell Access Restriction	MP		Cell Access Restriction 10.3.2.1	

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	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
Frequency info	OP		Frequency info 10.3.6.24	
Maximum allowed UL TX power	OP		Maximum allowed UL TX power 10.3.6.27	
CHOICE *mode*	MP			
>TDD				
>>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	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
Frequency info	OP		Frequency info 10.3.6.24	
Maximum allowed UL TX power	OP		Maximum allowed UL TX power 10.3.6.27	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.41	Note 1
CHOICE *mode*	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	
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

10.2.49.4.9 System Information Block type 7

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

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	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
CHOICE mode	MP			
>FDD				
>>UL interference	MP		UL interference 10.3.6.64	
>TDD				(no data)
PhyCH information elements				
PRACHs listed in system information block type 5	MP	1 .. <maxPRACHcount>		The order of the PRACHs is the same as in system information block type 5.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.23	
PRACHs listed in system information block type 6	OP	1 .. <maxPRACHcount>		The order of the PRACHs is the same as in system information block type 6.
>Dynamic persistence level	MP		Dynamic persistence level 10.3.6.23	

Multi Bound	Explanation
MaxPRACHcount	Maximum number of PRACHs

10.2.49.4.10 System Information Block type 8

NOTE: Only for FDD.

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
UE information				
CPCH parameters	MP		CPCH parameters 10.3.3.6	
PhyCH information elements				
CPCH set info list	MP	1 .. <maxCPCHsetcount>		
>CPCH set info	MP		CPCH set info 10.3.6.11	

Multi Bound	Explanation
MaxCPCHsetcount	Maximum number of CPCH sets per Node B

10.2.49.4.11 System Information Block type 9

NOTE: Only for FDD.

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
PhyCH information elements				
CPCH set persistence levels list	MP	1 .. <maxCPCHsetcount>		
>CPCH set persistence levels	MP		CPCH persistence levels 10.3.6.10	

Multi Bound	Explanation
MaxCPCHsetcount	Maximum number of CPCH sets per Node B

10.2.49.4.12 System Information Block type 10

NOTE: Only for FDD.

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "expiration timer" may be referenced.
UE information				
DRAC system information	MP		DRAC system information 10.3.3.8	DRAC information is sent for each class of terminal

10.2.49.4.13 System Information Block type 11

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

Information Element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.4.14 System Information Block type 12

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

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	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
Measurement information elements				
FACH measurement occasion info	OP		FACH measurement occasion info 10.3.7.8	
Measurement control system information	MP		Measurement control system information 10.3.7.72	

10.2.49.4.15 System Information Block type 13

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

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
CN Information Elements				
CN Domain system information list		1 to <maxCNdomains>		Send CN information for each CN domain.
>CN Domain system information			CN Domain system information 10.3.1.2	
UE Information				
UE timers and constants in idle mode	OP		UE timers and constants in idle mode 10.3.3.43	
Capability update requirement	OP		Capability update requirement 10.3.3.2	

10.2.49.4.15.1 System Information Block type 13.1

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

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 RAND information	MP		ANSI-41 RAND information 10.3.9.5	

10.2.49.4.15.2 System Information Block type 13.2

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

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 User Zone Identification information	MP		ANSI-41 User Zone Identification information 10.3.9.6	

10.2.49.4.15.3 System Information Block type 13.3

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

Information Element	Need	Multi	Type and reference	Semantics description
ANSI-41 information elements				
ANSI-41 Private Neighbor List information	MP		ANSI-41 Private Neighbor List information 10.3.9.4	

10.2.49.4.15.4 System Information Block type 13.4

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

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

10.2.49.4.16 System Information Block type 14

NOTE: Only for TDD.

The system information block type 14 contains parameters for common and dedicated physical channel uplink outer loop power control information to be used in both idle and connected mode. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
PhyCH information elements				
Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.42	For path loss calculation
Individual Timeslot interference list	MP	1 to ….<maxTS count>		
>Individual Timeslot interference	MP		Individual Timeslot interference 10.3.6.26	
RACH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled RACH Margin
DPCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled UL DPCH Margin
USCH Constant Value	OP		Constant Value 10.3.6.9	Operator controlled USCH Margin

Multi Bound	Explanation
MaxTScount	Maximum number of timeslots

10.2.49.4.17 System Information Block type 15

The system information block type 15 contains information useful for LCS. In particular it allows the UE based method to perform localisation without dedicated signalling. For the UE assisted methods the signalling is reduced.

Information Element	Need	Multi	Type and Reference	Semantics description
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
LCS GPS assistance for SIB	OP		LCS GPS assistance for SIB 10.3.7.47	
LCS OTDOA assistance for SIB	OP		LCS OTDOA assistance for SIB 10.3.7.61	

Multi Bound	Explanation
MaxSysInfoBlockcount	Maximum number of references to other system information blocks.

10.2.49.4.18 System Information Block type 16

The system information block type 16 contains radio bearer, transport channel and physical channel parameters to be stored by UE in idle and connected mode for use during handover to UTRAN. The block may also contain scheduling information for other system information blocks.

Information Element	Need	Multi	Type and Reference	Semantics description
Other information elements				
References to other system information blocks	OP		References to other system information blocks 10.3.8.10	Only system information blocks with area scope "Cell" and update mechanism "value tag" may be referenced.
RB information elements				
Predefined radio configurations list	MP	1 to <maxPredefConfigCount>		
>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5	
> Predefined configuration value tag	OP		Predefined configuration value tag 10.3.4.6	
>Predefined RB configuration	MP		Predefined RB configuration 10.3.4.7	
TrCH Information Elements				
>Predefined TrCH configuration	MP		Predefined TrCH configuration 10.3.5.12	
PhyCH Information Elements				
>Predefined PhyCH configuration	MP		Predefined PhyCH configuration 10.3.6.40	

Multi Bound	Explanation
MaxPredefConfigCount	Maximum number of predefined configurations
MaxSRBcount	Maximum number of signalling RBs that could be setup with this message
MaxRBcount	Maximum number of RBs
MaxTrCH	Maximum number of transport channels

10.3.3.x UE Timers and Constants in CELL_DCH

This information element specifies timer- and constant values used by the UE in state CELL_DCH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T304	MD		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. At least 3 spare values are needed Criticality: reject is needed
N304	MD		Integer(1..8)	Default value is 2.
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 320.
T309	MD		Integer(1…8)	Value in seconds. Default value is 5.
T310	OP		Integer(40 .. 320 by step of 40)	Value in milliseconds.
N310	OP		Integer(1 .. 8)	
T311	OP		Integer(250 .. 2000 by step of 250)	Value in milliseconds.
T313	MD		Integer (0..15)	Value in seconds. Default value is 3.
N313	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 50.
T314	MD		Integer (2,4,6,8,12, 16,20)	Value in seconds. Default value is 12.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180.
N315	MD		Integer (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.

10.3.3.42 UE Timers and Constants in connected mode

This information element specifies~~indicates~~ timer~~-s~~ and constant values~~s~~ used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MDP		Integer(1... 8)	Value in seconds. Default value is 1.
T302	MDP		Integer(1... 8)	Value in seconds. Default value is 5.
N302	MDP		Integer(1.. 8)	Default value is 3.
T303	MDP		Integer(1... 8)	Value in seconds. Default value is 8.
N303	MDP		Integer(1.. 8)	Default value is 3.
T304	MDP		Integer(100, 200, 400, 1000, 2000)	Value in milliseconds. Default value is 2000. At least 3 spare values are needed Criticality: reject is needed
N304	MDP		Integer(1.. 8)	Default value is 2.
T305	MDP		Integer Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes. Default value is 60.
T306	MDP		Integer Enumerated(no update, 5, 10, 30, 60, 120, 360, 720)	Value in minutes. Default value is 60.
T307	MDP		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds. Default value is 30. At least 1 spare value needed Criticality: reject is needed
T308	MDP		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 320.
T309	MDP		Integer(1… 8)	Value in seconds. Default value is 5.
T310	MPOP		Integer(40 .. 320 by step of 40)	Value in milliseconds
N310	MPOP		Integer(1 .. 8)	
T311	MPOP		Integer(250 .. 2000 by step of 250)	Value in milliseconds
T312	MDP		Integer (0..15)	Value in seconds. Default value is 1.
N312	MDP		Integer Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.
T313	MDP		Integer (0..15)	Value in seconds. Default value is 3.
N313	MDP		Integer Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 50.

T314	MDP		Integer Enumerated(2,4,6,8,12, 16,20, 10, 20, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 12.
T315	MDP		Integer Enumerated (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180.
N315	MDP		Integer Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.

10.3.3.43 UE Timers and Constants in idle mode

This information element specifies indicates timer s and constant values used by the UE in idle mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T300	MP		Integer(1...8)	Value in seconds
N300	MP		Integer(1..8)	
T312	MP		Integer(0 ..15)	Value in seconds
N312	MP		Enumerated (1, 50, 100, 200, 400, 600, 800, 1000)	

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	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.74	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

10.3.7.99 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~~
Measurement validity	OP		Measurement validity 10.3.7.76	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.74	
CHOICE reporting criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.98	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.78	

~~NOTE 2: The reporting of traffic volume measurements is activated in state CELL_FACH only.~~

10.3.8.11 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB type	MP			
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.8	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "PLMN" in table 8.1.1. a value tag is used to indicate changes in the system information block.
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: - the area scope for the system information block is set to "cell" in table 8.1.1. - a value tag is used to indicate changes in the system information block.
Scheduling	MD			see below for default value
>SEG_COUNT	MD		SEG COUNT 10.3.8.12	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		Enumerated (2, 4, 6, ..32)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments.
Scheduling	The default value is the scheduling of the SIB as specified in another SIB.

10.3.8.x SIB data fixed

Contains the result of a master information block or a system information block after encoding and segmentation. The IE is used for segments with fixed length (segments filling an entire transport block).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data fixed	MP		Bit string (222)	

10.3.8.14 SIB data variable

Contains the result of a master information block or a system information block after encoding and segmentation. The IE is used for segments with variable length. ~~the IE 'SIB Content' after segmentation.~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data variable	MP		Bit string (1..MaxDataLength)	

Multi Bound	Explanation
MaxDataLength	Maximum length of a BCH- or FACH transport block used for broadcast of system information.

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-fixed,
    SIB-Data-variable,
    SIB-Type
FROM Other-IEs;
```

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

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        modeSpecificInfo                CHOICE {
            fdd                             SFN-Prime,
            tdd                             NULL
        },
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentOrLastSegment,
            lastSegment                     SubsequentOrLastSegment,
            lastAndFirst                    SEQUENCE {
                                                LastSegment,
                                                FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                lastSegment                     SubsequentOrLastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                                                LastSegment,
                                                CompleteSIB-List,
                                                FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                                                CompleteSIB-List,
                                                FirstSegmentShort
            }
            spare                           NULL
        }
}

-- **************************************************
--
-- SYSTEM INFORMATION for FACH
--
-- **************************************************

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentOrLastSegment,
            lastSegment                     SubsequentOrLastSegment,
            lastAndFirst                    SEQUENCE {
                                                LastSegment,
                                                FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                lastSegment                     SubsequentOrLastSegment
            },
            lastAndCompleteAndFirst         SEQUENCE {
                                                LastSegment,
                                                CompleteSIB-List,
                                                FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                                                CompleteSIB-List,
                                                FirstSegmentShort
            }
            spare                           NULL
        }
}

-- **************************************************
--
-- First segment
--
```

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

FirstSegment ::=                    SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        seg-Count                       SegCount,
        sib-Data-fixed                  SIB-Data-fixed
}


-- **************************************************
--
-- First segment (short)
--
-- **************************************************

FirstSegmentShort ::=                   SEQUENCE {
    -- Other information elements
        sib-Type                        SIB-Type,
        seg-Count                       SegCount,
        sib-Data-variable               SIB-Data-variable
}


-- **************************************************
--
-- Subsequent or last segment
--
-- **************************************************

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

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

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

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

CompleteSIB-List ::=                SEQUENCE (SIZE(1..16)) OF
                                        CompleteSIB

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

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

SystemInformationChangeIndication ::=   SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo               BCCH-ModificationInfo,
    -- Extension mechanism
        non-Release99-Information           SEQUENCE {}                     OPTIONAL
}
```

11.3.3 User equipment information elements

```
UE-ConnTimersAndConstants ::=       SEQUENCE {
    t-301                               T-301                       DEFAULT 1,
    t-302                               T-302                       DEFAULT 5,
    n-302                               N-302                       DEFAULT 3,
    t-303                               T-303                       DEFAULT 8,
    n-303                               N-303                       DEFAULT 3,
    t-304                               T-304                       DEFAULT 2000,
    n-304                               N-304                       DEFAULT 2,
    t-305                               T-305                       DEFAULT 60,
    t-306                               T-306                       DEFAULT 60,
    t-307                               T-307                       DEFAULT 30,
    t-308                               T-308                       DEFAULT 200,
    t-309                               T-309                       DEFAULT 5,
    t-310                               T-310                       DEFAULT 200,
    n-310                               N-310                       DEFAULT 1,
    t-311                               T-311                       DEFAULT 2000,
    t-312                               T-312                       DEFAULT 1,
    n-312                               N-312                       DEFAULT 1,
    t-313                               T-313                       DEFAULT 3,
    n-313                               N-313                       DEFAULT 50,
    t-314                               T-314                       DEFAULT 180,
    t-315                               T-315                       DEFAULT 180,
    n-315                               N-315                       DEFAULT 1
}

UE-DCHTimersAndConstants ::=        SEQUENCE {
    t-304                               T-304                       DEFAULT 2000,
    n-304                               N-304                       DEFAULT 2,
    t-308                               T-308                       DEFAULT 200,
    t-309                               T-309                       DEFAULT 5,
    t-310                               T-310                       DEFAULT 200,
    n-310                               N-310                       DEFAULT 1,
    t-311                               T-311                       DEFAULT 2000,
    t-313                               T-313                       DEFAULT 3,
    n-313                               N-313                       DEFAULT 50,
    t-314                               T-314                       DEFAULT 180,
    t-315                               T-315                       DEFAULT 180,
    n-315                               N-315                       DEFAULT 1
}
```

11.3.7 Measurement information elements

```
ReportingInfoForCellDCH ::=         SEQUENCE {
    intraFreqReportingQuantity          IntraFreqReportingQuantity,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteria                      CellDCH-ReportCriteria
}


TrafficVolumeMeasuredResults ::=    SEQUENCE {
    rb-Identity                         RB-Identity,
    rlc-BuffersPayload                  RLC-BuffersPayload                  OPTIONAL,
    averageRLC-BufferPayload            AverageRLC-BufferPayload            OPTIONAL,
    varianceOfRLC-BufferPayload         VarianceOfRLC-BufferPayload         OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo
}

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

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-DCHTimersAndConstants,
    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          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                            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),
            rep4096                             INTEGER (0..4095)
        },
        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-fixed ::=                      BIT STRING (SIZE(222))

SIB-Data-variable ::=                   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 {
    -- Other IEs
        sib-ReferenceList           SIB-ReferenceList               OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList        CN-DomainSysInfoList,
    -- User equipment IEs
        ue-IdleTimersAndConstants   UE-IdleTimersAndConstants,
        ue-DCHTimersAndConstants    UE-DCHTimersAndConstants,
    -- Extension mechanism
        non-Release99-Information   SEQUENCE {}                    OPTIONAL
}

SysInfoType2 ::=                SEQUENCE {
    -- Other IEs
        sib-ReferenceList           SIB-ReferenceList               OPTIONAL,
    -- UTRAN mobility IEs
        ura-IdentityList            URA-IdentityList,
    -- User equipment IEs
        ue-ConnTimersAndConstants   UE-ConnTimersAndConstants,
    -- Extension mechanism
        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 {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                ul-Interference                 UL-Interference
            },
            tdd                             NULL
```

```
        },
        prach-Information-SIB5-List     DynamicPersistenceLevelList,
        prach-Information-SIB6-List     DynamicPersistenceLevelList         OPTIONAL,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType8 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- User equipment IEs
        cpch-Parameters                 CPCH-Parameters,
    -- Physical channel IEs
        cpch-SetInfoList                CPCH-SetInfoList,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType9 ::=                    SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- Physical channel IEs
        cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism
        non-Release99-Information       SEQUENCE {}                         OPTIONAL
}

SysInfoType10 ::=                   SEQUENCE {
    -- Other IEs
        sib-ReferenceList               SIB-ReferenceList                   OPTIONAL,
    -- 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
```

3GPP TSG-RAN WG2 Meeting #13
Hawaii, USA 22nd- 26th May 2000

Document R2-001175
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	364r1	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	X	Strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		Non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 22 May, 2000

Subject: CPCH gain factor

Work item:

Category: *(only one category Shall be marked With an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The information element 'Gain factor information' in TS 25.331 are specified both for dedicated physical channel and for PRACH but not for PCPCH. Moreover they seem to be not present in the information element. This CR is to correct “Gain Factor of PCPCH” missed in 25.331 RRC specification.

Clauses affected: 10.3.5.9, 10.3.6.11, 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.

10.3.5.9 Gain Factor Information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Gain Factors*	MP			
>Signalled Gain Factors				The values for gain factors β_c and β_d are signalled directly for a TFC.
>>Gain Factor β_c	MP		Integer (0.. 15)	For DPCCH or control part of PRACH or PCPCH
>>Gain Factor β_d	MP		Integer (0..15)	For DPCCH or data part of PRACH or PCPCH
>>Reference TFC number	OP		Integer (0..15)	If this TFC is a reference TFC, indicates the reference number.
>Computed Gain Factors				The gain factors β_c and β_d are computed for a TFC, based on the signalled settings for the associated reference TFC.
>>Reference TFC number	MP		Integer (0.. 15)	Indicates the reference TFC to be used to calculate the gain factors for this TFC.

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.
TFCS	MP		Transport Format Combination Set 10.3.5.17	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 <maxSubChNum>		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 <maxSigNum>		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	Defines the status information type broadcast on the CPCH Status Indication Channel (CSICH)

			Spreading Factor)	
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 <maxAPSigNum>		AP preamble signature codes for selection of this PCPCH channel.
>>>> AP signature	MP		Enumerated (0..15)	
>>>Available AP access slot subchannel	OP	1 to <maxSubChNum>		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 <maxAPSigNum>		Signatures for AP preamble in UL.
>>> AP signature			Enumerated (0..15)	
>> Available AP sub-channel	OP	1 to < maxAP subCH		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)	

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,
    TFCS                            TFCS,
    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,
    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                   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                                 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)
```

```
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                   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,
        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              OPTIONAL
        }
    }
}

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                                 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-mode1 }

PuncturingLimit ::=                 ENUMERATED {
                                        pl0-40, pl0-44, pl0-48, pl0-52, pl0-56,
                                        pl0-60, pl0-64, pl0-68, pl0-72, pl0-76,
                                        pl0-80, pl0-84, pl0-88, pl0-92, pl0-96, pl1 }

PUSCH-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 {
                                        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 {
                                        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 {
        dpcch-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
        }                                                                   OPTIONAL
    }
}

UL-DPCH-PowerControlInfoHO ::=      CHOICE {
    fdd                                 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
```

3GPP TSG RAN WG2 Meeting #12
Seoul, Korea, 10th Apr – 14th Apr 2000

Document R2-001176
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	368r2	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	X	Strategic		(for SMG use only)
list expected approval meeting # here ↑		For information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 04/04/00

Subject: SFN Transmission Rate in TDD Mode

Work item:

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

Reason for change: It is proposed to increase the rate of SFN transmission in TDD mode. For increased SFN transmission the SFN “choice FDD” is removed from the System Information message structure, and the “choice TDD” SFN is removed from the Master Information block.

Clauses affected: 10.2.49, & 10.2.49.4.2.

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

Other comments:

10.2.49 SYSTEM INFORMATION

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

10.2.49.4.2 Master Information Block

Information Element	Need	Multi	Type and reference	Semantics description
Other information elements				
MIB Value tag	MP		MIB Value tag 10.3.8.7	
CN information elements				
Supported PLMN types	MP		PLMN Type 10.3.1.12	
PLMN Identity	CV GSM		PLMN Identity 10.3.1.11	
ANSI-41 information elements				
ANSI-41 Core Network Information	CV ANSI-41		ANSI-41 Core Network Information 10.3.9.1	
~~CHOICE mode~~	~~MP~~			
~~>TDD~~				
~~>>SFN prime~~	~~MP~~		~~Integer (0..4094 by step of 2)~~	~~SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)~~
~~>FDD~~				~~(no data)~~
References to other system information blocks	MP		References to other system information blocks 10.3.8.10	

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

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        modeSpecificInfo                CHOICE {
            fdd                             SFN-Prime,
            tdd                             NULL
        },
        sfn-prime                       SFN-Prime,
        payload                         CHOICE {
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentOrLastSegment,
            lastSegment                     SubsequentOrLastSegment,
            lastAndComplete                 SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                lastSegment                     SubsequentOrLastSegment
            },
            completeSIB-List                CompleteSIB-List,
            spare                       NULL
        }
}


MasterInformationBlock ::=      SEQUENCE {
        mib-ValueTag                MIB-ValueTag,
        plmn-Type                   PLMN-Type,
        -- TABULAR: The PLMN identity and ANSI-41 core network information
        -- are included in PLMN-Type.
        modeSpecificInfo            CHOICE {
            fdd                         NULL,
            tdd                         SEQUENCE {
                sfn-prime                   SFN-Prime
            }
        },
        sib-ReferenceList           SIB-ReferenceList,
    -- Extension mechanism
        non-Release99-Information   SEQUENCE {}                OPTIONAL
}
```

3GPP TSG RAN WG2#13
Oahu, HI, USA, 22nd-26th May, 2000

Document R2-001177
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.331	CR	371r1	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 [ ]
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 [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-05-22

Subject: Integrity Control

Work item:

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

F	Correction	[X]	**Release:**	Phase 2	[ ]
A	Corresponds to a correction in an earlier release	[ ]		Release 96	[ ]
B	Addition of feature	[ ]		Release 97	[ ]
C	Functional modification of feature	[ ]		Release 98	[ ]
D	Editorial modification	[ ]		Release 99	[X]
				Release 00	[ ]

Reason for change: 1) RRC Sequence number for RB1 and CCCH were missing.

Clauses affected: 8.5.11, 10.3.3.17, 11.3.3

Other specs affected:

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

Other comments:

help.doc

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

8.5.11 Integrity protection

Integrity protection shall be performed independently on the RRC messages sent on CCCH and each signalling radio bearer for DCCH. For CCCH and each signalling radio bearer, the UE shall use two integrity protection hyper frame numbers,

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

and two message sequence numbers,

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

The above information is stored in the variable INTEGRITY_PROTECTION_INFO per-CCCH and signalling radio bearer (RB0-3).

10.3.3.17 Integrity protection activation info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RRC message sequence number list	MP	~~4~~2 to ~~5~~3		The RRC sequence number when a new integrity protection configuration shall be applied, for CCCH and signalling radio bearers in the order CCCH, RB0, RB1, RB2, RB3.
>RRC message sequence number	MP		Integer (0..15)	

11.3.3 User equipment information elements

```
RRC-MessageSequenceNumberList ::=   SEQUENCE (SIZE (42..53)) OF
                                        RRC-MessageSequenceNumber
```

3GPP-RAN-WG2 Meeting #13
Oahu, Hawaii, USA, 22-26 May 2000

Document R2-001050

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

CHANGE REQUEST

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25.331	CR	372	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 22nd May, 2000

Subject: Modification to measurement event evaluation

Work item:

Category: *(only one category Shall be marked With an X)*

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	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The equation given for the evaluation of Intra-frequency event 1a and 1b is originally written based on the assumption that Ec/Io will be used as the measured quantity. This equation does not work as intended when Pathloss is used as the measurement quantity. Use of alternate equation is proposed.
In the equation given for the evaluation of Inter-frequeny event, there is no indication how Hysteresis should be treated. The modification is proposed.

Clauses affected: 14.1.2.1, 14.1.2.2, 14.2

Other specs Affected:

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

Other comments:

help.doc

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

14.1 Intra-frequency measurements

14.1.2 Intra-frequency reporting events for FDD

Within the measurement reporting criteria field in the Measurement Control message the UTRAN notifies the UE which events should trigger a measurement report. Examples of intra-frequency reporting events that would be useful for intra-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 the illustrated events are measured with respect to any of the measurement quantities given in subclause 14.1.1. The measurement objects are the monitored primary common pilot channels (CPICH). The reporting events are marked with vertical arrows in the figures below.

NOTE: The events below are numbered 1A, 1B, 1C,… since all intra-frequency reporting events would be labelled 1X, inter-frequency reporting events would be labelled 2X, and so on for the other measurement types.

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

When event 1A is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when a primary CPICH enters the reporting range as defined by the following formula:

For pathloss:

$$10 \cdot LogM_{New} \geq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R + H_{1a}),$$

For all the other measurement quantity:

$$10 \cdot LogM_{New} \geq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R + H_{1a}),$$

The variables in the formula are defined as follows:

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

$\boldsymbol{M_i}$ is a measurement result of a cell in the active set.

$\boldsymbol{N_A}$ is the number of cells in the current active set.

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

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R}$ is the reporting range

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

The addition window of cells in event 1A is configured with the **reporting range** parameter ($\boldsymbol{R}$) common to many reporting events and an optional **hysteresis** parameter ($\boldsymbol{H_{1a}}$), which can be used to distinguish the addition window from reporting windows related to other measurement events.

The occurrence of event 1A is conditional on a **report deactivation threshold** parameter. This parameter indicates the maximum number of cells allowed in the active set for measurement reports to be triggered by event 1A to be transmitted.

Event 1A may be enhanced with an addition timer, which is configured with the **time-to-trigger** parameter (see subclause 14.1.4.2). If a time-to-trigger value is used, a cell must continuously stay within the reporting range for the given time period, before the UE shall send a measurement report.

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

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when a primary CPICH leaves the reporting range as defined by the following formula:

For pathloss:

$$10 \cdot LogM_{New} \leq W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R + H_{1a}),$$

For all the other measurement quantity:

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

The variables in the formula are defined as follows:

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

$\boldsymbol{M_i}$ is a measurement result of a cell in the active set.

$\boldsymbol{N_A}$ is the number of cells in the current active set.

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

$\boldsymbol{W}$ is a parameter sent from UTRAN to UE.

$\boldsymbol{R}$ is the reporting range

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

The drop window of cells in event 1B is configured with the **reporting range** parameter ($\boldsymbol{R}$) common to many reporting events and an optional **hysteresis** parameter ($\boldsymbol{H_{1b}}$), which can be used to distinguish the drop window from reporting windows related to other measurement events.

Event 1B may be enhanced with a drop timer, which is configured with the **time-to-trigger** parameter. If the timer is used, the weakening cell must continuously stay below the reporting range for the given time period before the UE may send a measurement report.

14.2 Inter-frequency measurements

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

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

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

The variables in the formula are defined as follows:

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

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

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

$\boldsymbol{N_{A\,j}}$ is the number of cells in the active set on frequency j.

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

$\boldsymbol{W_j}$ is a parameter sent from UTRAN to UE and used for frequency j

$\boldsymbol{H}$ is the hysteresis parameter

3GPP-RAN-WG2 Meeting #13
Oahu, Hawaii, USA, 22-26 May 2000

Document R2-001051

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CHANGE REQUEST

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25.331	CR	373	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	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG-RAN WG2 **Date:** 22nd May, 2000

Subject: System Information related 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	X

Release:

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

Reason for change:

- The presence of scheduling information is changed to MP, since no default value is specified. (no change in ASN.1)
- The number of spare values needed for SIB Type is updated, since more SIB Types were added since the number of spare values are defined, and currently there are 33 alternatives instead of intended 32.
- Value tags are missing from ASN.1 description of SIB 8, SIB 14, and SIB 15, so these are added.
- Actual value for “MaxDataLength” is proposed to be 214bits. This value may be changed, if there is a modification to the structure of SYSTEM INFORMATION message.

Clauses affected: 10.3.8.10, 10.3.8.14, 10.3.8.15, 11.3.8, 11.4

Other specs Affected:

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

Other comments:


help.doc

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

10.3.8.10 References to other system information blocks

Information element	Need	Multi	Type and reference	Semantics description
References to other system information blocks	MP	1 to <MaxSysInfoBlockCount>		
>Scheduling information	~~MD~~MP		Scheduling information, 10.3.8.11	

Multi bound	Explanation
MaxSysInfoBlockCount	Maximum number of references to other system information blocks

10.3.8.14 SIB data

Contains the result of the IE 'SIB Content' after segmentation.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB data	MP		Bit string (1..MaxDataLength)	

Multi Bound	Explanation
MaxDataLength	Maximum length of a BCH- or FACH transport block used for broadcast of system information.

10.3.8.15 SIB type

The SIB type identifies a specific system information block.

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

The list of values to encode is:

Master information block,

System Information Type 1,

System Information Type 2,

System Information Type 3,

System Information Type 4,

System Information Type 5,

System Information Type 6,

System Information Type 7,

System Information Type 8,

System Information Type 9,

System Information Type 10,

System Information Type 11,

System Information Type 12,

System Information Type 13,

System Information Type 13.1,

System Information Type 13.2,

System Information Type 13.3,

System Information Type 13.4,

System Information Type 14,

System Information Type 15,

System Information Type 16

in addition, at least ~~12~~ 11spare values, criticality : ignore, are needed.

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 ::=                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                            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                        CellValueTagNULL,
    sysInfoType9                        NULL,
    sysInfoType10                       NULL,
    sysInfoType11                       CellValueTag,
    sysInfoType12                       CellValueTag,
    sysInfoType13                       CellValueTag,
    sysInfoType13-1                     CellValueTag,
    sysInfoType13-2                     CellValueTag,
    sysInfoType13-3                     CellValueTag,
    sysInfoType13-4                     CellValueTag,
    sysInfoType14                       CellValueTagNULL,
    sysInfoType15                       CellValueTagNULL,
    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 ::=                 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
```

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 ::= 8214

-- **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**
maxFACH-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**
maxURAcount                 INTEGER ::= 8

-- **TODO**
maxUsedUplTScount           INTEGER ::= 8

-- **TODO**
maxUsedRLcount              INTEGER ::= 8

-- **TODO**
pageCount                   INTEGER ::= 8

END
```