

TSG-RAN Meeting #11
Palm Springs, CA, USA, 13 - 16 March 2001

RP-010030

Title: Agreed CRs (Release '99) to TS 25.331 (2)

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-010594	agreed	25.331	678	1	R99	Clarification to Secondary CCPCH info	F	3.5.0	3.6.0
R2-010557	agreed	25.331	679	1	R99	Miscellaneous corrections	F	3.5.0	3.6.0
R2-010412	agreed	25.331	680		R99	Removal of Layer 3 filtering for RACH	F	3.5.0	3.6.0
R2-010558	agreed	25.331	681	2	R99	Correction of compressed mode parameters	F	3.5.0	3.6.0
R2-010414	agreed	25.331	682		R99	Removal of immediate cell evaluation	F	3.5.0	3.6.0
R2-010719	agreed	25.331	684	2	R99	Scheduling of SIB 15.2 and SIB 15.3	F	3.5.0	3.6.0
R2-010559	agreed	25.331	685	1	R99	Correction to ECN modules	F	3.5.0	3.6.0
R2-010536	agreed	25.331	686	1	R99	Improvement of the description of timing advance for TDD	F	3.5.0	3.6.0
R2-010423	agreed	25.331	687		R99	Correction on timing advance and allocation for shared channels	F	3.5.0	3.6.0
R2-010560	agreed	25.331	688	1	R99	Clarification on SF 1 signalling	F	3.5.0	3.6.0
R2-010494	agreed	25.331	689	1	R99	Correction to power control in TDD	F	3.5.0	3.6.0
R2-010426	agreed	25.331	690		R99	Midamble - Channelisation code association for TDD	F	3.5.0	3.6.0
R2-010427	agreed	25.331	691		R99	Network requested reporting for physical shared channel allocation	F	3.5.0	3.6.0
R2-010433	agreed	25.331	693		R99	System Information	F	3.5.0	3.6.0
R2-010669	agreed	25.331	694	1	R99	Clarification on Transport Channel Identity	F	3.5.0	3.6.0
R2-010565	agreed	25.331	696	1	R99	Editorial Correction	F	3.5.0	3.6.0
R2-010544	agreed	25.331	698	2	R99	Correction to add coding of intra domain NAS node selector	F	3.5.0	3.6.0
R2-010537	agreed	25.331	700	1	R99	Corrections to system information block characteristics in TDD	F	3.5.0	3.6.0
R2-010570	agreed	25.331	701	2	R99	ASN.1 corrections	F	3.5.0	3.6.0
R2-010593	agreed	25.331	702	2	R99	Measurement related corrections	F	3.5.0	3.6.0

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 678** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Clarification to Secondary CCPCH info		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 22 Feb 2001
Category:	⌘ F	Release:	⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ The role of the SIB 5 and SIB 6 is described inconsistently in the specification.
Summary of change:	⌘ In 8.6.6.2 and 8.6.6.5 the role of SIB 5 and SIB 6 in UTRAN Connected mode was clarified.
Consequences if not approved:	⌘ Inconsistent description in the specification.

Clauses affected:	⌘ 8.6.6.2, 8.6.6.5		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

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

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

8.6.6.2 PRACH info and PRACH selection

The UE shall select a PRACH according to the following rule. The UE shall:

- select a default PRACH from the ones indicated in the IE "PRACH info" in System Information Block type 5 (applicable in Idle Mode and Connected Mode) ~~and or~~ System Information Block type 6 (applicable in Connected Mode only), as follows:
 - if both RACH with 10 ms and 20 ms TTI are indicated in System Information Block type 5 ~~and or~~ System Information Block type 6:
 - select the appropriate TTI based on power requirements, as specified in subclause 8.6.6.3;
 - select a RACH randomly from the ones listed in System Information Block type 5 ~~and or~~ System Information Block type 6 as follows:

"Index of selected PRACH" = floor (rand * K)

where K is equal to the number of listed PRACHs which carry an RACH with the above selected TTI, "rand" is a random number uniformly distributed in the range 0,...,1, and "floor" refers to rounding down to nearest integer. RACHs with 10 and 20 ms TTI shall be counted separately. These RACHs shall be indexed from 0 to K-1 in the order of their occurrence in SIB 5 ~~and or~~ SIB 6, ~~where RACHs listed in SIB 5 shall be counted first.~~ The random number generator is left to implementation. The scheme shall be implemented such that one of the available RACHs is randomly selected with uniform probability. At startup of the random number generator in the UE the seed shall be dependent on the IMSI of the UE or time, thereby avoiding that all UEs select the same RACH;

In UTRAN Connected mode, the UE shall select the Secondary CCPCH according to the following preference:

- if SIB 6 is defined and PRACH info is included:
 - PRACH is selected from the PRACHs listed in SIB 6;
- if SIB 6 is defined and no PRACH info is included:
 - PRACH is selected from the PRACHs listed in SIB 5;
- if no SIB 6 is defined:
 - PRACH is selected from the PRACHs listed in SIB 5.
- reselect the default PRACH when a new cell is selected. RACH reselection may also be performed after each transmission of a Transport Block Set on RACH;
- for emergency call, the UE is allowed to select any of the available RACHs.

8.6.6.5 Secondary CCPCH info

In UTRAN Connected mode, the UE shall select the Secondary CCPCH according to the following rules:

- in Cell_DCH state:
 - select Secondary CCPCH according to subclause 8.6.6.4;
- in Cell_FACH state:
 - select an SCCPCH from the SCCPCHs listed in System Information Block types 5 and 6 (SIB 5 ~~and or~~ SIB 6) based on U-RNTI as follows:

"Index of selected SCCPCH" = U-RNTI mod K,

where K is equal to the number of listed SCCPCHs which carry a FACH (i.e., SCCPCHs carrying PCH only shall not be counted). These SCCPCHs shall be indexed from 0 to K-1 in the order of their occurrence in SIB 5 or SIB 6. ~~5 and SIB 6, and~~ "Index of selected SCCPCH" identifies the selected SCCPCH.

- if SIB 6 is defined and SCCPCH info is included:
 - SCCPCH is selected from the SCCPCHs listed in SIB 6;
- if SIB 6 is defined and no SCCPCH info is included:
 - SCCPCH is selected from the SCCPCHs listed in SIB 5;
- if no SIB 6 is defined:
 - SCCPCH is selected from the SCCPCHs listed in SIB 5.

~~SCCPCHs included in SIB 5 shall be indexed first.~~

- in Cell_PCH and URA_PCH states:
 - select an SCCPCH from the SCCPCHs listed in SIB 5 ~~and or~~ SIB 6 based on U-RNTI as follows:

"Index of selected SCCPCH" = U-RNTI mod K,

where K is equal to the number of listed SCCPCHs which carry a PCH (i.e., SCCPCHs carrying FACH only shall not be counted). These SCCPCHs shall be indexed in the order of their occurrence in system information from 0 to K-1, and "Index of selected SCCPCH" identifies the selected SCCPCH.

- if SIB 6 is defined and SCCPCH info is included:
 - SCCPCH is selected from the SCCPCHs listed in SIB 6;
- if SIB 6 is defined and no SCCPCH info is included:
 - SCCPCH is selected from the SCCPCHs listed in SIB 5;
- if no SIB 6 is defined:
 - SCCPCH is selected from the SCCPCHs listed in SIB 5.

UE shall set CFN in relation to SFN of current cell according to subclause 8.5.15.

CHANGE REQUEST

⌘ **25.331 CR 679** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Miscellaneous corrections
Source:	⌘ TSG-RAN WG2
Work item code:	⌘ Date: ⌘ 22 Feb 2001
Category:	⌘ F Release: ⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change: ⌘ This CR fixes a number of inconsistencies between the tabular and ASN.1 and also some minor errors.

Summary of change: ☒

8.1.1.1.3

According to the text, only the segment combinations 1...9 are allowed. Combinations 10 and 11 should be added in the list.

10.2.48.1

According to chapter 8.1.1.1.3 and 10.2.48, segment combination 1 means 'No segment'. In chapter 10.2.48.1 it is said that "First segment IE is used when the first segment fills the entire transport block (Combination 1)". Textual description should be corrected: Combination 1 -> Combination 2.

10.2.48.7

Textual description says that 'Complete SIB (short)' IE is used with Combinations 6, 7, 8, 9 and 10. Combination 10 should be deleted from this list because combination 10 uses 'Complete SIB' IE, 10.2.48.6.

10.2.48.8.2, 10.2.48.8.3 and 11.3 (ASN.1)

In 'Scheduling Block 1' and 'Scheduling Block 2' tabular "References to other system information blocks" are MP, but in the ASN they are optional. ASN.1 should be corrected.

10.2.48.8.4 and 11.3 (ASN.1)

In 'System Information Block type 1', "UE Timers and constants in idle mode" and "UE Timers and constants in connected mode" are classified as MD but in ASN.1 they are not optional. ASN.1 should be corrected.

10.3.3.2 and 11.3 (ASN.1)

In 'Capability Update Requirement' IE tabular there are "UE radio access FDD capability update requirement" and "UE radio access TDD capability update requirement". In the corresponding ASN there are only "ue-RadioCapabilityUpdateRequirement". ASN.1 should be corrected.

10.3.3.10

"Indicates to a UE if DRX shall be used with Cell updating or URA updating or if no DRX at all shall be used." The explanation is outdated.

10.3.3.43 and 11.3 (ASN.1)

Timer T301 and constant N301 have been deleted from the specification. They should be deleted also from the IE 'UE timers and constants in connected mode' in chapter 10.3.3.43 and from ASN.1.

10.3.4.20

'Multibound'-definition in tabular seems to be irrelevant. 'MaxSetupRBcount' has no value. It is proposed to be removed.

10.3.4.24

The default-value definition for 'RB identity' IE in 'Signalling RB information to setup' IE is wrong: The reference section should be 8.6.4.1, not 8.6.4.4.

10.3.7.42

In chapter 10.3.7.5, in 'Cell Reporting Quantities' sub-IE "SFN-SFN observed time difference" -IE has been renamed as "SFN-SFN observed time difference reporting indicator".

The similar kind of renaming is proposed for consistency reasons also to IE

Consequences if not approved:	⌘	Inconsistencies between tabular and ASN.1.
Clauses affected:	⌘	8.1.1.1.3, 10.2.48.1, 10.2.48.7, 10.3.3.10, 10.3.4.20, 10.3.4.24, 10.3.7.42, 10.3.8.18, 11.3, 14.12.1
Other specs affected:	⌘	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘	

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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 according to subclause 8.1.1.1.2. 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 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 the encoded system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate (parts of) several system information blocks, or the first segment or the last segment into the same message as specified in the remainder of this clause.

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, scheduling block or a system information block. The segment type, *Complete*, is used to transfer a complete master information block, complete scheduling block or a complete system information block.

Each segment consists of a header and a data field. The data field carries the encoded 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, scheduling 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. First segment;
3. Subsequent segment;
4. 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;
10. One Complete of size 215 to 226;
11. Last segment of size 215 to 222.

The "No segment" combination is used when there is no master information block, scheduling block or system information block scheduled for a specific BCH transport block.

UEs are not required to support the reception of multiple occurrences of a system information block type within one SYSTEM INFORMATION message.

NOTE: Since the SIB type is the same for each occurrence of the system information block, the UE does not know the order in which the occurrences, scheduled for this SYSTEM INFORMATION message, appear. Therefore, the UE is unable to determine which scheduling information, e.g., value tag relates to which occurrence of the system information block.

10.2.48.1 First Segment

This segment type is used to transfer the first segment of a segmented system information block. The IE is used when the first segment fills the entire transport block (Combination ~~2~~1).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.21	
SEG_COUNT	MP		SEG COUNT, 10.3.8.17	
SIB data fixed	MP		SIB data fixed, 10.3.8.19	

10.2.48.7 Complete SIB (short)

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.21	
SIB data variable	MP		SIB data variable, 10.3.8.20	

10.3.3.10 RRC State Indicator

Indicates to a UE the RRC state to be entered ~~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
RRC State indicator	MP		Enumerated(CELL_DCH, CELL_FACH, CELL_PCH, URA_PCH)	

10.3.4.20 RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MP		RB identity 10.3.4.16	
PDCP info	OP		PDCP info 10.3.4.2	
CHOICE <i>RLC info type</i>	MP			
>RLC info			RLC info 10.3.4.23	
>Same as RB			RB identity 10.3.4.16	Identity of RB with exactly the same RLC info IE values
RB mapping info	MP		RB mapping info 10.3.4.21	

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

NOTE This information element is included within IE "Predefined RB configuration"

10.3.4.24 Signalling RB information to setup

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RB identity	MD		RB identity 10.3.4.16	Default value is specified in subclause 8.6.4.14
RLC info	OP		RLC info 10.3.4.23	
Same as RB			RB identity 10.3.4.16	Identity of RB with exactly the same RLC info IE values
RB mapping info	MP		RB mapping info 10.3.4.21	

NOTE This information element is included within IE "Predefined RB configuration"

10.3.7.42 Intra-frequency reporting quantity for RACH reporting

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

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

10.3.8.18 Segment index

Each system information segment has an individual segment index.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Segment index	MP		Integer (1..154)	Segments of a system information block are numbered starting with 0 for the first segment and 1 for the next segment, which can be the first subsequent segment or a last segment.

```

-- *****
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****

CapabilityUpdateRequirement ::= SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement  BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement  BOOLEAN,
    systemSpecificCapUpdateReqList          SystemSpecificCapUpdateReqList  OPTIONAL
}

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

```

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

-- *****
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

ConstantValue ::=
    INTEGER (-35.._10)

RL-AdditionInformationList ::=
    SEQUENCE (SIZE (1..maxRL-1)) OF
        RL-AdditionInformation

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

-- *****
--
--     OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****

BCC ::=
    INTEGER (0..7)

BCCH-ModificationInfo ::=
    SEQUENCE {
        mib-ValueTag
        bcch-ModificationTime
    }
    MIB-ValueTag,
    BCCH-ModificationTime
    OPTIONAL

-- Actual value = IE value * 8
BCCH-ModificationTime ::=
    INTEGER (0..511)

BSIC ::=
    SEQUENCE {
        ncc
        bcc
    }
    NCC,
    BCC

CBS-DRX-Level1Information ::=
    SEQUENCE {
        ctch-AllocationPeriod
        cbs-FrameOffset
    }
    INTEGER (1..256),
    INTEGER (0..255)

CDMA2000-Message ::=
    SEQUENCE {
        msg-Type
        payload
    }
    BIT STRING (SIZE (8)),
    BIT STRING (SIZE (1..512))

CDMA2000-MessageList ::=
    SEQUENCE (SIZE (1..maxInterSysMessages)) OF
        CDMA2000-Message

CDMA2000-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
        FrequencyInfoCDMA2000

CellValueTag ::=
    INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimerFactor ::=
    INTEGER (1..8)

FDD-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
        FrequencyInfoFDD

FrequencyInfoCDMA2000 ::=
    SEQUENCE {
        band-Class
        cdma-Freq
    }
    BIT STRING (SIZE (5)),
    BIT STRING (SIZE(11))

GSM-BA-Range ::=
    SEQUENCE {
        gsmLowRangeUARFCN
        gsmUpRangeUARFCN
    }
    UARFCN,
    UARFCN

GSM-BA-Range-List ::=
    SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF

```

GSM-BA-Range

```

GSM-Classmark2 ::= OCTET STRING (SIZE (5))
GSM-Classmark3 ::= OCTET STRING
GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

IdentificationOfReceivedMessage ::= SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    receivedMessageType ReceivedMessageType
}

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure NULL,
    protocolError ProtocolErrorInformation,
    unspecified NULL,
    spare1 NULL,
    spare2 NULL,
    spare3 NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm SEQUENCE {
        gsm-Classmark2 GSM-Classmark2,
        gsm-Classmark3 GSM-Classmark3
    },
    cdma2000 SEQUENCE {
        cdma2000-MessageList CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
    InterRAT-UE-RadioAccessCapability

InterRAT-HO-Failure ::= SEQUENCE {
    interRAT-HO-FailureCause InterRAT-HO-FailureCause OPTIONAL,
    interRATMessage InterRATMessage OPTIONAL
}

InterRAT-HO-FailureCause ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure NULL,
    protocolError ProtocolErrorInformation,
    interRAT-ProtocolError NULL,
    unspecified NULL,
    spare1 NULL,
    spare2 NULL,
    spare3 NULL,
    spare4 NULL
}

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

InterRATMessageList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
    InterRATMessage

MasterInformationBlock ::= SEQUENCE {
    mib-ValueTag MIB-ValueTag,
    plmn-Type PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    sibSb-ReferenceList SIBSb-ReferenceList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions SEQUENCE {} OPTIONAL
}

MIB-ValueTag ::= INTEGER (1..8)
NCC ::= INTEGER (0..7)
PLMN-ValueTag ::= INTEGER (1..256)

```

```

PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity      PredefinedConfigIdentity,
    predefinedConfigValueTag      PredefinedConfigValueTag OPTIONAL
}

ProtocolErrorInformation ::= SEQUENCE {
    diagnosticsType              CHOICE {
        type1                     SEQUENCE {
            protocolErrorCause
        },
        spare                      NULL
    }
}

ReceivedMessageType ::= ENUMERATED {
    activeSetUpdate,
    cellUpdateConfirm,
    counterCheck,
    downlinkDirectTransfer,
    interRATHandoverCommand,
    measurementControl,
    pagingType2,
    physicalChannelReconfiguration,
    physicalSharedChannelAllocation,
    radioBearerReconfiguration,
    radioBearerRelease,
    radioBearerSetup,
    rrcConnectionRelease,
    rrcConnectionReject,
    rrcConnectionSetup,
    securityModeCommand,
    signallingConnectionRelease,
    transportChannelReconfiguration,
    transportFormatCombinationControl,
    ueCapabilityEnquiry,
    ueCapabilityInformationConfirm,
    uplinkPhysicalChannelControl,
    uraUpdateConfirm,
    utranMobilityInformation,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7
}

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

SchedulingInformation ::= SEQUENCE {
    scheduling                    SEQUENCE {
        segCount                  SegCount                DEFAULT 1,
        sib-Pos                   CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4                   INTEGER (0..1),
            rep8                   INTEGER (0..3),
            rep16                  INTEGER (0..7),
            rep32                  INTEGER (0..15),
            rep64                  INTEGER (0..31),
            rep128                 INTEGER (0..63),
            rep256                 INTEGER (0..127),
            rep512                 INTEGER (0..255),
            rep1024                INTEGER (0..511),
            rep2048                INTEGER (0..1023),
            rep4096                INTEGER (0..2047)
        },
        sib-PosOffsetInfo          SibOFF-List              OPTIONAL
    }
}

SchedulingInformationSIB ::= SEQUENCE {
    sib-Type                      SIB-TypeAndTag,
    scheduling                     SchedulingInformation
}

SchedulingInformationSIBs ::= SEQUENCE {
    sibSb-Type                    SIBs-TypeAndTag,
    scheduling                     SchedulingInformation
}

```

```

}

SegCount ::=
    INTEGER (1..16)

SegmentIndex ::=
    INTEGER (1..15)

-- Actual value = 2 * IE value
SFN-Prime ::=
    INTEGER (0..2047)

SIB-Data-fixed ::=
    BIT STRING (SIZE (222))

SIB-Data-variable ::=
    BIT STRING (SIZE (1..214))

SIB-ReferenceList ::=
    SEQUENCE (SIZE (1..maxSIB)) OF
        SchedulingInformationSIB

SIBSb-ReferenceList ::=
    SEQUENCE (SIZE (1..maxSIB)) OF
        SchedulingInformationSIBSb

SIB-ReferenceListFACH ::=
    SEQUENCE (SIZE (1..maxSIB-FACH)) OF
        SchedulingInformationSIB

SIB-Type ::=
    ENUMERATED {
        masterInformationBlock,
        systemInformationBlockType1,
        systemInformationBlockType2,
        systemInformationBlockType3,
        systemInformationBlockType4,
        systemInformationBlockType5,
        systemInformationBlockType6,
        systemInformationBlockType7,
        systemInformationBlockType8,
        systemInformationBlockType9,
        systemInformationBlockType10,
        systemInformationBlockType11,
        systemInformationBlockType12,
        systemInformationBlockType13,
        systemInformationBlockType13-1,
        systemInformationBlockType13-2,
        systemInformationBlockType13-3,
        systemInformationBlockType13-4,
        systemInformationBlockType14,
        systemInformationBlockType15,
        systemInformationBlockType15-1,
        systemInformationBlockType15-2,
        systemInformationBlockType15-3,
        systemInformationBlockType16,
        systemInformationBlockType17,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7 }

SIB-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
    sysInfoType17
}

SIBSb-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
}

CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    PredefinedConfigIdentityAndValueTag,
    NULL
}

CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
}

```

```

sysInfoType6          CellValueTag,
sysInfoType7          NULL,
sysInfoType8          CellValueTag,
sysInfoType9          NULL,
sysInfoType10         NULL,
sysInfoType11         CellValueTag,
sysInfoType12         CellValueTag,
sysInfoType13         CellValueTag,
sysInfoType13-1       CellValueTag,
sysInfoType13-2       CellValueTag,
sysInfoType13-3       CellValueTag,
sysInfoType13-4       CellValueTag,
sysInfoType14         NULL,
sysInfoType15         CellValueTag,
sysInfoType16         PredefinedConfigIdentityAndValueTag,
sysInfoType17         NULL,
sysInfoTypeSB1        CellValueTag,
sysInfoTypeSB2        CellValueTag
}

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

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

SysInfoType1 ::=      SEQUENCE {
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
  cn-DomainSysInfoList          CN-DomainSysInfoList,
-- User equipment IEs
  ue-ConnTimersAndConstants      UE-ConnTimersAndConstants OPTIONAL,
  ue-IdleTimersAndConstants      UE-IdleTimersAndConstants  OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}
}

SysInfoType2 ::=      SEQUENCE {
-- UTRAN mobility IEs
  ura-IdentityList              URA-IdentityList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}
}

SysInfoType3 ::=      SEQUENCE {
  sib4indicator                 BOOLEAN,
-- UTRAN mobility IEs
  cellIdentity                  CellIdentity,
  cellSelectReselectInfo        CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}
}

SysInfoType4 ::=      SEQUENCE {
-- UTRAN mobility IEs
  cellIdentity                  CellIdentity,
  cellSelectReselectInfo        CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction         CellAccessRestriction,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}
}

SysInfoType5 ::=      SEQUENCE {
  sib6indicator                 BOOLEAN,
-- Physical channel IEs
  pich-PowerOffset              PICH-PowerOffset,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      aich-PowerOffset           AICH-PowerOffset
    },
    tdd                          SEQUENCE {
      pusch-SysInfoList-SFN      PUSCH-SysInfoList-SFN  OPTIONAL,
      pdsch-SysInfoList-SFN      PDSCH-SysInfoList-SFN  OPTIONAL,
      midambleConfiguration      MidambleConfiguration  OPTIONAL,
      openLoopPowerControl-TDD    OpenLoopPowerControl-TDD
    }
  },
  primaryCCPCH-Info             PrimaryCCPCH-Info  OPTIONAL,
  prach-SystemInformationList    PRACH-SystemInformationList,
}

```



```

    sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information        CBS-DRX-Level1Information        OPTIONAL,
    -- Conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}
}

SysInfoType6 ::=                      SEQUENCE {
    -- Physical channel IEs
    pich-PowerOffset                PICH-PowerOffset,
    modeSpecificInfo                CHOICE {
        fdd                          SEQUENCE {
            aich-PowerOffset          AICH-PowerOffset,
            csich-PowerOffset         CSICH-PowerOffset        OPTIONAL
        },
        tdd                          SEQUENCE {
            pusch-SysInfoList-SFN     PUSCH-SysInfoList-SFN     OPTIONAL,
            pdsch-SysInfoList-SFN     PDSCH-SysInfoList-SFN     OPTIONAL,
            midambleConfiguration     MidambleConfiguration     OPTIONAL,
            openLoopPowerControl-TDD   OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info               PrimaryCCPCH-Info          OPTIONAL,
    prach-SystemInformationList      PRACH-SystemInformationList  OPTIONAL,
    sCCPCH-SystemInformationList     SCCPCH-SystemInformationList  OPTIONAL,
    cbs-DRX-Level1Information        CBS-DRX-Level1Information    OPTIONAL,
    -- Conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}
}

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

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

SysInfoType9 ::=                      SEQUENCE {
    -- Physical channel IEs
    cpch-PersistenceLevelsList      CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}
}

SysInfoType10 ::=                     SEQUENCE {
    -- User equipment IEs
    drac-SysInfoList                DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}
}

SysInfoType11 ::=                     SEQUENCE {
    sib12indicator                  BOOLEAN,
    -- Measurement IEs
    fach-MeasurementOccasionInfo     FACH-MeasurementOccasionInfo  OPTIONAL,
    measurementControlSysInfo        MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}
}

SysInfoType12 ::=                     SEQUENCE {
    -- Measurement IEs
    fach-MeasurementOccasionInfo     FACH-MeasurementOccasionInfo  OPTIONAL,

```

```

        measurementControlSysInfo      MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13 ::=                      SEQUENCE {
-- Core network IEs
        cn-DomainSysInfoList          CN-DomainSysInfoList,
-- User equipment IEs
        ue-IdleTimersAndConstants     UE-IdleTimersAndConstants      OPTIONAL,
        capabilityUpdateRequirement   CapabilityUpdateRequirement  OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13-1 ::=                   SEQUENCE {
-- ANSI-41 IEs
        ansi-41-RAND-Information      ANSI-41-RAND-Information,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13-2 ::=                   SEQUENCE {
-- ANSI-41 IEs
        ansi-41-UserZoneID-Information ANSI-41-UserZoneID-Information,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13-3 ::=                   SEQUENCE {
-- ANSI-41 IEs
        ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

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

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

SysInfoType15 ::=                     SEQUENCE {
-- Measurement IEs
        up-GPS-Assistance              UP-Cipher-GPS-Data-Indicator  OPTIONAL,
        up-OTDOA-Assistance            UP-OTDOA-AssistanceSIB      OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType15-1 ::=                   SEQUENCE {
-- DGPS corrections
        up-DGPS-SIB-Data               UP-DGPS-SIB-Data
}

SysInfoType15-2 ::=                   SEQUENCE {
-- Ephemeris and clock corrections
        up-Ephe-SIB-Data               UP-Ephe-SIB-Data
}

SysInfoType15-3 ::=                   SEQUENCE {
-- Almanac and other data
        transmissionTOW                INTEGER (0..1048575),
        satMask                        BIT STRING (SIZE (1..32)),
        lsbTOW                         BIT STRING (SIZE (8)),
        up-Alma-SIB-DataList           UP-Alma-SIB-DataList
}

SysInfoType16 ::=                     SEQUENCE {
-- Radio bearer IEs
        preDefinedRadioConfiguration  PreDefRadioConfiguration,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

```

```

}
SysInfoType17 ::=
    -- Physical channel IEs
    pusch-SysInfoList          PUSCH-SysInfoList          OPTIONAL,
    pdsch-SysInfoList          PDSCH-SysInfoList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}
}

SysInfoTypeSB1 ::=
    -- Other IEs
    sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}
}

SysInfoTypeSB2 ::=
    -- Other IEs
    sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}
}
TDD-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
    FrequencyInfoTDD

```

14.12.1 RRC Information to target RNC

RRC Information to target RNC may either be sent from source RNC or from another RAT. In case of handover to UTRAN, this information originates from another RAT, while in case of SRNC relocation the RRC information originates from the source RNC. In case of SRNC information, the RRC information transferred specifies the configuration of RRC and the lower layers it controls, e.g., including the radio bearer and transport channel configuration. It is used by the target RNC to initialise RRC and the lower layer protocols to facilitate SRNC relocation in a manner transparent to the UE.

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
CHOICE case	MP			
>Handover to UTRAN				
>>UE radio access capability	OP		UE radio access capability 10.3.3.42	
>>>UE system specific capability	OP		UE system specific capability 14.13.2.4	
>>>UE security information	OP		UE security information 14.13.2.2	
>>>Pre-defined configuration status information	OP		Pre-defined configuration status information 14.13.2.3	
>SRNC relocation				
>>State of RRC	MP		Enumerated (CELL_DCH, CELL_FACH, CELL_PCH, URA_PCH)	
>>>State of RRC procedure	MP		Enumerated (await no RRC message, Complete, await RB Setup Complete, await RB Reconfiguration Complete, await RB Release Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others)	
Ciphering related information				
>>>Ciphering status	MP		Enumerated(Not started, Started)	
>>>>Calculation time for ciphering related information	CV <i>Ciphering</i>			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>>>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>>>>>SFN	MP		Integer(0..4095)	
>>>>>>>Ciphering info per radio bearer	OP	1 to <maxRB >		
>>>>>>>>RB identity	MP		RB identity 10.3.4.16	
>>>>>>>>>Downlink START	MP		START 10.3.3.38	
>>>>>>>>>>Uplink START	MP		START 10.3.3.38	
Integrity protection related information				
>>>>>>>>>>>Integrity protection status	MP		Enumerated(Not started, Started)	

>>Signalling radio bearer specific integrity protection information	CV <i>IP</i>	4 to <maxSR Bsetup>		
RB identity	CV <i>SRB5Plus</i>		RB identity 10.3.4.16	For RB#0-4 the RB identity is not required
>>> Uplink RRC HFN	MP		Bitstring (28)	
>>> Downlink RRC HFN	MP		Bitstring (28)	
>>> Uplink RRC Message sequence number	MP		Integer (0..15)	
>>> Downlink RRC Message sequence number	MP		Integer (0..15)	
>>Implementation specific parameters	OP		Bitstring (1..512)	
RRC IEs				
UE Information elements				
>>U-RNTI	MP		U-RNTI 10.3.3.47	
>>C-RNTI	OP		C-RNTI 10.3.3.8	
>>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
Other Information elements				
>>Inter System message (inter system classmark)	OP		Inter-RAT message 10.3.8.810.8.6	
UTRAN Mobility Information elements				
>>URA Identifier	OP		URA identity 10.3.2.6	
CN Information Elements				
>>CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>>CN domain related information	OP	1 to <MaxCN domains >		CN related information to be provided for each CN domain
>>>CN domain identity	MP			
>>>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	
Measurement Related Information elements				
>>For each ongoing measurement reporting	OP	1 to <MaxNo OfMeas>		
>>>Measurement Identity	MP		Measurement identity 10.3.7.48	
>>>Measurement Command	MP		Measurement command 10.3.7.46	
>>>Measurement Type	CV Setup		Measurement type 10.3.7.50	
>>>Measurement Reporting Mode	OP		Measurement reporting mode 10.3.7.49	
>>>Additional Measurements list	OP		Additional measurements list 10.3.7.1	
>>>CHOICE Measurement				
>>>>Intra-frequency				
>>>>>Intra-frequency cell info	OP		Intra-frequency cell info list 10.3.7.33	

>>>>>Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
>>>>>Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
>>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>>CHOICE report criteria	OP			
>>>>>>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>No reporting			NULL	
>>>>>Inter-frequency				
>>>>>>Inter-frequency cell info	OP		Inter-frequency cell info list 10.3.7.13	
>>>>>>Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
>>>>>>Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
>>>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>>>CHOICE report criteria	OP			
>>>>>>>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>>No reporting			NULL	
>>>>>Inter-RAT				
>>>>>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>>>>>Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
>>>>>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>>>>CHOICE report criteria	OP			
>>>>>>>>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>>>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>>>No reporting			NULL	
>>>>>Traffic Volume				

>>>>>Traffic volume measurement Object	OP		Traffic volume measurement object 10.3.7.70	
>>>>>Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
>>>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
>>>>>CHOICE report criteria	OP			
>>>>>>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>No reporting			NULL	
>>>>>Quality				
>>>>>Quality measurement Object	OP		Quality measurement object	
>>>>>CHOICE report criteria	OP			
>>>>>>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>No reporting			NULL	
>>>>>UE internal				
>>>>>>UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
>>>>>>UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
>>>>>CHOICE report criteria	OP			
>>>>>>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>No reporting			NULL	
>>>>>UP				
>>>>>>LCS reporting quantity	OP		LCS reporting quantity 10.3.7.111	
>>>>>CHOICE report criteria	OP			
>>>>>>LCS reporting criteria			LCS reporting criteria 10.3.7.110	
>>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>>No reporting				
Radio Bearer Information Elements				
>>Pre-defined configuration status information	OP		Pre-defined configuration status information 14.13.2.3	
>>Signalling RB information list	MP	1 to <maxSR Bsetup>		For each signalling radio bearer
>>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	

>>RAB information list	OP	1 to <maxRA Bsetup>		Information for each RAB
>>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>>UL transport channel information list	OP	1 to <MaxTrC H>		
>>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>>CHOICE mode	OP			
>>>FDD				
>>>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>>Transport channel information for DRAC list	OP	1 to <MaxTrC H>		
>>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>>TDD				(no data)
Downlink transport channels				
>>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>>DL transport channel information list	OP	1 to <MaxTrC H>		
>>>DL transport channel information	MP		Added or reconfigured DL TrCH information 10.3.5.1	
>>Measurement report	OP		MEASUREMENT REPORT 10.2.17	
>spare				(no data) Criticality: reject

Multi Bound	Explanation
MaxNoOfMeas	Maximum number of active measurements, upper limit 16

Condition	Explanation
<i>Setup</i>	The IE is mandatory when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
<i>Ciphering</i>	The IE is mandatory when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
<i>IP</i>	The IE is mandatory when the IE Integrity protection status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
<i>SRB5Plus</i>	The IE is mandatory when more than 5 signalling radio bearers are included
<i>PDCP</i>	The IE is mandatory when the PDCP Info IE is present, otherwise the IE is not needed.

3GPP TSG-RAN2 Meeting #19
Sophia-Antipolis, France, 19 - 23 February 2001

Tdoc R2-010412

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 680** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Removal of Layer 3 filtering for RACH reporting
Source:	⌘ TSG-RAN WG2
Work item code:	⌘ Date: ⌘ 10. Jan. 2001
Category:	⌘ F Release: ⌘ R99
<p style="text-align: center;">Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p style="text-align: center;">Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	
<p style="text-align: center;">Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ In the WG2-WG4 joint RRM meeting (Sophia Antipolis, 13 and 15 November 2000) it was decided that layer 3 filtering shall not be applied for measurements reported on RACH since it would cause unreasonable delays in the uplink access and significantly increase the UE Idle Mode activity.
Summary of change:	⌘ Addition to section 8.6.7.2 to exclude L3 filtering from measurements reported on RACH
Consequences if not approved:	⌘ Unreasonable measurement activity in Idle Mode and delayed access on RACH channel

Clauses affected:	⌘ 8.6.7.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

8.6.7.2 Filter coefficient

If the IE "Filter coefficient" is received the UE shall apply filtering of the measurements for that measurement quantity according to the formula below. This filtering shall be performed by the UE before UE event evaluation. The UE shall also filter the measurements reported in the IE "Measured results" ~~or the IE "Measurement results on RACH"~~. The filtering shall not be performed for the measurements reported in the IE "Measurement results on RACH" and for cell-reselection in connected or idle mode.

The filtering shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows:

F_n is the updated filtered measurement result

F_{n-1} is the old filtered measurement result

M_n is the latest received measurement result from physical layer measurements, the unit used for M_n is the same unit as the reported unit in the MEASUREMENT REPORT message or the unit used in the event evaluation.

$a = 1/2^{(k/2)}$, where k is the parameter received in the IE "Filter coefficient".

NOTE: if a is set to 1 that will mean no layer 3 filtering.

In order to initialise the averaging filter, F_0 is set to M_1 when the first measurement result from the physical layer measurement is received.

The physical layer measurement results are sampled once every measurement period. The measurement period and the accuracy for a certain measurement is defined in 3GPP TS 25.133.

3GPP TSG-RAN WG2 Meeting #19
Sophia-Antipolis, France, 19 – 23 February 2001

Tdoc R2-010558

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 681** ⌘ rev **r2** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Correction to compressed mode parameters		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 22.2.2001
Category:	⌘ F	Release:	⌘ R99

Use one of the following categories:

- F** (essential correction)
- A** (corresponds to a correction in an earlier release)
- B** (Addition of feature),
- C** (Functional modification of feature)
- D** (Editorial modification)

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

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

Reason for change: ⌘ Separate transmission gap pattern sequences are used for the GSM BSIC identification and GSM BSIC re-confirmation procedures. The number of gaps that are typically needed to successfully decode the BSIC of one GSM neighbour depends on the design of these pattern sequences. Therefore, two additional parameters in the IE "DPCH compressed mode info" are needed to indicate the maximum duration of the initial GSM BSIC identification and the GSM BSIC re-confirmation procedures to the UE. This principle was discussed and agreed during the joint R2-R4 meeting in Sophia-Antipolis (Nov. 2000). RAN4 has already taken actions accordingly and included references to the two parameters into RAN4 specifications.

The value range of TGPRC is extended from 63 to 511 patterns to allow the uninterrupted search for 6 GSM neighbours (using up to 65 patterns each) without assigning new pattern sequences to the UE.

Summary of change: ⌘ The parameters N_identify_abort and T_reconfirm_abort are added to the IE "DPCH compressed mode info" in section 10.3.6.33 and 11.3.

The upper limit of TGPRC is changed from 63 to 511 in sections 10.3.6.33 and 11.3

Some clarifying text is added to section 14.3.2

Consequences if not approved: ⌘ Initial GSM BSIC identification and GSM BSIC re-confirmation can not be executed by a UE which uses compressed mode for inter-RAT measurements

Clauses affected: ⌘ 10.3.6.33, 11.3, 14.3.2.2, 14.3.2.3

Other specs affected: ⌘ Other core specifications ⌘

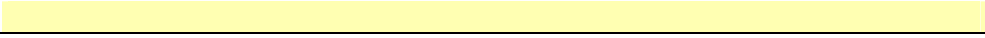
Test specifications

O&M Specifications

Error! Style not defined.

2

Error! No text of specified style in document.

Other comments: ☘ 

10.3.6.33 DPCH compressed mode info

NOTE: Only for FDD.

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transmission gap pattern sequence		1 to <maxTGP S>		
>TGPSI	MP		TGPSI 10.3.6.82	
>TGPS Status Flag	MP		Enumerated(active, inactive)	This flag indicates the current status of the Transmission Gap Pattern Sequence, whether it shall be activated or deactivated.
>TGCFN	MP		Integer (0..255)	Connection Frame Number of the first frame of the first pattern within the Transmission Gap Pattern Sequence.
>Transmission gap pattern sequence configuration parameters	OP			
>>TGMP	MP		Enumerated(TDD measurement, FDD measurement, GSM carrier RSSI measurement, GSM Initial BSIC identification, GSM BSIC re-confirmation)	Transmission Gap pattern sequence Measurement Purpose.
>>TGPRC	MP		Integer (1..63511, Infinity)	The number of transmission gap patterns within the Transmission Gap Pattern Sequence.
>> TGSN	MP		Integer (0..14)	Transmission Gap Starting Slot Number The slot number of the first transmission gap slot within the TGCFN.

>>TGL1	MP		Integer(1..14)	The length of the first Transmission Gap within the transmission gap pattern expressed in number of slots
>> TGL2	MD		Integer (1..14)	The length of the second Transmission Gap within the transmission gap pattern. If omitted, then TGL2=TGL1.
>>TGD	MP		Integer(15..269, undefined)	Transmission gap distance indicates the number of slots between starting slots of two consecutive transmission gaps within a transmission gap pattern. If there is only one transmission gap in the transmission gap pattern, this parameter shall be set to zero.
>> TGPL1	MP		Integer (1..144)	The duration of transmission gap pattern 1.
>> TGPL2	MD		Integer (1..144)	The duration of transmission gap pattern 2. If omitted, then TGPL2=TGPL1.
>>RPP	MP		Enumerated (mode 0, mode 1).	Recovery Period Power control mode during the frame after the transmission gap within the compressed frame. Indicates whether normal PC mode or compressed PC mode is applied
>>ITP	MP		Enumerated (mode 0, mode 1).	Initial Transmit Power is the uplink power control method to be used to compute the initial transmit power after the compressed mode gap.
>>UL/DL mode	MP		Enumerated (UL only, DL only, UL/DL)	Defines whether only DL, only UL, or combined UL/DL compressed mode is used.
>> Downlink compressed mode method	CV DL		Enumerated (puncturing, SF/2, higher layer scheduling)	Method for generating downlink compressed mode gap
>> Uplink compressed mode method	CV UL		Enumerated (SF/2, higher layer scheduling)	Method for generating uplink compressed mode gap
>>Downlink frame type	MP		Enumerated (A, B)	
>>DeltaSIR1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the frame containing the start of the first transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase)
>>DeltaSIRafter1	MP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the first transmission gap in the transmission gap pattern.

>>DeltaSIR2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE during the frame containing the start of the second transmission gap in the transmission gap pattern (without including the effect of the bit-rate increase) When omitted, DeltaSIR2 = DeltaSIR1.
>>DeltaSIRafter2	OP		Real(0..3 by step of 0.1)	Delta in DL SIR target value to be set in the UE one frame after the frame containing the start of the second transmission gap in the transmission gap pattern. When omitted, DeltaSIRafter2 = DeltaSIRafter1.
>>N Identify abort	CV Initial BSIC		Integer(1..128)	Indicates the maximum number of repeats of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure
>>T Reconfirm abort	CV Re-confirm BSIC		Integer(1..20)	Indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure. The time is given in steps of 0.5 seconds.

Condition	Explanation
<i>UL</i>	This information element is only sent when the value of the "UL/DL mode" IE is "UL only" or "UL/DL".
<i>DL</i>	This information element is only sent when the value of the "UL/DL mode" IE is "DL only" or "UL/DL".
<i>Initial BSIC</i>	This information element is only sent when the value of the IE "TGMP" is set to "GSM Initial BSIC identification".
<i>Re-confirm BSIC</i>	This information element is only sent when the value of the IE "TGMP" is set to "GSM BSIC re-confirmation".

11.3 Information element definitions

```

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=
    INTEGER (0..63511)

TGPS-ConfigurationParams ::=
    SEQUENCE {
        tgmpr          TGMP,
        tgprc          TGPRC,
        tgsn           TGSN,
        tgl1           TGL,
        tgl2           TGL,
        tgd            TGD,
        tgpl1          TGPL,
        tgpl2          TGPL,
        rpp            RPP,
        itp            ITP,
        ul-DL-Mode    UL-DL-Mode,
        -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
        dl-FrameType  DL-FrameType,
        deltaSIR1     DeltaSIR,
        deltaSIRAfter1 DeltaSIR,
        deltaSIR2     DeltaSIR,
        deltaSIRAfter2 DeltaSIR,
        NidentifyAbort NidentifyAbort
    }
    
```



```

} TreconfirmAbort TreconfirmAbort OPTIONAL
}

NidentifyAbort ::= INTEGER (1..128)
-- Actual value = IE value * 0.5 seconds
TreconfirmAbort ::= INTEGER (1..20)

```

14.3.2 GSM measurements in compressed mode

14.3.2.1 GSM RSSI measurements

The UE shall perform GSM RSSI measurements in the gaps of compressed mode pattern sequence specified for GSM RSSI measurement purpose. The UE cannot be required to measure "Observed time difference to GSM" in gaps specified for this purpose.

14.3.2.2 Initial BSIC identification

The UE shall perform Initial BSIC identification in compressed mode pattern sequence specified for Initial BSIC identification measurement purpose.

The parameter "N identify abort" in the IE "DPCH compressed mode info" indicates the maximum number of patterns that the UE shall use to attempt to decode the unknown BSIC of the GSM cell in the initial BSIC identification procedure.

The UE shall be able to measure the "Observed time difference to GSM cell" during a compressed mode pattern sequence configured for this purpose.

14.3.2.3 BSIC re-confirmation

The UE shall perform BSIC re-confirmation in compressed mode pattern sequence specified for BSIC re-confirmation measurement purpose.

The parameter "T reconfirm abort" in the IE "DPCH compressed mode info" indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure.

The UE shall be able to measure the "Observed time difference to GSM cell" during a compressed mode pattern sequence configured for this purpose.

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CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 682** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Removal of Immediate Cell Evaluation ⌘		
Source:	⌘ TSG-RAN WG2 ⌘		
Work item code:	⌘	Date:	⌘ 10. Jan. 2001 ⌘
Category:	⌘ F ⌘	Release:	⌘ R99 ⌘
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ In the WG2-WG4 joint RRM meeting (Sophia Antipolis, 13 and 15 November 2000) it was decided to remove the Immediate Cell Evaluation procedure ⌘
Summary of change:	⌘ - Immediate Cell Evaluation procedure is removed from section B.2.1 and from the figure in section B.3.5. The UE shall try to access the serving cell instead. - When returning from connected mode (for emergency call purposes only) the UE shall search for a acceptable cell instead of a suitable cell (according to 25.304 the regular search for suitable cells is done in <i>camped on any cell</i> state) ⌘
Consequences if not approved:	⌘ Inconsistent specifications ⌘

Clauses affected:	⌘ B.2.1, B.3.5 ⌘	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘	⌘
	<input type="checkbox"/> Test specifications	⌘
	<input type="checkbox"/> O&M Specifications	⌘
Other comments:	⌘	

B.2.1 Transitions for Emergency Calls

Editor's note: text in B.2.1 needs to be updated to reflect the deletion of the Immediate Cell evaluation procedure. Refer to 3GPP TS 25.304 for all states and procedures referred to in this subclause. When UE leaves idle mode from state Camped on any cell in order to make an emergency call, moving to state Connected mode (emergency calls only), the UE shall attempt to access the current serving cell. ~~use the Immediate cell evaluation procedure (UTRA only) in order to select the best cell on the current frequency for the access attempt. If the access attempt to the serving cell fails the UE shall use the Cell Reselection procedure. If no acceptable~~ suitable cell is found, the UE shall use the Any cell reselection. When returning to idle mode, the UE shall use the procedure Cell selection when leaving connected mode in order to find a ~~suitable~~ acceptable cell to camp on, state Camped on any cell.

B.3.5 States and Transitions for Cell Reselection in URA_PCH, CELL_PCH, and CELL_FACH

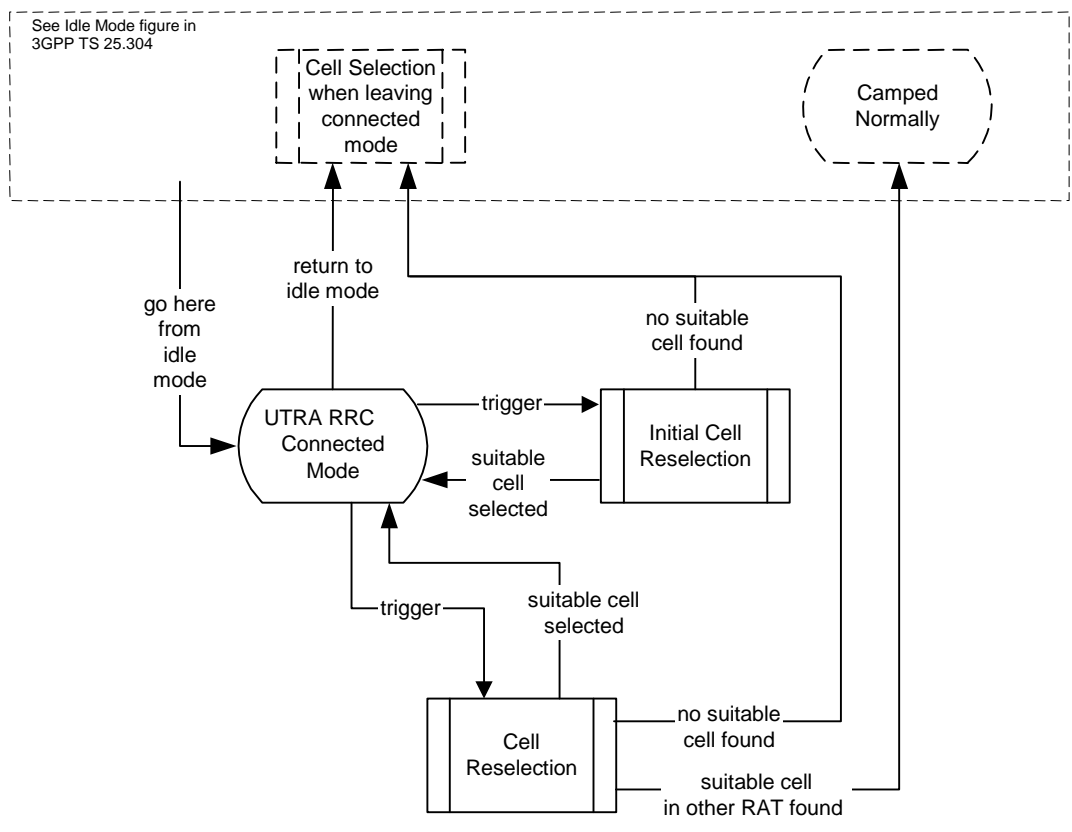
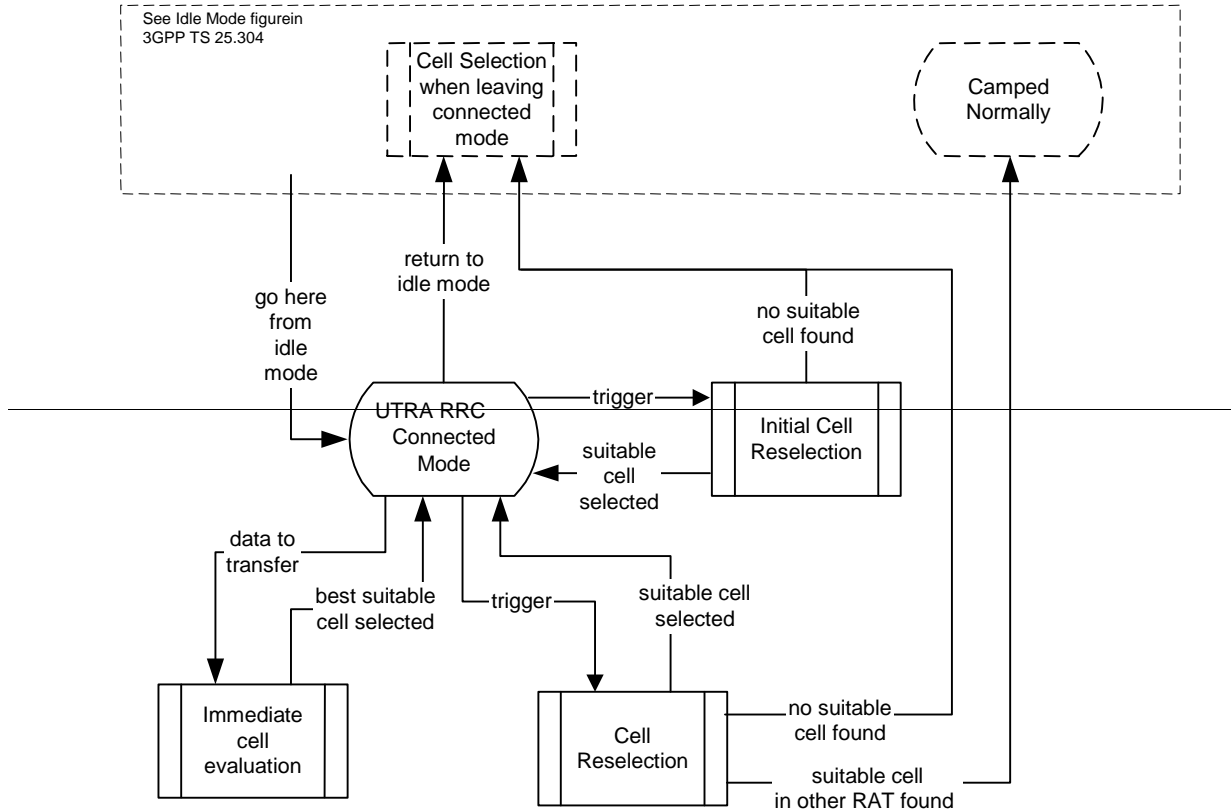


Figure 61: UTRA RRC Connected mode cell reselection for URA_PCH, CELL_PCH, and CELL_FACH

Editor's note: Figure 61 needs to be updated to reflect the deletion of the Immediate Cell evaluation procedure.

In some states the UE performs cell reselection procedures. The UE selects a suitable cell (defined in 3GPP TS 25.304) and radio access technology based on connected mode radio measurements and cell reselection criteria.

Figure 61 shows the states and procedures in the cell reselection process in connected mode.

When a cell reselection is triggered, the UE evaluates the cell reselection criteria based on radio measurements, and if a better cell is found that cell is selected, procedure *Cell reselection* (see 3GPP TS 25.304). If the change of cell implies a change of radio access technology, the RRC connection is released, and the UE enters idle mode of the other RAT. If no suitable cell is found in the cell reselection procedure, the RRC connection is released, and the UE enters idle mode.

When an Initial cell *reselection* is triggered, the UE shall use the *Initial cell reselection* procedure (see 3GPP TS 25.304) to find a suitable cell. One example where this procedure is triggered is at radio link failure, where the UE may trigger an initial cell reselection in order to request re-establishment of the RRC connection. If the UE is unable to find a suitable cell, the UE shall release the RRC connection and enter idle mode.

CHANGE REQUEST

⌘ **25.331 CR 684** ⌘ rev **r2** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Scheduling of SIB 15.2 and SIB 15.3		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ Feb. 28, 2001
Category:	⌘ F	Release:	⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ There will be several occurrences of the SIB 15.2 and SIB 15.3 to contain different data for different satellites, etc. The data in the occurrences are changed slowly but with the current value tag mechanism the UE would have to treat every occurrence as new data. This is the same problem as for pre-configuration and can be solved in the same way.
	There is time stamp information that will be different in each occurrence which would also cause the UE to treat every SIB 15.2 or SIB 15.3 as new data - even though the other information has not changed. The solution to this is to recommend in the spec that the 'network should not increment the value tag when only the time stamp information is changing'.
	Changes in revision 2: Changes to the predefined configuration were removed. The 'occurrence' IEs are duplicated for use by SIB 15 rather than using exactly the same IEs as for SIB 16. SIB 15.1, 15.2, 15.3 moved to end of list in ASN.1 rather than inserted into middle of list.
	Changes in revision 3: Agreed descriptions of additional information for SIB and SIB occurrence value tag have been moved to this document and are marked as yellow.
Summary of change:	⌘ Use predefined configuration identity and value tag to solve the multiple occurrences of the SIB 15.2 and SIB 15.3. Do not increment the value tag when there are no changes to the GPS satellite data.
Consequences if not approved:	⌘ Unnecessary receptions/readings of these SIBs.

Clauses affected:	⌘ 8.1.1.1.1, 8.1.1.1.2, 8.1.1.6.15.2, 8.1.1.16.5.3, 10.3.8.z (new), 10.3.8.16, 10.3.8.x (new), 10.3.8.y (new), 11.2
--------------------------	---------------------------------------------------------------------------------------------------------------------

Other specs affected:	⌘	<input type="checkbox"/>	Other core specifications	⌘	
		<input type="checkbox"/>	Test specifications		
		<input type="checkbox"/>	O&M Specifications		
Other comments:	⌘	<input type="text"/>			

How to create CRs using this form:

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

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

***** NEXT MODIFIED SECTION *****

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 and scheduling information to a number of system information blocks in a cell. The system information blocks contain the actual system information. The master information block may optionally also contain reference and scheduling information to one or two *scheduling blocks*, which give references and scheduling information for additional system information blocks. Scheduling information for a system information block may only be included in either the master information block or one of the scheduling blocks.

For all system information blocks except System Information Block types 15.2, 15.3, and 16, the content is the same in each occurrence for system information blocks using value tag. System Information Block types 15.2, 15.3, and 16 may occur more than once with different content. In this case scheduling information is provided for each such occurrence of the system information block. System information blocks that do not use value tag may have different content for each occurrence.

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's value tag is valid. If the area scope is *cell*, the UE shall consider the system information block to be valid only in the cell in which it was read. If system information blocks have been previously stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. 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 stored in the UE, the UE shall re-read the system information block.

For System information block types 15.2, 15.3, and 16, which may have multiple occurrences, each occurrence has its own independent value tag. The UE shall re-read a particular occurrence if the value tag of this occurrence has changed compared to that stored in the UE.

The *UE mode/state column when block is valid* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be regarded as valid by the UE. In other words, the indicated system information block becomes invalid upon change to a mode/state that is not included in this column.

The *UE mode/state column when block is read* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be read by the UE.

NOTE 1 There are a number of system information blocks that include the same IEs while the UE mode/state in which the information is valid differs. This approach is intended to allow the use of different IE values in different UE mode/states.

NOTE 2 The requirements concerning when a UE shall read system information blocks are specified indirectly; these requirements may be derived from the procedure specifications that specify which IEs are required in the different UE modes/states in conjunction with the different performance requirements that are specified.

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 8.1.1.7.1 or 8.1.1.7.2. For system information blocks with an expiration timer, the UE shall, when the timer expires, perform an update of the information according to subclause 8.1.1.7.4.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
Scheduling block 2	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
System information block type 1	PLMN	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	Cell	URA_PCH	URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	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)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	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	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Expiration timer = MIN([320 ms], SIB_REP * ExpirationTimeFactor)	

System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 10	Cell	CELL_DCH	CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH)	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH	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	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = MIN([320 ms], SIB_REP * ExpirationTimeFactor)	This system information block is used in TDD mode only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	<u>For this system information block there may be multiple occurrences</u>
System information block type 15.3	Cell <u>PLMN</u>	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	<u>For this system information block there may be multiple occurrences</u>

System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurrences
System information block type 17	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block is used in TDD mode only.

The UE shall acquire all system information blocks except system information block type 10 on BCH. System Information Block type 10 shall be acquired on the FACH and only by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If System Information Block type 10 is not broadcast in a cell, the DRAC procedures do not apply in this cell. System Information Block type 10 is used in FDD mode only.

***** NEXT MODIFIED SECTION*****

8.1.1.6.15.2 System Information Block type 15.2

For System Information Block type 15.2 multiple occurrences may be used; one occurrence for each set of satellite data specified in 10.2.48.8.18.2. To identify the different occurrences, the scheduling information for System Information Block type 15.2 includes IE "SIB occurrence identity and value tag" instead of the commonly used IE "Cell/PLMN Value tag". The UE should store all the relevant IEs included in this system information block . The UE shall:

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
 - store the occurrence information together with its identity and value tag for later use;
- in case a occurrence with the same identity was stored:
 - overwrite this one with the new occurrence read via system information for later use.
- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatID" as the satellite ID of the data from which this message was obtained;
- act on the rest of the IEs in a similar manner as specified in [12]. In addition, the UE can utilise these IEs for GPS time dissemination and sensitivity improvement.

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed. Each occurrence of this SIB contains information for one satellite as shown in the table of Section 10.2.48.8.18.2.

The UE may not need to receive all occurrences before it can use the information.

8.1.1.6.15.3 System Information Block type 15.3

For System Information Block type 15.3 multiple occurrences may be used; one occurrence for each set of satellite data specified in 10.2.48.8.18.3. To identify the different occurrences, the scheduling information for System Information Block type 15.3 includes IE "SIB occurrence identity and value tag" instead of the commonly used IE "Cell/PLMN Value tag". The UE should store all the relevant IEs included in this system information block . The UE shall:

- compare for each occurrence the value tag of the stored occurrence, if any, with the occurrence value tag included in the IE "SIB occurrence identity and value tag" for the occurrence of the SIB with the same occurrence identity;
- in case the UE has no SIB occurrence stored with the same identity or in case the occurrence value tag is different:
 - store the occurrence information together with its identity and value tag for later use;
- in case a occurrence with the same identity was stored:
 - overwrite this one with the new occurrence read via system information for later use.

- interpret IE "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast;
- interpret IE "SatMask" as the satellites that contain the pages being broadcast in this message;
- interpret IE "LSB TOW" as the least significant 8 bits of the TOW ([12]);
- interpret IE "SFIO" as the least significant bit of the SubFrame (SF) ID for which the following word 3 through word 10 data applies. Zero indicates subframe ID = 4, and One indicates Subframe ID = 5;
- interpret IE "Data ID" as the Data ID field contained in the indicated subframe, word 3, most significant 2 bits, as defined by [12];
- interpret IE "Page No" as the Page ID of the indicated subframe for which the following Word 3 through Word 10 data applies;
- act on the rest of the IEs (Word 3 to Word 10) in a similar manner as specified in [12], excluding non-information bits, "Data ID" and "SV ID" from Word 3 (16 bits left), 2 bit "t" from Word 10 (22 bits left). Word 4 through Word 9 have 24 bits left. In addition, the UE can utilise these IEs including non-information bits for GPS time dissemination and sensitivity improvement.

The IE "Transmission TOW" may be different each time a particular SIB occurrence is transmitted. The UTRAN should not increment the value tag of the SIB occurrence if the IE "Transmission TOW" is the only IE that is changed. One SIB occurrence value tag is assigned to the table of Section 10.2.48.8.18.3.

The UE may not need to receive all occurrences before it can use the information. ~~The UE shall receive all occurrences before it can use the information.~~

***** NEXT MODIFIED SECTION *****

10.3.8.Z SIB occurrence identity and value tag

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
SIB occurrence identity	MP		SIB occurrence identity <u>10.3.8.X</u>	
SIB occurrence value tag	MP		SIB occurrence value tag <u>10.3.8.Y</u>	

***** NEXT MODIFIED SECTION *****

10.3.8.16 Scheduling information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Value tag	OP			
>PLMN Value tag			PLMN Value tag 10.3.8.10	This IE is included if the following conditions are fulfilled: the area scope for the system information block is set to "PLMN" in table 8.1.1. a value tag is used to indicate changes in the system information block. the SIB type does not equal system information block type 16
>Predefined configuration identity and value tag			Predefined configuration identity and value tag 10.3.8.11	This IE is included if the following conditions are fulfilled: the SIB type equals system information block type 16
>Cell Value tag			Cell Value tag 10.3.8.4	This IE is included if the following conditions are fulfilled: the area scope for the system information block is set to "cell" in table 8.1.1. a value tag is used to indicate changes in the system information block.
>SIB occurrence identity and value tag			<u>SIB occurrenceid entity and value tag 10.3.8.Z</u>	<u>This IE is included if the following conditions are fulfilled:</u> <u>the SIB type equals system information block types 15.2 and 15.3</u>
Scheduling	MP			
>SEG_COUNT	MD		SEG COUNT 10.3.8.17	Default value is 1
>SIB_REP	MP		Integer (4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)	Repetition period for the SIB in frames
>SIB_POS	MP		Integer (0 ..Rep-2 by step of 2)	Position of the first segment Rep is the value of the SIB_REP IE
>SIB_POS offset info	MD	1..15		see below for default value
>>SIB_OFF	MP		Integer(2..32 by step of 2)	Offset of subsequent segments

Field	Default value
SIB_POS offset info	The default value is that all segments are consecutive, i.e., that the SIB_OFF = 2 for all segments except when MIB segment/complete MIB is scheduled to be transmitted in between segments from same SIB. In that case, SIB_OFF=4 in between segments which are scheduled to be transmitted at SFNprime = $8 * n - 2$ and $8 * n + 2$, and SIB_OFF=2 for the rest of the segments.

***** NEXT MODIFIED SECTION *****

10.3.8.X SIB occurrence identity

This information element identifies a SIB occurrence for SIB types 15.2 and; 15.3, and 16. For SIB 15.2, this identity is assigned to the visible satellite only. Unused identities are claimed by newly rising satellites. For SIB 15.3, the identity is assigned to a specific SIB occurrence.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>SIB occurrence identity</u>	MP		Integer (0..15)	

10.3.8.Y SIB occurrence value tag

This information element is used to identify different versions of SIB occurrence for SIB types 15.2, and 15.3, and 16.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and Reference</u>	<u>Semantics description</u>
<u>SIB occurrence value tag</u>	MP		Integer(0..15)	

***** 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

-- Core Network IEs :
  CN-DomainIdentity,
  CN-InformationInfo,
  NAS-Message,
  PagingRecordTypeID,
-- UTRAN Mobility IEs :
  URA-Identity,
-- User Equipment IEs :
  ActivationTime,
  C-RNTI,
  CapabilityUpdateRequirement,
  CellUpdateCause,
  CipheringAlgorithm,
  CipheringModeInfo,
  EstablishmentCause,
  FailureCauseWithProtErr,
  FailureCauseWithProtErrTrId,
  InitialUE-Identity,
  IntegrityProtActivationInfo,
  IntegrityProtectionModeInfo,
  N-308,
  PagingCause,
  PagingRecordList,
  ProtocolErrorIndicator,
  ProtocolErrorIndicatorWithMoreInfo,
  Rb-timer-indicator,
  Re-EstablishmentTimer,
  RedirectionInfo,
  RejectionCause,
  ReleaseCause,
  RRC-StateIndicator,
  RRC-TransactionIdentifier,
  SecurityCapability,
  START-Value,
  STARTList,
  U-RNTI,
  U-RNTI-Short,
  UE-RadioAccessCapability,
  UE-ConnTimersAndConstants,
  URA-UpdateCause,
  UTRAN-DRX-CycleLengthCoefficient,
  WaitTime,
-- Radio Bearer IEs :
  PredefinedConfigIdentity,
  RAB-Info,
  RAB-Info-Post,
  RAB-InformationList,
```

```

RAB-InformationReconfigList,
RAB-InformationSetupList,
RB-ActivationTimeInfo,
RB-ActivationTimeInfoList,
RB-COUNT-C-InformationList,
RB-COUNT-C-MSB-InformationList,
RB-IdentityList,
RB-InformationAffectedList,
RB-InformationReconfigList,
RB-InformationReleaseList,
RB-InformationSetupList,
RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2,
-- Transport Channel IEs:
  CPCH-SetID,
  DL-AddReconfTransChInfo2List,
  DL-AddReconfTransChInfoList,
  DL-CommonTransChInfo,
  DL-DeletedTransChInfoList,
  DRAC-StaticInformationList,
  TFC-Subset,
  TFCS-Identity,
  UL-AddReconfTransChInfoList,
  UL-CommonTransChInfo,
  UL-DeletedTransChInfoList,
-- Physical Channel IEs :
  AllocationPeriodInfo,
  Alpha,
  CCTrCH-PowerControlInfo,
  ConstantValue,
  CPCH-SetInfo,
  DL-CommonInformation,
  DL-CommonInformationPost,
  DL-InformationPerRL,
  DL-InformationPerRL-List,
  DL-InformationPerRL-ListPostFDD,
  DL-InformationPerRL-PostTDD,
  DL-DPCH-PowerControlInfo,
  DL-PDSCH-Information,
  DPCH-CompressedModeStatusInfo,
  FrequencyInfo,
  FrequencyInfoFDD,
  FrequencyInfoTDD,
  IndividualTS-InterferenceList,
  MaxAllowedUL-TX-Power,
  PDSCH-CapacityAllocationInfo,
  PDSCH-Identity,
  PDSCH-Info,
  PRACH-RACH-Info,
  PrimaryCCPCH-TX-Power,
  PUSCH-CapacityAllocationInfo,
  PUSCH-Identity,
  RL-AdditionInformationList,
  RL-RemovalInformationList,
  SSDT-Information,
  TFC-ControlDuration,
  TimeslotList,
  TX-DiversityMode,
  UL-ChannelRequirement,
  UL-ChannelRequirementWithCPCH-SetID,
  UL-DPCH-Info,
  UL-DPCH-InfoPostFDD,
  UL-DPCH-InfoPostTDD,
  UL-TimingAdvance,
  UL-TimingAdvanceControl,
-- Measurement IEs :
  AdditionalMeasurementID-List,
  EventResults,
  InterRAT-TargetCellDescription,
  MeasuredResults,
  MeasuredResultsList,
  MeasuredResultsOnRACH,
  MeasurementCommand,
  MeasurementIdentity,
  MeasurementReportingMode,

```

```

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

    maxSIBperMsg,
    maxSystemCapability
FROM Constant-definitions;

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

ActiveSetUpdate-r3 ::= CHOICE {
    r3
        activeSetUpdate-r3          SEQUENCE {
            nonCriticalExtensions    ActiveSetUpdate-r3-IEs,
            criticalExtensions        SEQUENCE {} OPTIONAL
        },
        criticalExtensions          SEQUENCE {}
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                OPTIONAL,
    activationTime                  ActivationTime                    OPTIONAL,
    newU-RNTI                       U-RNTI                          OPTIONAL,
-- Core network IEs
    cn-InformationInfo              CN-InformationInfo                OPTIONAL,
-- Radio bearer IEs
    rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
-- Physical channel IEs
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
    rl-AdditionInformationList      RL-AdditionInformationList      OPTIONAL,
    rl-RemovalInformationList       RL-RemovalInformationList       OPTIONAL,
    tx-DiversityMode                TX-DiversityMode                OPTIONAL,
    ssdt-Information                 SSDT-Information                OPTIONAL
}

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

ActiveSetUpdateComplete ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo     OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList      OPTIONAL,
    rb-WithPDCP-InfoList           RB-WithPDCP-InfoList            OPTIONAL,
-- Extension mechanism for non- release99 information

```

```

        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    }
-- *****
--
-- ACTIVE SET UPDATE FAILURE (FDD only)
--
-- *****

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IES
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    failureCause                       FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {} OPTIONAL
}
-- *****
--
-- Assistance Data Delivery
--
-- *****

AssistanceDataDelivery-r3 ::= CHOICE {
    r3                                  SEQUENCE {
        assistanceDataDelivery-r3      AssistanceDataDelivery-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
    --Assistance Data Information Elements
    up-GPS-AssistanceData              UP-GPS-AssistanceData          OPTIONAL,
    up-OTDOA-AssistanceData            UP-OTDOA-AssistanceData      OPTIONAL
}
-- *****
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- *****

CellChangeOrderFromUTRAN-r3 ::= CHOICE {
    r3                                  SEQUENCE {
        cellChangeOrderFromUTRAN-IEs  CellChangeOrderFromUTRAN-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IES
    integrityProtectionModeInfo       IntegrityProtectionModeInfo    OPTIONAL,
    activationTime                     ActivationTime                  OPTIONAL,
    rab-InformationList                RAB-InformationList           OPTIONAL,
    interRAT-TargetCellDescription     InterRAT-TargetCellDescription
}
-- *****
--
-- CELL CHANGE FAILURE FROM UTRAN
--
-- *****

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

CellChangeFailureFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IES
    integrityProtectionModeInfo       IntegrityProtectionModeInfo    OPTIONAL,

```

```

        interRAT-ChangeFailureCause      InterRAT-ChangeFailureCause
    }
-- *****
--
-- CELL UPDATE
--
-- *****

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

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

CellUpdateConfirm-r3 ::= CHOICE {
    r3                      SEQUENCE {
        cellUpdateConfirm-r3      CellUpdateConfirm-r3-IEs,
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    criticalExtensions        SEQUENCE {}
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
    cipheringModeInfo          CipheringModeInfo                OPTIONAL,
    activationTime             ActivationTime                    OPTIONAL,
    new-U-RNTI                 U-RNTI                          OPTIONAL,
    new-C-RNTI                 C-RNTI                          OPTIONAL,
    rrc-StateIndicator         RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    rlc-ResetIndicatorC-Plane  BOOLEAN,
    rlc-ResetIndicatorU-Plane  BOOLEAN,
    -- CN information elements
    cn-InformationInfo         CN-InformationInfo                OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity               URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList  RB-InformationReleaseList  OPTIONAL,
    rb-InformationReconfigList RB-InformationReconfigList  OPTIONAL,
    rb-InformationAffectedList RB-InformationAffectedList  OPTIONAL,
    rb-WithPDCP-InfoList      RB-WithPDCP-InfoList      OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo      UL-CommonTransChInfo      OPTIONAL,
    ul-deletedTransChInfoList  UL-DeletedTransChInfoList  OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo    CHOICE {
        fdd                      SEQUENCE {
            cpch-SetID            CPCH-SetID                OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                      NULL
    },
    dl-CommonTransChInfo      DL-CommonTransChInfo      OPTIONAL,
    dl-DeletedTransChInfoList  DL-DeletedTransChInfoList  OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList  OPTIONAL,
    -- Physical channel IEs
    frequencyInfo             FrequencyInfo                    OPTIONAL,
}

```

```

        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement        OPTIONAL,
        modeSpecificPhysChInfo        CHOICE {
            fdd                        SEQUENCE {
                dl-PDSCH-Information    DL-PDSCH-Information        OPTIONAL
            },
            tdd                        NULL
        },
        dl-CommonInformation            DL-CommonInformation        OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List    OPTIONAL
    }
-- *****
--
-- CELL UPDATE CONFIRM for CCCH
--
-- *****

CellUpdateConfirm-CCCH-r3 ::= CHOICE {
    r3                                SEQUENCE {
        -- User equipment IEs
        u-RNTI                        U-RNTI,
        -- The rest of the message is identical to the one sent on DCCH.
        cellUpdateConfirm-r3          CellUpdateConfirm-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                SEQUENCE {}
}
-- *****
--
-- COUNTER CHECK
--
-- *****

CounterCheck-r3 ::= CHOICE {
    r3                                SEQUENCE {
        counterCheck-r3              CounterCheck-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                SEQUENCE {}
}

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

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

DownlinkDirectTransfer-r3 ::= CHOICE {
    r3                                SEQUENCE {
        downlinkDirectTransfer-r3     DownlinkDirectTransfer-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    }
}

```

```

    },
    criticalExtensions          SEQUENCE {}
}

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

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

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

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
-- User equipment IES
    new-U-RNTI                 U-RNTI-Short,
    activationTime              ActivationTime          OPTIONAL,
    cipheringAlgorithm          CipheringAlgorithm      OPTIONAL,
-- Radio bearer IES
    rab-Info                    RAB-Info-Post,
-- Specification mode information
    specificationMode           CHOICE {
        complete                 SEQUENCE {
            srb-InformationSetupList   SRB-InformationSetupList,
            rab-InformationSetupList   RAB-InformationSetupList
        } OPTIONAL,
        ul-CommonTransChInfo         UL-CommonTransChInfo,
        ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
        dl-CommonTransChInfo         DL-CommonTransChInfo,
        dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
        ul-DPCH-Info                UL-DPCH-Info,
        modeSpecificInfo             CHOICE {
            fdd                     SEQUENCE {
                dl-PDSCH-Information  DL-PDSCH-Information OPTIONAL,
                cpch-SetInfo          CPCH-SetInfo          OPTIONAL
            },
            tdd                       NULL
        },
        dl-CommonInformation         DL-CommonInformation,
        dl-InformationPerRL-List     DL-InformationPerRL-List,
        frequencyInfo                FrequencyInfo
    },
    preconfiguration            SEQUENCE {
-- All IES that include an FDD/TDD choice are split in two IES for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
        predefinedConfigIdentity     PredefinedConfigIdentity,
        rab-Info                     RAB-Info-Post          OPTIONAL,
        modeSpecificInfo             CHOICE {
            fdd                       SEQUENCE {
                ul-DPCH-Info          UL-DPCH-InfoPostFDD,
                dl-CommonInformationPost  DL-CommonInformationPost,
                dl-InformationPerRL-List  DL-InformationPerRL-ListPostFDD,
                frequencyInfo          FrequencyInfoFDD
            },
            tdd                       SEQUENCE {
                ul-DPCH-Info          UL-DPCH-InfoPostTDD,
                dl-InformationPerRL     DL-InformationPerRL-PostTDD,
                frequencyInfo          FrequencyInfoTDD,
                primaryCCPCH-TX-Power  PrimaryCCPCH-TX-Power
            }
        }
    }
}

```



```

    }
  },
  -- Physical channel IEs
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
  --TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
  -- TABULAR: the IE below is conditional on history.
  startList                      STARTList                      OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

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

-- *****
--
-- HANDOVER FROM UTRAN COMMAND
--
-- *****

HandoverFromUTRANCommand-GSM-r3 ::= CHOICE {
  r3                             SEQUENCE {
    handoverFromUTRANCommand-GSM-r3
    nonCriticalExtensions        HandoverFromUTRANCommand-GSM-r3-IEs,
    SEQUENCE {}                 OPTIONAL
  },
  criticalExtensions            SEQUENCE {}
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  activationTime                 ActivationTime                  OPTIONAL,
  -- Radio bearer IEs
  remainingRAB-Info             RAB-Info                       OPTIONAL,
  -- Other IEs
  message-and-extension         CHOICE {
    gsm-Message                  SEQUENCE {},
    -- In this case, what follows the basic production is a variable length bit
string
    -- with no length field, containing the GSM message including GSM padding up
to end
    -- of container, to be analysed according to GSM specifications
with-extension                  SEQUENCE {
  messages                       GSM-MessageList
}
}
}

HandoverFromUTRANCommand-CDMA2000-r3 ::= CHOICE {
  r3                             SEQUENCE {

```

```

        handoverFromUTRANCommand-CDMA2000-r3
        nonCriticalExtensions      HandoverFromUTRANCommand-CDMA2000-r3-IEs,
    },                               SEQUENCE {} OPTIONAL
    criticalExtensions              SEQUENCE {}
}

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

-- *****
--
-- HANOVER FROM UTRAN FAILURE
--
-- *****

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

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

MeasurementControl-r3 ::= CHOICE {
    r3                               SEQUENCE {
        measurementControl-r3      MeasurementControl-r3-IEs,
        nonCriticalExtensions       SEQUENCE {}                OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

MeasurementControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    -- Measurement IEs
    measurementIdentity            MeasurementIdentity,
    measurementCommand             MeasurementCommand,
    -- TABULAR: The measurement type is included in MeasurementCommand.
    measurementReportingMode       MeasurementReportingMode  OPTIONAL,
    additionalMeasurementList      AdditionalMeasurementID-List  OPTIONAL,
    -- Physical channel IEs
    dpch-CompressedModeStatusInfo  DPCH-CompressedModeStatusInfo  OPTIONAL
}

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

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

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

```

```

--
-- *****
MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentity      MeasurementIdentity,
  measuredResults          MeasuredResults          OPTIONAL,
  measuredResultsOnRACH    MeasuredResultsOnRACH    OPTIONAL,
  additionalMeasuredResults MeasuredResultsList     OPTIONAL,
  eventResults             EventResults             OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions    SEQUENCE {}             OPTIONAL
}
-- *****
--
-- PAGING TYPE 1
--
-- *****

PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList        PagingRecordList          OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo   BCCH-ModificationInfo     OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions    SEQUENCE {}             OPTIONAL
}
-- *****
--
-- PAGING TYPE 2
--
-- *****

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

PhysicalChannelReconfiguration-r3 ::= CHOICE {
  r3                        SEQUENCE {
    physicalChannelReconfiguration-r3
    nonCriticalExtensions    PhysicalChannelReconfiguration-r3-IEs,
                           SEQUENCE {}             OPTIONAL
  },
  criticalExtensions        SEQUENCE {}
}

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

```

```

        rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
-- Physical channel IEs
    frequencyInfo                     FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power              MaxAllowedUL-TX-Power      OPTIONAL,
    ul-ChannelRequirement              UL-ChannelRequirementWithCPCH-SetID  OPTIONAL,
-- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
-- between UL DPCH info, CPCH SET info and CPCH set ID.
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            dl-PDSCH-Information        DL-PDSCH-Information      OPTIONAL
        },
        tdd                            NULL
    },
    dl-CommonInformation              DL-CommonInformation      OPTIONAL,
    dl-InformationPerRL-List          DL-InformationPerRL-List  OPTIONAL
}

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

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

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

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

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

PhysicalSharedChannelAllocation-r3 ::= CHOICE {
    r3                                  SEQUENCE {
        physicalSharedChannelAllocation-r3
        nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message.
-- User equipment IEs
    c-RNTI                             C-RNTI                       OPTIONAL,
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
-- Physical channel IEs
    ul-TimingAdvance                  UL-TimingAdvanceControl      OPTIONAL,
    pusch-CapacityAllocationInfo       PUSCH-CapacityAllocationInfo  OPTIONAL,
    pdsch-CapacityAllocationInfo       PDSCH-CapacityAllocationInfo  OPTIONAL,
    confirmRequest                     ENUMERATED {

```

```

        confirmPDSCH, confirmPUSCH } OPTIONAL,
-- TABULAR: If the above value is not present, the default value "No Confirm"
-- shall be used as specified in 10.2.25.
iscpTimeslotList          TimeslotList          OPTIONAL
}

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

PUSCHCapacityRequest ::= SEQUENCE {
-- User equipment IEs
  c-RNTI                  C-RNTI                  OPTIONAL,
-- Measurement IEs
  trafficVolumeMeasuredResultsList
  timeslotListWithISCP   TimeslotListWithISCP   OPTIONAL,
  primaryCCPCH-RSCP      PrimaryCCPCH-RSCP      OPTIONAL,
  allocationConfirmation CHOICE {
    pdschConfirmation     PDSCH-Identity,
    puschConfirmation     PUSCH-Identity
  } OPTIONAL,
  protocolErrorIndicator ProtocolErrorIndicatorWithMoreInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {} OPTIONAL
}

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

RadioBearerReconfiguration-r3 ::= CHOICE {
  r3                      SEQUENCE {
    radioBearerReconfiguration-r3 RadioBearerReconfiguration-r3-IEs,
    nonCriticalExtensions         SEQUENCE {} OPTIONAL
  },
  criticalExtensions          SEQUENCE {}
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
-- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
  cipheringModeInfo             CipheringModeInfo             OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                    U-RNTI                    OPTIONAL,
  new-C-RNTI                    C-RNTI                    OPTIONAL,
  rrc-StateIndicator            RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                  URA-Identity                  OPTIONAL,
-- Radio bearer IEs
  rab-InformationReconfigList   RAB-InformationReconfigList   OPTIONAL,
  rb-InformationReconfigList    RB-InformationReconfigList,
  rb-InformationAffectedList    RB-InformationAffectedList    OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo         UL-CommonTransChInfo         OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList     OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo      CHOICE {
    fdd                        SEQUENCE {
      cpch-SetID              CPCH-SetID              OPTIONAL,
      addReconfTransChDRAC-Info DRAC-StaticInformationList OPTIONAL
    },
    tdd                        NULL
  } OPTIONAL,
  dl-CommonTransChInfo         DL-CommonTransChInfo         OPTIONAL,
  dl-DeletedTransChInfoList     DL-DeletedTransChInfoList     OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfo2List  OPTIONAL,
-- Physical channel IEs

```

```

        frequencyInfo                FrequencyInfo                OPTIONAL,
        maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power        OPTIONAL,
        ul-ChannelRequirement        UL-ChannelRequirement        OPTIONAL,
        modeSpecificPhysChInfo       CHOICE {
            fdd                       SEQUENCE {
                dl-PDSCH-Information    DL-PDSCH-Information    OPTIONAL
            },
            tdd                       NULL
        },
        dl-CommonInformation          DL-CommonInformation        OPTIONAL,
        dl-InformationPerRL-List      DL-InformationPerRL-List
    }
}
-- *****
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- *****

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IES
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo       IntegrityProtActivationInfo    OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                 UL-TimingAdvance              OPTIONAL,
    -- Radio bearer IES
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList    OPTIONAL,
    rb-WithPDCP-InfoList             RB-WithPDCP-InfoList         OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions             SEQUENCE {} OPTIONAL
}
-- *****
--
-- RADIO BEARER RECONFIGURATION FAILURE
--
-- *****

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

RadioBearerRelease-r3 ::= CHOICE {
    r3                                SEQUENCE {
        radioBearerRelease-r3        RadioBearerRelease-r3-IEs,
        nonCriticalExtensions         SEQUENCE {} OPTIONAL
    },
    criticalExtensions               SEQUENCE {}
}

RadioBearerRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IES
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    integrityProtectionModeInfo     IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo               CipheringModeInfo              OPTIONAL,
    activationTime                   ActivationTime                  OPTIONAL,
    new-U-RNTI                       U-RNTI                        OPTIONAL,
    new-C-RNTI                       C-RNTI                        OPTIONAL,
    rrc-StateIndicator               RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IES
    cn-InformationInfo               CN-InformationInfo            OPTIONAL,
    signallingConnectionRelIndication CN-DomainIdentity            OPTIONAL,
}

```

```

-- UTRAN mobility IEs
ura-Identity                                URA-Identity                                OPTIONAL,
-- Radio bearer IEs
rab-InformationReconfigList                 RAB-InformationReconfigList                 OPTIONAL,
rb-InformationReleaseList                   RB-InformationReleaseList                   OPTIONAL,
rb-InformationAffectedList                  RB-InformationAffectedList                  OPTIONAL,
rb-WithPDCP-InfoList                       RB-WithPDCP-InfoList                       OPTIONAL,
-- Transport channel IEs
ul-CommonTransChInfo                       UL-CommonTransChInfo                       OPTIONAL,
ul-deletedTransChInfoList                  UL-DeletedTransChInfoList                  OPTIONAL,
ul-AddReconfTransChInfoList                UL-AddReconfTransChInfoList                OPTIONAL,
modeSpecificTransChInfo                     CHOICE {
    fdd                                     SEQUENCE {
        cpch-SetID                         CPCH-SetID                                 OPTIONAL,
        addReconfTransChDRAC-Info          DRAC-StaticInformationList                OPTIONAL
    },
    tdd                                     NULL
},
dl-CommonTransChInfo                       DL-CommonTransChInfo                       OPTIONAL,
dl-DeletedTransChInfoList                  DL-DeletedTransChInfoList                  OPTIONAL,
dl-AddReconfTransChInfoList                DL-AddReconfTransChInfo2List              OPTIONAL,
-- Physical channel IEs
frequencyInfo                               FrequencyInfo                               OPTIONAL,
maxAllowedUL-TX-Power                       MaxAllowedUL-TX-Power                       OPTIONAL,
ul-ChannelRequirement                      UL-ChannelRequirement                       OPTIONAL,
modeSpecificPhysChInfo                     CHOICE {
    fdd                                     SEQUENCE {
        dl-PDSCH-Information                DL-PDSCH-Information                      OPTIONAL
    },
    tdd                                     NULL
},
dl-CommonInformation                       DL-CommonInformation                       OPTIONAL,
dl-InformationPerRL-List                    DL-InformationPerRL-List                    OPTIONAL
}

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

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

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

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

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

RadioBearerSetup-r3 ::= CHOICE {

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```

    r3          SEQUENCE {
        radioBearerSetup-r3          RadioBearerSetup-r3-IEs,
        nonCriticalExtensions        SEQUENCE {} OPTIONAL
    },
    criticalExtensions        SEQUENCE {}
}

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

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

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

-- *****
--

```



```

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

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

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

RRCConnectionReject-r3 ::= CHOICE {
  r3                             SEQUENCE {
    rrcConnectionReject-r3      RRCConnectionReject-r3-IEs,
    nonCriticalExtensions        SEQUENCE {}                OPTIONAL
  },
  criticalExtensions             SEQUENCE {}
}

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

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

RRCConnectionRelease-r3 ::= CHOICE {
  r3                             SEQUENCE {
    rrcConnectionRelease-r3     RRCConnectionRelease-r3-IEs,
    nonCriticalExtensions        SEQUENCE {}                OPTIONAL
  },
  criticalExtensions             SEQUENCE {}
}

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

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

RRCConnectionRelease-CCCH-r3 ::= CHOICE {
  r3                             SEQUENCE {
    rrcConnectionRelease-CCCH-r3 RRCConnectionRelease-CCCH-r3-IEs,
    nonCriticalExtensions        SEQUENCE {}                OPTIONAL
  },
  criticalExtensions             SEQUENCE {}
}

RRCConnectionRelease-CCCH-r3-IEs ::= SEQUENCE {

```

```

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

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

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

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

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

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

RRCConnectionSetup-r3 ::= CHOICE {
  r3                                     SEQUENCE {
    rrcConnectionSetup-r3                RRCConnectionSetup-r3-IEs,
    nonCriticalExtensions                  SEQUENCE {}                OPTIONAL
  },
  criticalExtensions                     SEQUENCE {}
}

RRCConnectionSetup-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message.
-- User equipment IEs
  initialUE-Identity                    InitialUE-Identity,
  rrc-TransactionIdentifier              RRC-TransactionIdentifier,
  activationTime                         ActivationTime                   OPTIONAL,
  new-U-RNTI                             U-RNTI,
  new-c-RNTI                             C-RNTI                          OPTIONAL,
  rrc-StateIndicator                    RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff            UTRAN-DRX-CycleLengthCoefficient,
  capabilityUpdateRequirement            CapabilityUpdateRequirement      OPTIONAL,
-- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
-- be used.
-- Radio bearer IEs
  srb-InformationSetupList              SRB-InformationSetupList2,
-- Transport channel IEs
  ul-CommonTransChInfo                  UL-CommonTransChInfo           OPTIONAL,
  ul-AddReconfTransChInfoList          UL-AddReconfTransChInfoList,
  dl-CommonTransChInfo                  DL-CommonTransChInfo           OPTIONAL,
  dl-AddReconfTransChInfoList          DL-AddReconfTransChInfoList,
-- Physical channel IEs
  frequencyInfo                          FrequencyInfo                    OPTIONAL,

```

```

        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement        OPTIONAL,
        dl-CommonInformation            DL-CommonInformation        OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List    OPTIONAL
    }
-- *****
--
-- RRC CONNECTION SETUP COMPLETE
--
-- *****

RRCConnectionSetupComplete ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message.
-- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    startList                          STARTList,
    ue-RadioAccessCapability            UE-RadioAccessCapability      OPTIONAL,
-- Other IEs
    ue-RATSpecificCapability            InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
-- Other IEs
    protocolErrorInformation            ProtocolErrorMoreInformation,
-- TABULAR: Identification of received message is nested in
-- ProtocolErrorMoreInformation
-- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}                  OPTIONAL
}
}

SecurityModeCommand-r3 ::= CHOICE {
    r3 SEQUENCE {
        securityModeCommand-r3          SecurityModeCommand-r3-IEs,
        nonCriticalExtensions            SEQUENCE {}                  OPTIONAL
    },
    criticalExtensions                  SEQUENCE {}
}
-- *****
--
-- SECURITY MODE COMMAND
--
-- *****

SecurityModeCommand-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
-- User equipment IEs
    rrc-TransactionIdentifier            RRC-TransactionIdentifier,
    securityCapability                  SecurityCapability,
    cipheringModeInfo                  CipheringModeInfo             OPTIONAL,
    integrityProtectionModeInfo         IntegrityProtectionModeInfo   OPTIONAL,
-- Core network IEs
    cn-DomainIdentity                  CN-DomainIdentity
}
-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

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

-- User equipment IEs
    rrc-TransactionIdentifier            RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo          IntegrityProtActivationInfo    OPTIONAL,

```

```

-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList          OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}          OPTIONAL
}

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

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

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

SignallingConnectionRelease-r3 ::= CHOICE {
  r3                                SEQUENCE {
    signallingConnectionRelease-r3 SignallingConnectionRelease-r3-IEs,
    nonCriticalExtensions            SEQUENCE {}          OPTIONAL
  },
  criticalExtensions                SEQUENCE {}
}

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

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

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

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

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

```

```

        lastAndCompleteAndFirst      SEQUENCE {
            lastSegmentShort          LastSegmentShort,
            completeSIB-List          CompleteSIB-List,
            firstSegment               FirstSegmentShort
        },
        completeSIB-List              CompleteSIB-List,
        completeAndFirst              SEQUENCE {
            completeSIB-List          CompleteSIB-List,
            firstSegment              FirstSegmentShort
        },
        completeSIB                   CompleteSIB,
        lastSegment                   LastSegment
    }
}

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
    payload
        noSegment                     CHOICE {
            NULL,
            firstSegment              FirstSegment,
            subsequentSegment         SubsequentSegment,
            lastSegmentShort          LastSegmentShort,
            lastAndFirst              SEQUENCE {
                lastSegmentShort     LastSegmentShort,
                firstSegment          FirstSegmentShort
            },
            lastAndComplete           SEQUENCE {
                lastSegmentShort     LastSegmentShort,
                completeSIB-List     CompleteSIB-List
            },
            lastAndCompleteAndFirst   SEQUENCE {
                lastSegmentShort     LastSegmentShort,
                completeSIB-List     CompleteSIB-List,
                firstSegment          FirstSegmentShort
            },
            completeSIB-List          CompleteSIB-List,
            completeAndFirst          SEQUENCE {
                completeSIB-List     CompleteSIB-List,
                firstSegment          FirstSegmentShort
            },
            completeSIB               CompleteSIB,
            lastSegment               LastSegment
        }
}

-- *****
--
-- First segment
--
-- *****

FirstSegment ::=
    SEQUENCE {
        -- Other information elements
        sib-Type          SIB-Type,
        seg-Count         SegCount,
        sib-Data-fixed    SIB-Data-fixed
    }

-- *****
--
-- First segment (short)
--
-- *****

FirstSegmentShort ::=
    SEQUENCE {
        -- Other information elements
        sib-Type          SIB-Type,
        seg-Count         SegCount,
        sib-Data-variable SIB-Data-variable
    }
}

```

```

-- *****
--
-- Subsequent segment
--
-- *****

SubsequentSegment ::=          SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data-fixed          SIB-Data-fixed
}

-- *****
--
-- Last segment
--
-- *****

LastSegment ::=          SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data-fixed          SIB-Data-fixed
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}

LastSegmentShort ::=          SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    segmentIndex            SegmentIndex,
    sib-Data-variable       SIB-Data-variable
}

-- *****
--
-- Complete SIB
--
-- *****

CompleteSIB-List ::=          SEQUENCE (SIZE (1..maxSIBperMsg)) OF
    CompleteSIBshort

CompleteSIB ::=          SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    sib-Data-fixed          BIT STRING (SIZE (226))
    -- In case the SIB data is less than 226 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
}

CompleteSIBshort ::=          SEQUENCE {
    -- Other information elements
    sib-Type                SIB-Type,
    sib-Data-variable       SIB-Data-variable
}

-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

SystemInformationChangeIndication ::=  SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo    BCCH-ModificationInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions     SEQUENCE {} OPTIONAL
}

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

```

```

-- *****
TransportChannelReconfiguration-r3 ::= CHOICE {
  r3 SEQUENCE {
    transportChannelReconfiguration-r3
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  criticalExtensions SEQUENCE {}
}

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

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

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

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

```

```

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

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

TransportFormatCombinationControl ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message when
    transmitting this message
    -- on the transparent mode signalling DCCH.
    rrc-TransactionIdentifier      RRC-TransactionIdentifier      OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH
    modeSpecificInfo              CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
            tfcs-ID               TFCs-Identity      OPTIONAL
        }
    },
    dpch-TFCS-InUplink            TFC-Subset,
    tfc-ControlDuration           TFC-ControlDuration      OPTIONAL,
    -- The information element is not included when transmitting the message
    -- on the transparent mode signalling DCCH and is optional otherwise
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}      OPTIONAL
}

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

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

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

UECapabilityEnquiry-r3 ::= CHOICE {
    r3                             SEQUENCE {
        ueCapabilityEnquiry-r3    UECapabilityEnquiry-r3-IEs,
        nonCriticalExtensions      SEQUENCE {}      OPTIONAL
    },
    criticalExtensions            SEQUENCE {}
}

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

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

```



```

-- *****
UECapabilityInformation ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier      OPTIONAL,
  ue-RadioAccessCapability      UE-RadioAccessCapability      OPTIONAL,
  -- Other IEs
  ue-RATSpecificCapability      InterRAT-UE-RadioAccessCapabilityList      OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}      OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****
UECapabilityInformationConfirm-r3 ::= CHOICE {
  r3                             SEQUENCE {
    ueCapabilityInformationConfirm-r3
    nonCriticalExtensions          SEQUENCE {}      OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}
UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier
}
-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****
UplinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  cn-DomainIdentity              CN-DomainIdentity,
  nas-Message                     NAS-Message,
  -- Measurement IEs
  measuredResultsOnRACH          MeasuredResultsOnRACH      OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}      OPTIONAL
}
-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****
UplinkPhysicalChannelControl-r3 ::= CHOICE {
  r3                             SEQUENCE {
    uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
    nonCriticalExtensions          SEQUENCE {}      OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}
UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  -- Physical channel IEs
  ccTrCH-PowerControlInfo        CCTrCH-PowerControlInfo      OPTIONAL,
  timingAdvance                  UL-TimingAdvanceControl      OPTIONAL,
  alpha                          Alpha                          OPTIONAL,
  prach-ConstantValue            ConstantValue                OPTIONAL,
  pusch-ConstantValue            ConstantValue                OPTIONAL
}
-- *****
--

```

```

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

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

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

URAUUpdateConfirm-r3 ::= CHOICE {
  r3 SEQUENCE {
    uraUpdateConfirm-r3       URAUpdateConfirm-r3-IEs,
    nonCriticalExtensions     SEQUENCE {} OPTIONAL
  },
  criticalExtensions         SEQUENCE {}
}

URAUUpdateConfirm-r3-IEs ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo         CipheringModeInfo OPTIONAL,
  new-U-RNTI                U-RNTI OPTIONAL,
  new-C-RNTI                C-RNTI OPTIONAL,
  rrc-StateIndicator        RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- CN information elements
  cn-InformationInfo        CN-InformationInfo OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity              URA-Identity OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList     RB-WithPDCP-InfoList OPTIONAL
}

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

URAUUpdateConfirm-CCCH-r3 ::= CHOICE {
  r3 SEQUENCE {
    uraUpdateConfirm-CCCH-r3 URAUpdateConfirm-CCCH-r3-IEs,
    nonCriticalExtensions     SEQUENCE {} OPTIONAL
  },
  criticalExtensions         SEQUENCE {}
}

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

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

UTRANMobilityInformation ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier RRC-TransactionIdentifier,
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo         CipheringModeInfo OPTIONAL,

```

```

        new-U-RNTI                U-RNTI                OPTIONAL,
        new-C-RNTI                C-RNTI                OPTIONAL,
        ue-ConnTimersAndConstants UE-ConnTimersAndConstants OPTIONAL,
-- CN information elements
        cn-InformationInfo        CN-InformationInfo    OPTIONAL,
-- UTRAN mobility IEs
        ura-Identity              URA-Identity          OPTIONAL,
-- Radio bearer IEs
        count-C-ActivationTime    ActivationTime      OPTIONAL,
        rb-WithPDCP-InfoList      RB-WithPDCP-InfoList OPTIONAL,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions      SEQUENCE {}          OPTIONAL
    }
}
-- *****
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- *****

UTRANMobilityInformationConfirm ::= SEQUENCE {
-- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo     IntegrityProtActivationInfo    OPTIONAL,
-- Radio bearer IEs
    rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList     OPTIONAL,
    rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- UTRAN MOBILITY INFORMATION FAILURE
--
-- *****

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

```

11.3 Information element definitions

```

InformationElements DEFINITIONS AUTOMATIC TAGS ::=
-- *****
--
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)
--
-- *****

BEGIN

IMPORTS

    hiPDSCHidentities,
    hiPUSCHidentities,
    hiRM,
    maxAC,
    maxAdditionalMeas,
    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxCNdomains,
    maxCPCHsets,

```

```

maxDPCH-DLchan,
maxDPCHcodesPerTS,
maxDPDCH-UL,
maxDRACclasses,
maxFACH,
maxFreq,
maxFrequencybands,
maxInterSysMessages,
maxLoCHperRLC,
maxMeasEvent,
maxMeasIntervals,
maxMeasParEvent,
maxNumCDMA2000Freqs,
maxNumFDDFreqs,
maxNumGSMFreqRanges,
maxNumTDDFreqs,
maxOtherRAT,
maxPage1,
maxPCPCH-APsig,
maxPCPCH-APsubCh,
maxPCPCH-CDSig,
maxPCPCH-CDSUBch,
maxPCPCH-SF,
maxPCPCHs,
maxPDCPAlgoType,
maxPDSCH,
maxPDSCH-TFCIgroups,
maxPRACH,
maxPUSCH,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxSRBsetup,
maxRL,
maxRL-1,
maxSCCPCH,
maxSat,
maxSIB,
maxSIB-FACH,
maxSig,
maxSubCh,
maxSystemCapability,
maxTF,
maxTF-CPCH,
maxTFC,
maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
maxTS,
maxTS-1,
maxURA
FROM Constant-definitions;

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

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

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

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

```

```

}
CN-DomainSysInfoList ::= SEQUENCE (SIZE (1..maxCNdomains)) OF
                           CN-DomainSysInfo
CN-InformationInfo ::= SEQUENCE {
    plmn-Identity          PLMN-Identity          OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP OPTIONAL,
    cn-DomainInformationList CN-DomainInformationList OPTIONAL
}
Digit ::= INTEGER (0..9)
IMEI ::= SEQUENCE (SIZE (15)) OF
         IMEI-Digit
IMEI-Digit ::= INTEGER (0..15)
IMSI-GSM-MAP ::= SEQUENCE (SIZE (6..15)) OF
                 Digit
IntraDomainNasNodeSelector ::= BIT STRING (SIZE (16))
LAI ::= SEQUENCE {
    plmn-Identity
    lac          BIT STRING (SIZE (16))
}
MCC ::= SEQUENCE (SIZE (3)) OF
       Digit
MNC ::= SEQUENCE (SIZE (2..3)) OF
       Digit
NAS-Message ::= OCTET STRING (SIZE (1..4095))
NAS-Synchronisation-Indicator ::= BIT STRING(SIZE(4))
NAS-SystemInformationGSM-MAP ::= OCTET STRING (SIZE (1..8))
P-TMSI-GSM-MAP ::= BIT STRING (SIZE (32))
PagingRecordTypeID ::= ENUMERATED {
    imsi-GSM-MAP,
    tmsi-GSM-MAP-P-TMSI,
    imsi-DS-41,
    tmsi-DS-41 }
PLMN-Identity ::= SEQUENCE {
    mcc
    mnc
}
PLMN-Type ::= CHOICE {
    gsm-MAP SEQUENCE {
        plmn-Identity
    },
    ansi-41 SEQUENCE {
        p-REV
        min-P-REV
        sid
        nid
    },
    gsm-MAP-and-ANSI-41 SEQUENCE {
        plmn-Identity
        p-REV
        min-P-REV
        sid
        nid
    }
}
RAB-Identity ::= CHOICE {
    gsm-MAP-RAB-Identity
    ansi-41-RAB-Identity
}

```

```

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

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

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

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

AccessClassBarred ::=                 ENUMERATED {
    barred, notBarred }

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

AllowedIndicator ::=                   ENUMERATED {
    allowed, notAllowed }

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

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

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

CellSelectReselectInfoSIB-3-4 ::=     SEQUENCE {
    mappingInfo                         MappingInfo           OPTIONAL,
    cellSelectQualityMeasure            CHOICE {
        cpich-Ec-No                    SEQUENCE {
            q-HYST-2-S                  Q-Hyst-S           OPTIONAL,
            -- Default value for q-HYST-2-S is q-HYST-1-S
        },
        cpich-RSCP                      NULL
    },
    modeSpecificInfo                    CHOICE {
        fdd                              SEQUENCE {
            s-Intrasearch                S-SearchQual      OPTIONAL,
            s-Intersearch                S-SearchQual      OPTIONAL,
            s-SearchHCS                  S-SearchRXLEV     OPTIONAL,
            rat-List                      RAT-FDD-InfoList   OPTIONAL,
            q-QualMin                     Q-QualMin,
            q-RxlevMin                    Q-RxlevMin
        },
        tdd                              SEQUENCE {
            s-Intrasearch                S-SearchRXLEV     OPTIONAL,
            s-Intersearch                S-SearchRXLEV     OPTIONAL,
            s-SearchHCS                  S-SearchRXLEV     OPTIONAL,
            rat-List                      RAT-TDD-InfoList   OPTIONAL,
            q-RxlevMin                    Q-RxlevMin
        }
    },
    q-Hyst-1-S                           Q-Hyst-S,
    t-Reselection-S                      T-Reselection-S,
    hcs-ServingCellInformation           HCS-ServingCellInformation OPTIONAL,
    maxAllowedUL-TX-Power                MaxAllowedUL-TX-Power
}

MapParameter ::=                       INTEGER (0..99)

Mapping ::=                             SEQUENCE {

```

```

    rat
    mappingFunctionParameterList
}
RAT,
MappingFunctionParameterList

MappingFunctionParameter ::= SEQUENCE {
    functionType           MappingFunctionType,
    mapParameter1          MapParameter          OPTIONAL,
    mapParameter2          MapParameter,
    upperLimit             UpperLimit          OPTIONAL
    -- The parameter is conditional on the number of repetition
}

MappingFunctionParameterList ::= SEQUENCE (SIZE (1..maxMeasIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::= ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::= SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

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

RAT ::= ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::= SEQUENCE {
    rat-Identifier          RAT-Identifier,
    s-SearchRAT            S-SearchQual,
    s-HCS-RAT              S-SearchRXLEV          OPTIONAL,
    s-Limit-SearchRAT      S-SearchQual
}

RAT-FDD-InfoList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-FDD-Info

RAT-Identifier ::= ENUMERATED {
    gsm, cdma2000 }

RAT-TDD-Info ::= SEQUENCE {
    rat-Identifier          RAT-Identifier,
    s-SearchRAT            S-SearchRXLEV,
    s-HCS-RAT              S-SearchRXLEV          OPTIONAL,
    s-Limit-SearchRAT      S-SearchRXLEV
}

RAT-TDD-InfoList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-TDD-Info

ReservedIndicator ::= ENUMERATED {
    reserved,
    notReserved }

-- Actual value = IE value * 2
S-SearchQual ::= INTEGER (-16..10)

-- Actual value = (IE value * 2) + 1
S-SearchRXLEV ::= INTEGER (-53..45)

T-Barred ::= ENUMERATED {
    s10, s20, s40, s80,
    s160, s320, s640, s1280 }

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

-- The used range depends on the RAT used.
UpperLimit ::= INTEGER (1..91)

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

```

```

URA-IdentityList ::=                               SEQUENCE (SIZE (1..maxURA)) OF
                                                    URA-Identity

-- *****
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****

ActivationTime ::=                                INTEGER (0..255)
-- TABULAR : value 'now' always appear as default, and is encoded by absence of the field

BackoffControlParams ::=                          SEQUENCE {
    n-AP-RetransMax                               N-AP-RetransMax,
    n-AccessFails                                 N-AccessFails,
    nf-BO-NoAICH                                  NF-BO-NoAICH,
    ns-BO-Busy                                    NS-BO-Busy,
    nf-BO-AllBusy                                 NF-BO-AllBusy,
    nf-BO-Mismatch                                NF-BO-Mismatch,
    t-CPCH                                         T-CPCH
}

C-RNTI ::=                                        BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=                   SEQUENCE {
    ue-RadioCapabilityUpdateRequirement           BOOLEAN,
    systemSpecificCapUpdateReqList                SystemSpecificCapUpdateReqList    OPTIONAL
}

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

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

CipheringAlgorithm ::=                           ENUMERATED {
    uea0, uea1 }

CipheringModeCommand ::=                         CHOICE {
    startRestart                                  CipheringAlgorithm,
    stopCiphering                                  NULL
}

CipheringModeInfo ::=                            SEQUENCE {
    cipheringModeCommand                          CipheringModeCommand,
    -- TABULAR: The ciphering algorithm is included in
    -- the CipheringModeCommand.
    activationTimeForDPCH                        ActivationTime                    OPTIONAL,
    rb-DL-CiphActivationTimeInfo                 RB-ActivationTimeInfoList        OPTIONAL
}

CN-DRX-CycleLengthCoefficient ::=                INTEGER (6..9)

CN-PagedUE-Identity ::=                          CHOICE {
    imsi-GSM-MAP                                  IMSI-GSM-MAP,
    tmsi-GSM-MAP                                  TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                                P-TMSI-GSM-MAP,
    imsi-DS-41                                    IMSI-DS-41,
    tmsi-DS-41                                    TMSI-DS-41
}

CompressedModeMeasCapability ::=                 SEQUENCE {
    fdd-Measurements                              BOOLEAN,
    -- TABULAR: The IEs below are made optional since they are conditional based
    -- on another information element. Their absence corresponds to the case where
    -- the condition is not true.
    tdd-Measurements                              BOOLEAN                            OPTIONAL,
    gsm-Measurements                              GSM-Measurements                    OPTIONAL,
}

```



```

    multiCarrierMeasurements          BOOLEAN                               OPTIONAL
}

CPCH-Parameters ::=                  SEQUENCE {
    initialPriorityDelayList           InitialPriorityDelayList         OPTIONAL,
    backoffControlParams               BackoffControlParams,
    powerControlAlgorithm              PowerControlAlgorithm,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    dl-DPCCH-BER                      DL-DPCCH-BER
}

DL-DPCCH-BER ::=                     INTEGER (0..63)

DL-PhysChCapabilityFDD ::=            SEQUENCE {
    maxNoDPCH-PDSCH-Codes              INTEGER (1..8),
    maxNoPhysChBitsReceived            MaxNoPhysChBitsReceived,
    supportForSF-512                  BOOLEAN,
    supportOfPDSCH                    BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}

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

DL-TransChCapability ::=              SEQUENCE {
    maxNoBitsReceived                 MaxNoBits,
    maxConvCodeBitsReceived            MaxNoBits,
    turboDecodingSupport               TurboSupport,
    maxSimultaneousTransChs            MaxSimultaneousTransChsDL,
    maxSimultaneousCCTrCH-Count        MaxSimultaneousCCTrCH-Count,
    maxReceivedTransportBlocks         MaxTransportBlocksDL,
    maxNumberOfTFC-InTFCs              MaxNumberOfTFC-InTFCs-DL,
    maxNumberOfTF                      MaxNumberOfTF
}

DRAC-SysInfo ::=                     SEQUENCE {
    transmissionProbability             TransmissionProbability,
    maximumBitRate                     MaximumBitRate
}

DRAC-SysInfoList ::=                 SEQUENCE (SIZE (1..maxDRACclasses)) OF
    DRAC-SysInfo

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

EstablishmentCause ::=               ENUMERATED {
    originatingConversationalCall,
    originatingStreamingCall,
    originatingInteractiveCall,
    originatingBackgroundCall,
    originatingSubscribedTrafficCall,
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    emergencyCall,
    interRAT-CellReselection,
    interRAT-CellChangeOrder,
    registration,
    detach,
    highPrioritySignalling,
    lowPrioritySignalling,
    callRe-establishment,
    spare1 }

FailureCauseWithProtErr ::=          CHOICE {
    configurationUnsupported            NULL,
    physicalChannelFailure              NULL,
    incompatibleSimultaneousReconfiguration
    NULL,
}

```

```

        compressedModeRuntimeError      TGPSI,
        protocolError                    ProtocolErrorInformation,
        cellReselection                  NULL,
        invalidConfiguration              NULL,
        configurationIncomplete           NULL,
        unsupportedMeasurement            NULL,
        spare1                            NULL,
        spare2                            NULL,
        spare3                            NULL,
        spare4                            NULL,
        spare5                            NULL,
        spare6                            NULL,
        spare7                            NULL
    }

    FailureCauseWithProtErrTrId ::= SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        failureCause                      FailureCauseWithProtErr
    }

    GSM-Measurements ::= SEQUENCE {
        gsm900                            BOOLEAN,
        dcs1800                            BOOLEAN,
        gsm1900                            BOOLEAN
    }

    ICS-Version ::= ENUMERATED {
        r99 }

    IMSI-and-ESN-DS-41 ::= SEQUENCE {
        imsi-DS-41                        IMSI-DS-41,
        esn-DS-41                          ESN-DS-41
    }

    IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

    InitialPriorityDelayList ::= SEQUENCE (SIZE (maxASC)) OF
        NS-IP

    InitialUE-Identity ::= CHOICE {
        imsi                                IMSI-GSM-MAP,
        tmsi-and-LAI                       TMSI-and-LAI-GSM-MAP,
        p-TMSI-and-RAI                     P-TMSI-and-RAI-GSM-MAP,
        imei                                IMEI,
        esn-DS-41                          ESN-DS-41,
        imsi-DS-41                        IMSI-DS-41,
        imsi-and-ESN-DS-41                IMSI-and-ESN-DS-41,
        tmsi-DS-41                        TMSI-DS-41
    }

    IntegrityCheckInfo ::= SEQUENCE {
        messageAuthenticationCode         MessageAuthenticationCode,
        rrc-MessageSequenceNumber        RRC-MessageSequenceNumber
    }

    IntegrityProtActivationInfo ::= SEQUENCE {
        rrc-MessageSequenceNumberList    RRC-MessageSequenceNumberList
    }

    IntegrityProtectionAlgorithm ::= ENUMERATED {
        uial }

    IntegrityProtectionModeCommand ::= CHOICE {
        startIntegrityProtection          SEQUENCE {
            integrityProtInitNumber      IntegrityProtInitNumber
        },
        modify                            SEQUENCE {
            dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
        }
    }

    IntegrityProtectionModeInfo ::= SEQUENCE {
        integrityProtectionModeCommand    IntegrityProtectionModeCommand,
        -- TABULAR: DL integrity protection activation info and Integrity

```

```

-- protection intialisation number have been nested inside
-- IntegrityProtectionModeCommand.
integrityProtectionAlgorithm IntegrityProtectionAlgorithm OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

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

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am3, am4, am5, am6,
    am8, am16, am32 }

-- Actual value = IE value * 16
MaximumBitRate ::= INTEGER (0..32)

MaximumRLC-WindowSize ::= ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600 }

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

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

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11 }

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

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024 }

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

MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerTimeslot ::= ENUMERATED {
    ts1, ts2 }

MaxPhysChPerTS ::= INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::= ENUMERATED {
    e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::= ENUMERATED {
    e2, e4, e8, e16, e32 }

MaxTransportBlocksDL ::= ENUMERATED {
    tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::= ENUMERATED {
    tb2, tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTS-PerFrame ::= INTEGER (1..14)

```

```

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::=
    downlinkCompressedMode
    uplinkCompressedMode
}
SEQUENCE {
    CompressedModeMeasCapability,
    CompressedModeMeasCapability
}

MessageAuthenticationCode ::=
    BIT STRING (SIZE (32))

MinimumSF-DL ::=
    ENUMERATED {
        sf1, sf16 }

MinimumSF-UL ::=
    ENUMERATED {
        sf1, sf2, sf4, sf8, sf16 }

MultiModeCapability ::=
    ENUMERATED {
        tdd, fdd, fdd-tdd }

MultiRAT-Capability ::=
    supportOfGSM
    supportOfMulticarrier
}
SEQUENCE {
    BOOLEAN,
    BOOLEAN
}

N-300 ::=
    INTEGER (0..7)

N-301 ::=
    INTEGER (0..7)

N-302 ::=
    INTEGER (0..7)

N-304 ::=
    INTEGER (0..7)

N-308 ::=
    INTEGER (1..8)

N-310 ::=
    INTEGER (0..7)

N-312 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }

N-313 ::=
    ENUMERATED {
        s1, s2, s4, s10, s20,
        s50, s100, s200 }

N-315 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }

N-AccessFails ::=
    INTEGER (1..64)

N-AP-RetransMax ::=
    INTEGER (1..64)

NetworkAssistedGPS-Supported ::=
    networkBased,
    ue-Based,
    bothNetworkAndUE-Based,
    noNetworkAssistedGPS
}
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 ::=
    p-TMSI
    rai
}
SEQUENCE {
    P-TMSI-GSM-MAP,
    RAI
}

PagingCause ::=
    terminatingConversationalCall,
    terminatingStreamingCall,
}
ENUMERATED {
    terminatingConversationalCall,
    terminatingStreamingCall,
}

```

```

        terminatingInteractiveCall,
        terminatingBackgroundCall,
        highPrioritySignalling,
        lowPrioritySignalling
    }
}

PagingRecord ::=
    CHOICE {
        cn-Identity
            SEQUENCE {
                pagingCause
                    PagingCause,
                cn-DomainIdentity
                    CN-DomainIdentity,
                cn-pagedUE-Identity
                    CN-PagedUE-Identity
            },
        utran-Identity
            SEQUENCE {
                u-RNTI
                    U-RNTI,
                cn-OriginatedPage-connectedMode-UE
                    SEQUENCE {
                        pagingCause
                            PagingCause,
                        cn-DomainIdentity
                            CN-DomainIdentity,
                        pagingRecordTypeID
                            PagingRecordTypeID
                    }
            }
    }
} OPTIONAL

PagingRecordList ::=
    SEQUENCE (SIZE (1..maxPage1)) OF
        PagingRecord

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

PhysicalChannelCapability ::=
    SEQUENCE {
        fddPhysChCapability
            SEQUENCE {
                downlinkPhysChCapability
                    DL-PhysChCapabilityFDD,
                uplinkPhysChCapability
                    UL-PhysChCapabilityFDD
            } OPTIONAL,
        tddPhysChCapability
            SEQUENCE {
                downlinkPhysChCapability
                    DL-PhysChCapabilityTDD,
                uplinkPhysChCapability
                    UL-PhysChCapabilityTDD
            } OPTIONAL
    }

ProtocolErrorCause ::=
    ENUMERATED {
        asnl-ViolationOrEncodingError,
        messageTypeNonexistent,
        messageNotCompatibleWithReceiverState,
        ie-ValueNotComprehended,
        conditionalInformationElementError,
        messageExtensionNotComprehended,
        spare1, spare2 }

ProtocolErrorIndicator ::=
    ENUMERATED {
        noError, errorOccurred }

ProtocolErrorIndicatorWithMoreInfo ::=
    CHOICE {
        noError
            NULL,
        errorOccurred
            SEQUENCE {
                rrc-TransactionIdentifier
                    RRC-TransactionIdentifier,
                protocolErrorInformation
                    ProtocolErrorInformation
            }
    }

ProtocolErrorMoreInformation ::=
    SEQUENCE {
        diagnosticsType
            CHOICE {
                type1
                    CHOICE {
                        asnl-ViolationOrEncodingError
                            NULL,
                        messageTypeNonexistent
                            NULL,
                        messageNotCompatibleWithReceiverState
                            IdentificationOfReceivedMessage,
                        ie-ValueNotComprehended
                            IdentificationOfReceivedMessage,
                        conditionalInformationElementError
                            IdentificationOfReceivedMessage,
                        messageExtensionNotComprehended
                            IdentificationOfReceivedMessage,
                        spare1
                            NULL,
                    }
            }
    }

```

```

        spare2                NULL
    },
    spare                    NULL
}

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

Rb-timer-indicator ::=      SEQUENCE {
    t314-expired             BOOLEAN,
    t315-expired             BOOLEAN }

Re-EstablishmentTimer ::=   ENUMERATED {
    useT314, useT315
}

RedirectionInfo ::=         CHOICE {
    frequencyInfo            FrequencyInfo,
    interRATInfo             InterRATInfo
}

RejectionCause ::=          ENUMERATED {
    congestion,
    unspecified }

ReleaseCause ::=            ENUMERATED {
    normalEvent,
    unspecified,
    pre-emptiveRelease,
    congestion,
    re-establishmentReject,
    userInactivity }

RF-Capability ::=           SEQUENCE {
    fddRF-Capability         SEQUENCE {
        ue-PowerClass        UE-PowerClass,
        txRxFrequencySeparation TxRxFrequencySeparation
    }
    tddRF-Capability         SEQUENCE {
        ue-PowerClass        UE-PowerClass,
        radioFrequencyBandList RadioFrequencyBand,
        chipRateCapability    ChipRateCapability
    }
    OPTIONAL
}

RLC-Capability ::=          SEQUENCE {
    totalRLC-AM-BufferSize   TotalRLC-AM-BufferSize,
    maximumRLC-WindowSize    MaximumRLC-WindowSize,
    maximumAM-EntityNumber   MaximumAM-EntityNumberRLC-Cap
}

RRC-MessageSequenceNumber ::= INTEGER (0..15)

RRC-MessageSequenceNumberList ::= SEQUENCE (SIZE (4..5)) OF
    RRC-MessageSequenceNumber

RRC-StateIndicator ::=      ENUMERATED {
    cell-DCH, cell-FACH, cell-PCH, ura-PCH }

RRC-TransactionIdentifier ::= INTEGER (0..3)

S-RNTI ::=                  BIT STRING (SIZE (20))

S-RNTI-2 ::=                BIT STRING (SIZE (10))

SecurityCapability ::=      SEQUENCE {
    cipheringAlgorithmCap     BIT STRING (SIZE (16)),
    integrityProtectionAlgorithmCap BIT STRING (SIZE (16))
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported              NULL,
    supported                  SEQUENCE {

```

```

        maxNoSCCPCH-RL                MaxNoSCCPCH-RL,
        simultaneousSCCPCH-DPCH-DPDCH-Reception
        BOOLEAN
    }
    -- The IE above is applicable only if IE Support of PDSCH = TRUE
}

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

START-Value ::= BIT STRING (SIZE (20))

STARTList ::= SEQUENCE (SIZE (1..maxCNdomains)) OF
    STARTSingle

STARTSingle ::= SEQUENCE {
    cn-DomainIdentity CN-DomainIdentity,
    start-Value START-Value
}

SystemSpecificCapUpdateReq ::= ENUMERATED {
    gsm }

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
    SystemSpecificCapUpdateReq

T-300 ::= ENUMERATED {
    ms100, ms200, ms400, ms600, ms800,
    ms1000, ms1200, ms1400, ms1600,
    ms1800, ms2000, ms3000, ms4000,
    ms6000, ms8000 }

T-301 ::= ENUMERATED {
    ms100, ms200, ms400, ms600, ms800,
    ms1000, ms1200, ms1400, ms1600,
    ms1800, ms2000, ms3000, ms4000,
    ms6000, ms8000 }

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

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

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

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

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

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

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

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

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

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

T-314 ::= ENUMERATED {
    s0, s2, s4, s6, s8,

```

```

s12, s16, s20 }

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

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

T-317 ::=
ENUMERATED {
s0, s10, s30, s60, s180,
s600, s1200, s1800 }

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

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

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

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

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

TransportChannelCapability ::=
SEQUENCE {
dl-TransChCapability
ul-TransChCapability
}

TurboSupport ::=
CHOICE {
notSupported
supported
}

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

U-RNTI ::=
SEQUENCE {
srnc-Identity
s-RNTI
}

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

UE-ConnTimersAndConstants ::=
SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read
in SIB1
t-301 T-301 DEFAULT
ms2000,
n-301 N-301 DEFAULT 2,
t-302 T-302 DEFAULT
ms4000,
n-302 N-302 DEFAULT 3,
t-304 T-304 OPTIONAL,
n-304 N-304 OPTIONAL,
t-305 T-305 DEFAULT m30,
t-307 T-307 DEFAULT s30,
t-308 T-308 OPTIONAL,
t-309 T-309 OPTIONAL,
t-310 T-310 DEFAULT ms160,
n-310 N-310 DEFAULT 4,
t-311 T-311 DEFAULT
ms2000,
t-312 T-312 DEFAULT 1,
n-312 N-312 DEFAULT s1,

```


t-313	T-313	OPTIONAL,
n-313	N-313	OPTIONAL,
t-314	T-314	OPTIONAL,
t-315	T-315	OPTIONAL,
n-315	N-315	OPTIONAL,
t-316	T-316	OPTIONAL,
t-317	T-317	OPTIONAL
}		
UE-IdleTimersAndConstants ::=	SEQUENCE {	
t-300	T-300,	
n-300	N-300,	
t-312	T-312,	
n-312	N-312	
}		
UE-MultiModeRAT-Capability ::=	SEQUENCE {	
multiRAT-CapabilityList	MultiRAT-Capability,	
multiModeCapability	MultiModeCapability	
}		
UE-PowerClass ::=	INTEGER (1..4)	
UE-RadioAccessCapability ::=	SEQUENCE {	
ics-Version	ICS-Version,	
pdcp-Capability	PDCP-Capability,	
rlc-Capability	RLC-Capability,	
transportChannelCapability	TransportChannelCapability,	
rf-Capability	RF-Capability,	
physicalChannelCapability	PhysicalChannelCapability,	
ue-MultiModeRAT-Capability	UE-MultiModeRAT-Capability,	
securityCapability	SecurityCapability,	
up-Capability	UP-Capability,	
measurementCapability	MeasurementCapability	OPTIONAL
}		
UL-PhysChCapabilityFDD ::=	SEQUENCE {	
maxNoDPDCH-BitsTransmitted	MaxNoDPDCH-BitsTransmitted,	
supportOfPCPCH	BOOLEAN	
}		
UL-PhysChCapabilityTDD ::=	SEQUENCE {	
maxTS-PerFrame	MaxTS-PerFrame,	
maxPhysChPerTimeslot	MaxPhysChPerTimeslot,	
minimumSF	MinimumSF-UL,	
supportOfPUSCH	BOOLEAN	
}		
UL-TransChCapability ::=	SEQUENCE {	
maxNoBitsTransmitted	MaxNoBits,	
maxConvCodeBitsTransmitted	MaxNoBits,	
turboDecodingSupport	TurboSupport,	
maxSimultaneousTransChs	MaxSimultaneousTransChsUL,	
modeSpecificInfo	CHOICE {	
fdd	NULL,	
tdd	SEQUENCE {	
maxSimultaneousCCTrCH-Count	MaxSimultaneousCCTrCH-Count	
}		
},		
maxTransmittedBlocks	MaxTransportBlocksUL,	
maxNumberOfTFC-InTFCS	MaxNumberOfTFC-InTFCS-UL,	
maxNumberOfTF	MaxNumberOfTF	
}		
UP-Capability ::=	SEQUENCE {	
standaloneLocMethodsSupported	BOOLEAN,	
ue-BasedOTDOA-Supported	BOOLEAN,	
networkAssistedGPS-Supported	NetworkAssistedGPS-Supported,	
gps-ReferenceTimeCapable	BOOLEAN,	
supportForIDL	BOOLEAN	
}		
URA-UpdateCause ::=	ENUMERATED {	
	changeOfURA,	
	periodicURAUpdate,	
	re-enteredServiceArea,	

```

                                spare1 }

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

WaitTime ::=
                                INTEGER (0..15)

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

AlgorithmSpecificInfo ::=
    CHOICE {
        rfc2507-Info
        RFC2507-Info
    }

-- Upper limit is 2^32 - 1
COUNT-C ::=
    INTEGER (0..4294967295)

-- Upper limit is 2^25 - 1
COUNT-C-MSB ::=
    INTEGER (0..33554431)

DL-AM-RLC-Mode ::=
    SEQUENCE {
        inSequenceDelivery
        receivingWindowSize
        dl-RLC-StatusInfo
    }

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

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

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

DL-RLC-StatusInfo ::=
    SEQUENCE {
        timerStatusProhibit
        timerEPC
        missingPU-Indicator
        timerStatusPeriodic
        TimerStatusProhibit
        TimerEPC
        BOOLEAN,
        TimerStatusPeriodic
        OPTIONAL,
        OPTIONAL,
        OPTIONAL
    }

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

DL-TransportChannelType ::=
    CHOICE {
        dch
        fach
        dsch
        TransportChannelIdentity,
        NULL,
        TransportChannelIdentity
    }

ExpectReordering ::=
    ENUMERATED {
        reorderingNotExpected,
        reorderingExpected }

ExplicitDiscard ::=
    SEQUENCE {
        timerMRW
        timerDiscard
        maxMRW
        TimerMRW,
        TimerDiscard,
        MaxMRW
    }

HeaderCompressionInfo ::=
    SEQUENCE {
        algorithmSpecificInfo
        AlgorithmSpecificInfo
    }

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

```

```

LogicalChannelIdentity ::=          INTEGER (1..15)

LosslessSRNS-RelocSupport ::=     CHOICE {
    supported
    notSupported
}

MAC-LogicalChannelPriority ::=     INTEGER (1..8)

MaxDAT ::=                         ENUMERATED {
    dat1, dat2, dat3, dat4, dat5, dat6,
    dat7, dat8, dat9, dat10, dat15, dat20,
    dat25, dat30, dat35, dat40 }

MaxDAT-Retransmissions ::=        SEQUENCE {
    maxDAT
    timerMRW
    maxMRW
}

MaxMRW ::=                         ENUMERATED {
    mm1, mm4, mm6, mm8, mm12, mm16,
    mm24, mm32 }

MaxPDCP-SN-WindowSize ::=         ENUMERATED {
    sn255, sn65535 }

MaxRST ::=                         ENUMERATED {
    rst1, rst4, rst6, rst8, rst12,
    rst16, rst24, rst32 }

NoExplicitDiscard ::=            ENUMERATED {
    dt10, dt20, dt30, dt40, dt50,
    dt60, dt70, dt80, dt90, dt100 }

PDCP-Info ::=                     SEQUENCE {
    losslessSRNS-RelocSupport      LosslessSRNS-RelocSupport      OPTIONAL,
    pdcP-PDU-Header                PDCP-PDU-Header,
    -- TABULAR: The IE above is MD in the tabular format and it can be encoded
    -- in one bit, so the OPTIONAL is removed for compactness.
    headerCompressionInfoList     HeaderCompressionInfoList     OPTIONAL
}

PDCP-InfoReconfig ::=            SEQUENCE {
    pdcP-Info
    pdcP-SN-Info
}

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

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

Poll-PU ::=                       ENUMERATED {
    pu1, pu2, pu4, pu8, pu16,
    pu32, pu64, pu128 }

Poll-SDU ::=                      ENUMERATED {
    sdu1, sdu4, sdu16, sdu64 }

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

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

```

```

PredefinedConfigIdentity ::=          INTEGER (0..15)
PredefinedConfigValueTag ::=          INTEGER (0..15)
PredefinedRB-Configuration ::=        SEQUENCE {
  srb-InformationList                SRB-InformationSetupList,
  rb-InformationList                  RB-InformationSetupList
}
PreDefRadioConfiguration ::=          SEQUENCE {
  -- User equipment IEs
  re-EstablishmentTimer              Re-EstablishmentTimer,
  -- Radio bearer IEs
  predefinedRB-Configuration          PredefinedRB-Configuration,
  -- Transport channel IEs
  preDefTransChConfiguration          PreDefTransChConfiguration,
  -- Physical channel IEs
  preDefPhyChConfiguration            PreDefPhyChConfiguration
}
RAB-Info ::=                           SEQUENCE {
  rab-Identity                        RAB-Identity,
  cn-DomainIdentity                  CN-DomainIdentity,
  nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator OPTIONAL,
  re-EstablishmentTimer              Re-EstablishmentTimer
}
RAB-InformationList ::=                 SEQUENCE (SIZE (1..maxRABsetup)) OF
  RAB-Info
RAB-InformationReconfigList ::=         SEQUENCE (SIZE (1.. maxRABsetup)) OF
  RAB-InformationReconfig
RAB-InformationReconfig ::=             SEQUENCE {
  rab-Identity                        RAB-Identity,
  cn-DomainIdentity                  CN-DomainIdentity,
  nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator
}
RAB-Info-Post ::=                       SEQUENCE {
  rab-Identity                        RAB-Identity,
  cn-DomainIdentity                  CN-DomainIdentity,
  nas-Synchronisation-Indicator       NAS-Synchronisation-Indicator OPTIONAL
}
RAB-InformationSetup ::=                SEQUENCE {
  rab-Info                            RAB-Info,
  rb-InformationSetupList             RB-InformationSetupList
}
RAB-InformationSetupList ::=            SEQUENCE (SIZE (1..maxRABsetup)) OF
  RAB-InformationSetup
RB-ActivationTimeInfo ::=               SEQUENCE {
  rb-Identity                          RB-Identity,
  rlc-SequenceNumber                  RLC-SequenceNumber
}
RB-ActivationTimeInfoList ::=           SEQUENCE (SIZE (1..maxRB)) OF
  RB-ActivationTimeInfo
RB-COUNT-C-Information ::=              SEQUENCE {
  rb-Identity                          RB-Identity,
  count-C-UL                           COUNT-C,
  count-C-DL                           COUNT-C
}
RB-COUNT-C-InformationList ::=          SEQUENCE (SIZE (1..maxRBallRABs)) OF
  RB-COUNT-C-Information
RB-COUNT-C-MSB-Information ::=          SEQUENCE {
  rb-Identity                          RB-Identity,
  count-C-MSB-UL                       COUNT-C-MSB,
  count-C-MSB-DL                       COUNT-C-MSB
}

```

```

RB-COUNT-C-MSB-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
    RB-COUNT-C-MSB-Information

RB-Identity ::= INTEGER (1..32)

RB-IdentityList ::= SEQUENCE (SIZE (1..maxRB)) OF
    RB-Identity

RB-InformationAffected ::= SEQUENCE {
    rb-Identity RB-Identity,
    rb-MappingInfo RB-MappingInfo
}

RB-InformationAffectedList ::= SEQUENCE (SIZE (1..maxRB)) OF
    RB-InformationAffected

RB-InformationReconfig ::= SEQUENCE {
    rb-Identity RB-Identity,
    pdcp-Info PDCP-InfoReconfig OPTIONAL,
    rlc-Info RLC-Info OPTIONAL,
    rb-MappingInfo RB-MappingInfo OPTIONAL,
    rb-StopContinue RB-StopContinue OPTIONAL
}

RB-InformationReconfigList ::= SEQUENCE (SIZE (1..maxRB)) OF
    RB-InformationReconfig

RB-InformationReleaseList ::= SEQUENCE (SIZE (1..maxRB)) OF
    RB-Identity

RB-InformationSetup ::= SEQUENCE {
    rb-Identity RB-Identity,
    pdcp-Info PDCP-Info OPTIONAL,
    rlc-Info RLC-Info,
    rb-MappingInfo RB-MappingInfo
}

RB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
    RB-InformationSetup

RB-MappingInfo ::= SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
    RB-MappingOption

RB-MappingOption ::= SEQUENCE {
    ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL,
    dl-LogicalChannelMappingList DL-LogicalChannelMappingList OPTIONAL
}

RB-StopContinue ::= ENUMERATED {
    stopRB, continueRB }

RB-WithPDCP-Info ::= SEQUENCE {
    rb-Identity RB-Identity,
    pdcp-SN-Info PDCP-SN-Info
}

RB-WithPDCP-InfoList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
    RB-WithPDCP-Info

ReceivingWindowSize ::= ENUMERATED {
    rw1, rw8, rw16, rw32, rw64, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2047,
    rw2560, rw3072, rw3584, rw4095 }

RFC2507-Info ::= SEQUENCE {
    f-MAX-PERIOD INTEGER (1..65535) DEFAULT 256,
    f-MAX-TIME INTEGER (1..255) DEFAULT 5,
    max-HEADER INTEGER (60..65535) DEFAULT 168,
    tcp-SPACE INTEGER (3..255) DEFAULT 15,
    non-TCP-SPACE INTEGER (3..65535) DEFAULT 15,
    expectReordering ExpectReordering
    -- TABULAR: The IE above has only two possible values, so using Optional or Default
    -- would be wasteful
}

RLC-Info ::= SEQUENCE {

```

```

        ul-RLC-Mode                UL-RLC-Mode                OPTIONAL,
        dl-RLC-Mode                DL-RLC-Mode                OPTIONAL
    }

RLC-SequenceNumber ::=                INTEGER (0..4095)

RLC-SizeInfo ::=                SEQUENCE {
    rlc-SizeIndex                INTEGER (1..maxTF)
}

RLC-SizeExplicitList ::=                SEQUENCE (SIZE (1..maxTF)) OF
    RLC-SizeInfo

SRB-InformationSetup ::=                SEQUENCE {
    rb-Identity                RB-Identity                OPTIONAL,
    -- The default value for the IE above is the smallest value not used yet.
    rlc-Info                RLC-Info,
    rb-MappingInfo                RB-MappingInfo
}

SRB-InformationSetupList ::=                SEQUENCE (SIZE (1..maxSRBsetup)) OF
    SRB-InformationSetup

SRB-InformationSetupList2 ::=                SEQUENCE (SIZE (3..4)) OF
    SRB-InformationSetup

TimerDiscard ::=                ENUMERATED {
    td0-1, td0-25, td0-5, td0-75,
    td1, td1-25, td1-5, td1-75,
    td2, td2-5, td3, td3-5, td4,
    td4-5, td5, td7-5 }

TimerEPC ::=                ENUMERATED {
    te50, te60, te70, te80, te90,
    tel100, tel120, tel140, tel160, tel180,
    te200, te300, te400, te500, te700,
    te900 }

TimerMRW ::=                ENUMERATED {
    te50, te60, te70, te80, te90, tel100,
    tel120, tel140, tel160, tel180, te200,
    te300, te400, te500, te700, te900 }

TimerPoll ::=                ENUMERATED {
    tp10, tp20, tp30, tp40, tp50,
    tp60, tp70, tp80, tp90, tp100,
    tp110, tp120, tp130, tp140, tp150,
    tp160, tp170, tp180, tp190, tp200,
    tp210, tp220, tp230, tp240, tp250,
    tp260, tp270, tp280, tp290, tp300,
    tp310, tp320, tp330, tp340, tp350,
    tp360, tp370, tp380, tp390, tp400,
    tp410, tp420, tp430, tp440, tp450,
    tp460, tp470, tp480, tp490, tp500,
    tp510, tp520, tp530, tp540, tp550,
    tp600, tp650, tp700, tp750, tp800,
    tp850, tp900, tp950, tp1000 }

TimerPollPeriodic ::=                ENUMERATED {
    tper100, tper200, tper300, tper400,
    tper500, tper750, tper1000, tper2000 }

TimerPollProhibit ::=                ENUMERATED {
    tpp10, tpp20, tpp30, tpp40, tpp50,
    tpp60, tpp70, tpp80, tpp90, tpp100,
    tpp110, tpp120, tpp130, tpp140, tpp150,
    tpp160, tpp170, tpp180, tpp190, tpp200,
    tpp210, tpp220, tpp230, tpp240, tpp250,
    tpp260, tpp270, tpp280, tpp290, tpp300,
    tpp310, tpp320, tpp330, tpp340, tpp350,
    tpp360, tpp370, tpp380, tpp390, tpp400,
    tpp410, tpp420, tpp430, tpp440, tpp450,
    tpp460, tpp470, tpp480, tpp490, tpp500,
    tpp510, tpp520, tpp530, tpp540, tpp550,
    tpp600, tpp650, tpp700, tpp750, tpp800,
    tpp850, tpp900, tpp950, tpp1000 }

```

```

TimerRST ::=
    ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000 }

TimerStatusPeriodic ::=
    ENUMERATED {
        tsp100, tsp200, tsp300, tsp400, tsp500,
        tsp750, tsp1000, tsp2000 }

TimerStatusProhibit ::=
    ENUMERATED {
        tsp10, tsp20, tsp30, tsp40, tsp50,
        tsp60, tsp70, tsp80, tsp90, tsp100,
        tsp110, tsp120, tsp130, tsp140, tsp150,
        tsp160, tsp170, tsp180, tsp190, tsp200,
        tsp210, tsp220, tsp230, tsp240, tsp250,
        tsp260, tsp270, tsp280, tsp290, tsp300,
        tsp310, tsp320, tsp330, tsp340, tsp350,
        tsp360, tsp370, tsp380, tsp390, tsp400,
        tsp410, tsp420, tsp430, tsp440, tsp450,
        tsp460, tsp470, tsp480, tsp490, tsp500,
        tsp510, tsp520, tsp530, tsp540, tsp550,
        tsp600, tsp650, tsp700, tsp750, tsp800,
        tsp850, tsp900, tsp950, tsp1000 }

TransmissionRLC-Discard ::=
    timerBasedExplicit
    timerBasedNoExplicit
    maxDAT-Retransmissions
    noDiscard
}
CHOICE {
    ExplicitDiscard,
    NoExplicitDiscard,
    MaxDAT-Retransmissions,
    MaxDAT
}

TransmissionWindowSize ::=
    ENUMERATED {
        tw1, tw8, tw16, tw32, tw64, tw128, tw256,
        tw512, tw768, tw1024, tw1536, tw2047,
        tw2560, tw3072, tw3584, tw4095 }

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

UL-LogicalChannelMapping ::=
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType
    logicalChannelIdentity
    rlc-SizeList
    allSizes
    configured
    explicitList
    mac-LogicalChannelPriority
}
SEQUENCE {
    UL-TransportChannelType,
    LogicalChannelIdentity OPTIONAL,
    CHOICE {
        NULL,
        NULL,
        RLC-SizeExplicitList
    },
    MAC-LogicalChannelPriority
}

UL-LogicalChannelMappingList ::=
    rlc-LogicalChannelMappingIndicator
    ul-LogicalChannelMapping
}
SEQUENCE {
    BOOLEAN,
    SEQUENCE (SIZE (maxLoCHperRLC)) OF
    UL-LogicalChannelMapping
}

UL-LogicalChannelMappings ::=
    oneLogicalChannel
    twoLogicalChannels
}
CHOICE {
    UL-LogicalChannelMapping,
    UL-LogicalChannelMappingList
}

UL-RLC-Mode ::=
    ul-AM-RLC-Mode
    ul-UM-RLC-Mode
    ul-TM-RLC-Mode
    spare
}
CHOICE {
    UL-AM-RLC-Mode,
    UL-UM-RLC-Mode,
    UL-TM-RLC-Mode,
    NULL
}

UL-TM-RLC-Mode ::=
    SEQUENCE {

```

```

        transmissionRLC-Discard          TransmissionRLC-Discard          OPTIONAL,
segmentationIndication                  BOOLEAN
    }
UL-UM-RLC-Mode ::=
    transmissionRLC-Discard              SEQUENCE {
                                          TransmissionRLC-Discard          OPTIONAL
    }
UL-TransportChannelType ::=
    dch                                  CHOICE {
        rach                             TransportChannelIdentity,
        cpch                             NULL,
        usch                             NULL
    }
-- *****
--
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
--
-- *****
AllowedTFC-List ::=
    SEQUENCE (SIZE (1..maxTFC)) OF
    TFC-Value
AllowedTFI-List ::=
    SEQUENCE (SIZE (1..maxTF)) OF
    INTEGER (0..31)
BitModeRLC-SizeInfo ::=
    CHOICE {
        sizeType1                        INTEGER (1..127),
        sizeType2                        SEQUENCE {
            part1                        INTEGER (0..15),
            part2                        INTEGER (1..7)
            -- Actual size = (part1 * 8) + 128 + part2
        },
        sizeType3                        SEQUENCE {
            part1                        INTEGER (0..47),
            part2                        INTEGER (1..15)
            -- Actual size = (part1 * 16) + 256 + part2
        },
        sizeType4                        SEQUENCE {
            part1                        INTEGER (0..62),
            part2                        INTEGER (1..63)
            -- Actual size = (part1 * 64) + 1024 + part2
        }
    }
-- Actual value = IE value * 0.1
BLER-QualityValue ::=
    INTEGER (-63..0)
ChannelCodingType ::=
    CHOICE {
        noCoding                         NULL,
        convolutional                    CodingRate,
        turbo                             NULL
    }
CodingRate ::=
    ENUMERATED {
        half,
        third
    }
CommonDynamicTF-Info ::=
    SEQUENCE {
        rlc-Size                         CHOICE {
            fdd                          SEQUENCE {
                octetModeRLC-SizeInfoType2  OctetModeRLC-SizeInfoType2
            },
            tdd                          SEQUENCE {
                commonTDD-Choice            CHOICE {
                    bitModeRLC-SizeInfo    BitModeRLC-SizeInfo,
                    octetModeRLC-SizeInfoType1  OctetModeRLC-SizeInfoType1
                }
            }
        },
        numberOfTbSizeList                SEQUENCE (SIZE (1..maxTF)) OF
        logicalChannelList                LogicalChannelList
    }

```



```

CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    commonTDD-Choice          CHOICE {
        bitModeRLC-SizeInfo      BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeAndTTIList    NumberOfTbSizeAndTTIList,
    logicalChannelList          LogicalChannelList
}

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

CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
    CommonDynamicTF-Info-DynamicTTI

CommonTransChTFS ::= SEQUENCE {
    tti          CHOICE {
        tti10      CommonDynamicTF-InfoList,
        tti20      CommonDynamicTF-InfoList,
        tti40      CommonDynamicTF-InfoList,
        tti80      CommonDynamicTF-InfoList,
        dynamic    CommonDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information    SemistaticTF-Information
}

CPCH-SetID ::= INTEGER (1..maxCPCHsets)

CRC-Size ::= ENUMERATED {
    crc0, crc8, crc12, crc16, crc24 }

DedicatedDynamicTF-Info ::= SEQUENCE {
    rlc-Size          CHOICE {
        bitMode      BitModeRLC-SizeInfo,
        octetModeType1 OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeList SEQUENCE (SIZE (1..maxTF)) OF
    logicalChannelList LogicalChannelList
}

DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    rlc-Size          CHOICE {
        bitMode      BitModeRLC-SizeInfo,
        octetModeType1 OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeAndTTIList    NumberOfTbSizeAndTTIList,
    logicalChannelList          LogicalChannelList
}

DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
    DedicatedDynamicTF-Info

DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
    DedicatedDynamicTF-Info-DynamicTTI

DedicatedTransChTFS ::= SEQUENCE {
    tti          CHOICE {
        tti10      DedicatedDynamicTF-InfoList,
        tti20      DedicatedDynamicTF-InfoList,
        tti40      DedicatedDynamicTF-InfoList,
        tti80      DedicatedDynamicTF-InfoList,
        dynamic    DedicatedDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information    SemistaticTF-Information
}

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

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

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

```

```

    dl-transportChannelIdentity      TransportChannelIdentity,
    tfs-SignallingMode              CHOICE {
        explicit                    TransportFormatSet,
        sameAsULTrCH               TransportChannelIdentity
    },
    dch-QualityTarget               QualityTarget                      OPTIONAL,
    tm-SignallingInfo               TM-SignallingInfo              OPTIONAL
}

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity      TransportChannelIdentity,
    tfs-SignallingMode           CHOICE {
        explicit                    TransportFormatSet,
        sameAsULTrCH               TransportChannelIdentity
    },
    qualityTarget                 QualityTarget                      OPTIONAL
}

DL-CommonTransChInfo ::=          SEQUENCE {
    sccpch-TFCS                  TFCS                      OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            tfs-SignallingMode     CHOICE {
                explicit           TFCS,
                sameAsUL           NULL
            }
        }
        tdd                       SEQUENCE {
            individualDL-CCTrCH-InfoList IndividualDL-CCTrCH-InfoList OPTIONAL
        }
    }
}

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

DRAC-ClassIdentity ::=          INTEGER (1..maxDRACclasses)

DRAC-StaticInformation ::=      SEQUENCE {
    transmissionTimeValidity     TransmissionTimeValidity,
    timeDurationBeforeRetry      TimeDurationBeforeRetry,
    drac-ClassIdentity           DRAC-ClassIdentity
}

DRAC-StaticInformationList ::=  SEQUENCE (SIZE (1..maxTrCH)) OF
    DRAC-StaticInformation

ExplicitTFCS-Configuration ::=  CHOICE {
    complete                     TFCS-ReconfAdd,
    addition                     TFCS-ReconfAdd,
    removal                     TFCS-RemovalList,
    replacement                  SEQUENCE {
        tfsRemoval               TFCS-RemovalList,
        tfsAdd                   TFCS-ReconfAdd
    }
}

GainFactor ::=                  INTEGER (0..15)

GainFactorInformation ::=      CHOICE {
    signalledGainFactors         SignalledGainFactors,
    computedGainFactors          ReferenceTFC-ID
}

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

```

```

IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualDL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::= SEQUENCE {
    ul-TFCS-Identity    TFCS-Identity,
    ul-TFCS             TFCS
}

IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualUL-CCTrCH-Info

LogicalChannelByRB ::= SEQUENCE {
    rb-Identity        RB-Identity,
    logChOfRb         INTEGER (0..1)
} OPTIONAL

LogicalChannelList ::= CHOICE {
    allSizes           NULL,
    configured         NULL,
    explicitList       SEQUENCE (SIZE (1..15)) OF
        LogicalChannelByRB
}

NumberOfTbSizeAndTTIList ::= SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
    numberOfTransportBlocks
    transmissionTimeInterval
}

MessType ::= ENUMERATED {
    transportFormatCombinationControl
}

Non-allowedTFC-List ::= SEQUENCE (SIZE (1..maxTFC)) OF
    TFC-Value

NumberOfTransportBlocks ::= CHOICE {
    zero              NULL,
    one               NULL,
    small             INTEGER (2..17),
    large             INTEGER (18..512)
}

OctetModeRLC-SizeInfoType1 ::= CHOICE {
    sizeType1         INTEGER (0..31),
    -- Actual size = (8 * sizeType1) + 16
    sizeType2         SEQUENCE {
        part1          INTEGER (0..23),
        part2          INTEGER (1..3)
        -- Actual size = (32 * part1) + 272 + (part2 * 8)
    },
    sizeType3         SEQUENCE {
        part1          INTEGER (0..61),
        part2          INTEGER (1..7)
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
    }
} OPTIONAL

OctetModeRLC-SizeInfoType2 ::= CHOICE {
    sizeType1         INTEGER (0..31),
    -- Actual size = (sizeType1 * 8) + 48
    sizeType2         INTEGER (0..63),
    -- Actual size = (sizeType2 * 16) + 312
    sizeType3         INTEGER (0..56)
    -- Actual size = (sizeType3 * 64) + 1384
}

PowerOffsetInformation ::= SEQUENCE {
    gainFactorInformation    GainFactorInformation,
    -- PowerOffsetPp-m is always absent in TDD
    powerOffsetPp-m         PowerOffsetPp-m
} OPTIONAL

PowerOffsetPp-m ::= INTEGER (-5..10)

PreDefTransChConfiguration ::= SEQUENCE {
    ul-CommonTransChInfo    UL-CommonTransChInfo,
    ul-AddReconfTrChInfoList
}

```

```

    dl-CommonTransChInfo          DL-CommonTransChInfo,
    dl-TrChInfoList               DL-AddReconfTransChInfoList
}

QualityTarget ::=
    bler-QualityValue
}

RateMatchingAttribute ::=
    INTEGER (1..hiRM)

ReferenceTFC-ID ::=
    INTEGER (0..3)

RestrictedTrChInfo ::=
    restrictedTrChIdentity
    allowedTFI-List
}

RestrictedTrChInfoList ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF
    RestrictedTrChInfo

SemistaticTF-Information ::=
    -- TABULAR: Transmission time interval has been included in the IE CommonTransChTFS.
    channelCodingType           ChannelCodingType,
    rateMatchingAttribute       RateMatchingAttribute,
    crc-Size                    CRC-Size
}

SignalledGainFactors ::=
    modeSpecificInfo
    fdd
        gainFactorBetaC
    },
    tdd
        NULL
    },
    gainFactorBetaD             GainFactor,
    referenceTFC-ID            ReferenceTFC-ID
}

SplitTFI-Signalling ::=
    splitType                   OPTIONAL,
    tfci-Field2-Length         OPTIONAL,
    tfci-Field1-Information    ExplicitTFCS-Configuration OPTIONAL,
    tfci-Field2-Information    TFCI-Field2-Information   OPTIONAL
}

SplitType ::=
    ENUMERATED {
        hardSplit, logicalSplit }

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

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

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

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

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

TFCS ::=
    normalTFI-Signalling       ExplicitTFCS-Configuration,
    splitTFI-Signalling        SplitTFI-Signalling
}

```

```

TFCS-Identity ::=
    tfcs-ID
    sharedChannelIndicator
}
SEQUENCE {
    INTEGER (1..8)
    BOOLEAN
    DEFAULT 1,
}

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

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

TFCS-ReconfAdd ::=
    ctfcSize
    ctfc2Bit
    ctfc4Bit
    ctfc6Bit
    ctfc8Bit
    ctfc12Bit
    ctfc16Bit
    ctfc24Bit
    gainFactorInformation
}
SEQUENCE{
    CHOICE{
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..3),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..15),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..63),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..255),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
            INTEGER (0..4095),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER(0..65535),
            PowerOffsetInformation OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER(0..16777215),
            PowerOffsetInformation OPTIONAL
        }
    }
}

TFCS-Removal ::=
    tfci
}
SEQUENCE {
    INTEGER (0..1023)
}

TFCS-RemovalList ::=
    SEQUENCE (SIZE (1..maxTFC)) OF
    TFCS-Removal

TimeDurationBeforeRetry ::=
    INTEGER (1..256)

TM-SignallingInfo ::=
    messType
    tm-SignallingMode
    mode1
    mode2
    ul-controlledTrChList
}
SEQUENCE {
    MessType,
    CHOICE {
        NULL,
        SEQUENCE {
            UL-ControlledTrChList
        }
    }
}

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

TransmissionTimeValidity ::=
    INTEGER (1..256)

TransportChannelIdentity ::=
    INTEGER (1..32)

```

```

TransportFormatSet ::=
    dedicatedTransChTFS
    commonTransChTFS
}
CHOICE {
    DedicatedTransChTFS,
    CommonTransChTFS
}

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

UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    transportFormatSet TransportFormatSet
}

UL-CommonTransChInfo ::= SEQUENCE {
    tfc-Subset TFC-Subset OPTIONAL,
    prach-TFCS TFCS OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ul-TFCS TFCS
        },
        tdd SEQUENCE {
            individualUL-CCTrCH-InfoList IndividualUL-CCTrCH-InfoList OPTIONAL,
            ul-TFCS TFCS
        }
    } OPTIONAL
}

UL-ControlledTrChList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

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

-- *****
--
-- PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

AC-To-ASC-Mapping ::= INTEGER (0..7)

AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (maxASCmap)) OF
    AC-To-ASC-Mapping

AccessServiceClass ::= SEQUENCE {
    availableSignatureStartIndex INTEGER (0..15),
    availableSignatureEndIndex INTEGER (0..15),
    assignedSubChannelNumber BIT STRING (SIZE(4))
}

AccessServiceClassIndex ::= INTEGER (1..8)

AICH-Info ::= SEQUENCE {
    channelisationCode256 ChannelisationCode256,
    sttd-Indicator BOOLEAN,
    aich-TransmissionTiming AICH-TransmissionTiming
}

AICH-PowerOffset ::= INTEGER (-22..5)

AICH-TransmissionTiming ::= ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::= SEQUENCE {
    allocationActivationTime INTEGER (1..256),
    allocationDuration INTEGER (1..256)
}

Alpha ::= INTEGER (0..8)

AP-AICH-ChannelisationCode ::= INTEGER (0..255)

AP-PreambleScramblingCode ::= INTEGER (0..79)

```

```

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

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

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

ASC ::= SEQUENCE {
    accessServiceClass AccessServiceClassIndex,
    repetitionPeriodAndOffset ASC-RepetitionPeriodAndOffset OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-RepetitionPeriodAndOffset ::= CHOICE {
    rp1 NULL,
    rp2 INTEGER (0..1),
    rp4 INTEGER (0..3),
    rp8 INTEGER (0..7)
}

ASCSetting ::= SEQUENCE {
    -- TABULAR: This is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-
    channels
    accessServiceClass AccessServiceClass OPTIONAL
}

AvailableAP-Signature-VCAMList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature-VCAM

AvailableAP-SignatureList ::= SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature

AvailableAP-SubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
    AP-Subchannel

AvailableMinimumSF-ListVCAM ::= SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
    AvailableMinimumSF-VCAM

AvailableMinimumSF-VCAM ::= SEQUENCE {
    minimumSpreadingFactor MinimumSpreadingFactor,
    nf-Max NF-Max,
    maxAvailablePCPCH-Number MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList AvailableAP-Signature-VCAMList
}

AvailableSignatures ::= BIT STRING(SIZE(16))

AvailableSubChannelNumbers ::= BIT STRING(SIZE(12))

BurstType ::= ENUMERATED {
    short1, long2 }

BurstType1 ::= ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::= ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::= SEQUENCE {
    tfcs-Identity TFCS-Identity OPTIONAL,
    ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo
}

CD-AccessSlotSubchannel ::= INTEGER (0..11)

CD-AccessSlotSubchannelList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsubCh)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::= INTEGER (0..255)

CD-PreambleScramblingCode ::= INTEGER (0..79)

CD-SignatureCode ::= INTEGER (0..15)

```

```

CD-SignatureCodeList ::= SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
                           CD-SignatureCode

CellParametersID ::= INTEGER (0..127)

Cfntargetsfnframeoffset ::= INTEGER(0..255)

ChannelAssignmentActive ::= CHOICE {
    notActive           NULL,
    isActive           AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::= INTEGER (0..255)

ChannelReqParamsForUCSM ::= SEQUENCE {
    availableAP-SignatureList AvailableAP-SignatureList,
    availableAP-SubchannelList AvailableAP-SubchannelList
} OPTIONAL

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

CodeRange ::= SEQUENCE {
    pdsch-CodeMapList PDSCH-CodeMapList,
    codeNumberStart CodeNumberDSCH,
    codeNumberStop CodeNumberDSCH
}

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

CommonTimeslotInfo ::= SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode SecondInterleavingMode,
    tfci-Coding TFCI-Coding OPTIONAL,
    puncturingLimit PuncturingLimit,
    repetitionPeriodAndLength RepetitionPeriodAndLength OPTIONAL
}

CommonTimeslotInfoSCCPCH ::= SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode SecondInterleavingMode,
    tfci-Coding TFCI-Coding OPTIONAL,
    puncturingLimit PuncturingLimit,
    repetitionPeriodLengthAndOffset RepetitionPeriodLengthAndOffset OPTIONAL
}

ConstantValue ::= INTEGER (-35..10)

CPCH-PersistenceLevels ::= SEQUENCE {
    cpch-SetID CPCH-SetID,
    dynamicPersistenceLevelTF-List DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::= SEQUENCE (SIZE (1..maxCPCHsets)) OF
    CPCH-PersistenceLevels

CPCH-SetInfo ::= SEQUENCE {
    cpch-SetID CPCH-SetID,
    transportFormatSet TransportFormatSet,
    tfcs TFCS,
    ap-PreambleScramblingCode AP-PreambleScramblingCode,
    ap-AICH-ChannelisationCode AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode CD-PreambleScramblingCode,
    cd-CA-ICH-ChannelisationCode CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList CD-AccessSlotSubchannelList OPTIONAL,
    cd-SignatureCodeList CD-SignatureCodeList OPTIONAL,
    deltaPp-m DeltaPp-m,
}

```



```

    ul-DPCCH-SlotFormat          UL-DPCCH-SlotFormat,
    n-StartMessage              N-StartMessage,
    n-EOT                       N-EOT,
    channelAssignmentActive      ChannelAssignmentActive,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode   CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList       PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=          SEQUENCE (SIZE (1..maxCPCHsets)) OF
                              CPCH-SetInfo

CPCH-StatusIndicationMode ::= ENUMERATED {
                              pa-mode,
                              pamsf-mode }

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

-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to
-- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value = IE value * 512
DefaultDPCH-OffsetValueFDD ::= INTEGER (0..599)

DefaultDPCH-OffsetValueTDD ::= INTEGER (0..7)

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

-- Actual value = IE value * 0.1
DeltaSIR ::=                  INTEGER (0..30)

DL-CCTrCh ::=                SEQUENCE {
    tfcs-Identity              TFCS-IdentityPlain          OPTIONAL,
    timeInfo                   TimeInfo,
    dl-CCTrCH-TimeslotsCodes   DownlinkTimeslotsCodes     OPTIONAL,
    ul-CCTrChTPCList           UL-CCTrChTPCList            OPTIONAL
}

DL-CCTrChList ::=            SEQUENCE (SIZE (1..maxCCTrCH)) OF
                              DL-CCTrCh

DL-ChannelisationCode ::=    SEQUENCE {
    secondaryScramblingCode     SecondaryScramblingCode    OPTIONAL,
    sf-AndCodeNumber           SF512-AndCodeNumber,
    scramblingCodeChange        ScramblingCodeChange         OPTIONAL
}

DL-ChannelisationCodeList ::= SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
                              DL-ChannelisationCode

DL-CommonInformation ::=     SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommon          OPTIONAL,
    modeSpecificInfo           CHOICE {
        fdd                     SEQUENCE {
            defaultDPCH-OffsetValue    DefaultDPCH-OffsetValueFDD  OPTIONAL,
            dpch-CompressedModeInfo    DPCH-CompressedModeInfo    OPTIONAL,
            tx-DiversityMode           TX-DiversityMode         OPTIONAL,
            ssdt-Information           SSDT-Information         OPTIONAL
        },
        tdd                     SEQUENCE {
            defaultDPCH-OffsetValue    DefaultDPCH-OffsetValueTDD  OPTIONAL
        }
    }
}

DL-CommonInformationPost ::= SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommonPost
}

DL-CommonInformationPredef ::= SEQUENCE {
    dl-DPCH-InfoCommon          DL-DPCH-InfoCommonPredef    OPTIONAL,
    modeSpecificInfo           CHOICE {
        fdd                     SEQUENCE {
            defaultDPCH-OffsetValue    DefaultDPCH-OffsetValueFDD
        },
        tdd                     SEQUENCE {

```

```

        defaultDPCH-OffsetValue          DefaultDPCH-OffsetValueTDD
    }
}
}
DL-CompressedModeMethod ::=             ENUMERATED {
    puncturing, sf-2,
    higherLayerScheduling }
DL-DPCH-InfoCommon ::=                 SEQUENCE {
    cfnHandling                         CHOICE {
        maintain                         NULL,
        initialise                       SEQUENCE {
            cfnTargetsfnframeoffset     CfnTargetsfnframeoffset
        }
    },
    modeSpecificInfo                    CHOICE {
        fdd                              SEQUENCE {
            dl-DPCH-PowerControlInfo    DL-DPCH-PowerControlInfo
        },
        tdd                              SEQUENCE {
            dl-rate-matching-restriction DL-rate-matching-restriction
        },
        spreadingFactorAndPilot         SF512-AndPilot,
        positionFixedOrFlexible         PositionFixedOrFlexible,
        tfci-Existence                  BOOLEAN
    },
    commonTimeslotInfo                  CommonTimeslotInfo
}
DL-DPCH-InfoCommonPost ::=             SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo          OPTIONAL
}
DL-DPCH-InfoCommonPredef ::=           SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                              SEQUENCE {
            spreadingFactorAndPilot     SF512-AndPilot,
            positionFixedOrFlexible     PositionFixedOrFlexible,
            tfci-Existence              BOOLEAN
        },
        tdd                              SEQUENCE {
            commonTimeslotInfo          CommonTimeslotInfo
        }
    }
}
DL-DPCH-InfoPerRL ::=                  CHOICE {
    fdd                                  SEQUENCE {
        pCPICH-UsageForChannelEst      PCPICH-UsageForChannelEst,
        dcph-FrameOffset               DPCH-FrameOffset,
        secondaryCPICH-Info             SecondaryCPICH-Info          OPTIONAL,
        dl-ChannelisationCodeList      DL-ChannelisationCodeList,
        tpc-CombinationIndex           TPC-CombinationIndex,
        ssdt-CellIdentity               SSdT-CellIdentity          OPTIONAL,
        closedLoopTimingAdjMode        ClosedLoopTimingAdjMode    OPTIONAL
    },
    tdd                                  DL-CCTrChList
}
DL-DPCH-InfoPerRL-PostFDD ::=          SEQUENCE {
    pCPICH-UsageForChannelEst          PCPICH-UsageForChannelEst,
    dl-ChannelisationCode              DL-ChannelisationCode,
    tpc-CombinationIndex               TPC-CombinationIndex
}
DL-DPCH-InfoPerRL-PostTDD ::=          SEQUENCE {
    dl-CCTrCH-TimeslotsCodes           DownlinkTimeslotsCodes
}

```

```

DL-DPCH-PowerControlInfo ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            dpc-Mode
        },
        tdd SEQUENCE {
            tpc-StepSizeTDD OPTIONAL
        }
    }
}

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

DL-InformationPerRL ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-Info,
            pdsch-SHO-DCH-Info OPTIONAL,
            pdsch-CodeMapping OPTIONAL
        },
        tdd PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL OPTIONAL,
    secondaryCCPCH-Info SecondaryCCPCH-Info OPTIONAL
}

DL-InformationPerRL-List ::= SEQUENCE (SIZE (1..maxRL)) OF
    DL-InformationPerRL

DL-InformationPerRL-ListPostFDD ::= SEQUENCE (SIZE (1..maxRL)) OF
    DL-InformationPerRL-PostFDD

DL-InformationPerRL-PostFDD ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL DL-DPCH-InfoPerRL-PostFDD
}

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

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

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

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

DL-TS-ChannelisationCodesShort ::= SEQUENCE {
    codesRepresentation CHOICE {
        consecutive SEQUENCE {
            firstChannelisationCode,
            lastChannelisationCode
        },
        bitmap BIT STRING (SIZE (16))
    }
}

DownlinkAdditionalTimeslots ::= SEQUENCE {
    parameters CHOICE {
        sameAsLast SEQUENCE {
            timeslotNumber
        },
        newParameters SEQUENCE {
            individualTimeslotInfo,
            dl-TS-ChannelisationCodesShort
        }
    }
}

```

```

    }
  }
}

DownlinkTimeslotsCodes ::= SEQUENCE {
  firstIndividualTimeslotInfo IndividualTimeslotInfo,
  dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
  moreTimeslots CHOICE {
    noMore NULL,
    additionalTimeslots CHOICE {
      consecutive INTEGER (1..maxTS-1),
      timeslotList SEQUENCE (SIZE (1..maxTS-1)) OF
        DownlinkAdditionalTimeslots
    }
  }
}

DPC-Mode ::= ENUMERATED {
  singleTPC,
  tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::= INTEGER (-82..-3)

DPCH-CompressedModeInfo ::= SEQUENCE {
  tgp-SequenceList TGP-SequenceList
}

DPCH-CompressedModeStatusInfo ::= SEQUENCE (SIZE (1..maxTGPS)) OF
  TGP-SequenceShort

-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset ::= INTEGER (0..149)

DSCH-Mapping ::= SEQUENCE {
  maxTFCI-Field2Value MaxTFCI-Field2Value,
  spreadingFactor SF-PDSCH,
  codeNumber CodeNumberDSCH,
  multiCodeInfo MultiCodeInfo
}

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
  DSCH-Mapping

DSCH-RadioLinkIdentifier ::= INTEGER (0..511)

DurationTimeInfo ::= INTEGER (1..4096)

-- TABULAR : value [Duration = infinite] is the value by default,
-- and is encoded by absence of the full sequence. If the sequence is present,
-- thefield is absent, the default is respectivelyinfinite. Presence of the
-- field absent should not be used, but shall be understood as if the
-- sequence was absent.

DynamicPersistenceLevel ::= INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
  DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
  DynamicPersistenceLevel

FACH-PCH-Information ::= SEQUENCE {
  transportFormatSet TransportFormatSet,
  transportChannelIdentity TransportChannelIdentity,
  ctch-Indicator BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE (1..maxFACH)) OF
  FACH-PCH-Information

FrequencyInfo ::= SEQUENCE {
  modeSpecificInfo CHOICE {
    fdd FrequencyInfoFDD,
    tdd FrequencyInfoTDD }
}

```

```

}

FrequencyInfoFDD ::= SEQUENCE {
    uarfcn-UL          UARFCN          OPTIONAL,
    uarfcn-DL          UARFCN
}

FrequencyInfoTDD ::= SEQUENCE {
    uarfcn-Nt          UARFCN
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber     TimeslotNumber,
    tfci-Existence     BOOLEAN,
    midambleShiftAndBurstType MidambleShiftAndBurstType
}

IndividualTS-Interference ::= SEQUENCE {
    timeslot           TimeslotNumber,
    ul-TimeslotInterference UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
    IndividualTS-Interference

ITP ::= ENUMERATED {
    mode0, mode1 }

MaxAllowedUL-TX-Power ::= INTEGER (-50..33)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1          BurstType1          DEFAULT ms8,
    -- TABULAR: The default value for BurstType2 has not been specified due to
    -- compactness reasons.
    burstType2          BurstType2
}

MidambleShiftAndBurstType ::= SEQUENCE {
    burstType          CHOICE {
        type1          SEQUENCE {
            midambleAllocationMode     CHOICE {
                defaultMidamble        NULL,
                commonMidamble         NULL,
                ueSpecificMidamble     SEQUENCE {
                    midambleShift      MidambleShiftLong
                }
            }
        },
        type2          SEQUENCE {
            midambleAllocationMode     CHOICE {
                defaultMidamble        NULL,
                commonMidamble         NULL,
                ueSpecificMidamble     SEQUENCE {
                    midambleShift      MidambleShiftShort
                }
            }
        },
        type3          SEQUENCE {
            midambleAllocationMode     CHOICE {
                defaultMidamble        NULL,
                ueSpecificMidamble     SEQUENCE {
                    midambleShift      MidambleShiftLong
                }
            }
        }
    }
}

MidambleShiftLong ::= INTEGER (0..15)

MidambleShiftShort ::= INTEGER (0..5)

```

```

MinimumSpreadingFactor ::=          ENUMERATED {
                                        sf4, sf8, sf16, sf32,
                                        sf64, sf128, sf256 }

MultiCodeInfo ::=                  INTEGER (1..16)

N-EOT ::=                          INTEGER (0..7)

N-GAP ::=                          ENUMERATED {
                                        f2, f4, f8 }

N-PCH ::=                          INTEGER (1..8)

N-StartMessage ::=                INTEGER (1..8)

NB01 ::=                          INTEGER (0..50)

NF-Max ::=                         INTEGER (1..64)

NumberOfDPDCH ::=                 INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=              INTEGER (1..2)

OpenLoopPowerControl-TDD ::=      SEQUENCE {
    primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power,
    alpha                          Alpha,
    prach-ConstantValue            ConstantValue,
    dpch-ConstantValue            ConstantValue,
    pusch-ConstantValue           ConstantValue
}
PagingIndicatorLength ::=         ENUMERATED {
    pi4, pi8, pi16 }

PC-Preamble ::=                   ENUMERATED {
    pcp0, pcp15 }

PCP-Length ::=                    ENUMERATED {
    as0, as8 }

PCPCH-ChannelInfo ::=            SEQUENCE {
    pcpch-UL-ScramblingCode        INTEGER (0..79),
    pcpch-DL-ChannelisationCode    INTEGER (0..511),
    pcpch-DL-ScramblingCode        SecondaryScramblingCode,
    pcp-Length                     PCP-Length,
    ucsM-Info                      UCSM-Info
}
PCPCH-ChannelInfoList ::=        SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=    ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

PDSCH-CapacityAllocationInfo ::= SEQUENCE {
    pdsch-PowerControlInfo         PDSCH-PowerControlInfo,
    pdsch-AllocationPeriodInfo     AllocationPeriodInfo,
    tfcs-Identity                  TFCS-IdentityPlain,
    configuration                   CHOICE {
        old-Configuration           SEQUENCE {
            pdsch-Identity         PDSCH-Identity
        },
        new-Configuration           SEQUENCE {
            pdsch-Info             PDSCH-Info,
            pdsch-Identity         PDSCH-Identity
        }
    }
}

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 multiCodeInfo }		
PDSCH-CodeMapList ::=	SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF PDSCH-CodeMap		
PDSCH-CodeMapping ::=	SEQUENCE { dl-ScramblingCode signallingMethod codeRange tfci-Range explicit replace }	OPTIONAL, CHOICE { CodeRange, DSCH-MappingList, PDSCH-CodeInfoList, ReplacedPDSCH-CodeInfoList	
PDSCH-Identity ::=	INTEGER (1..hiPDSCHidentities)		
PDSCH-Info ::=	SEQUENCE { tfcs-Identity commonTimeslotInfo pdsch-TimeslotsCodes }	OPTIONAL, OPTIONAL, OPTIONAL	
PDSCH-PowerControlInfo ::=	SEQUENCE { tpc-StepSizeTDD ul-CCTrChTPCList }	OPTIONAL, OPTIONAL	
PDSCH-SHO-DCH-Info ::=	SEQUENCE { dsch-RadioLinkIdentifier tfci-CombiningSet rl-IdentififierList }	OPTIONAL, OPTIONAL	
PDSCH-SysInfo ::=	SEQUENCE { pdsch-Identity pdsch-Info dsch-TFS dsch-TFCS }	OPTIONAL, OPTIONAL	
PDSCH-SysInfoList ::=	SEQUENCE (SIZE (1..maxPDSCH)) OF PDSCH-SysInfo		
PDSCH-SysInfoList-SFN ::=	SEQUENCE (SIZE (1..maxPDSCH)) OF SEQUENCE { pdsch-SysInfo sfn-TimeInfo }	OPTIONAL	
PersistenceScalingFactor ::=	ENUMERATED { psf0-9, psf0-8, psf0-7, psf0-6, psf0-5, psf0-4, psf0-3, psf0-2 }		
PersistenceScalingFactorList ::=	SEQUENCE (SIZE (1..maxASCpersist)) OF PersistenceScalingFactor		
PI-CountPerFrame ::=	ENUMERATED { e18, e36, e72, e144 }		
PICH-Info ::=	CHOICE { fdd channelisationCode256 pi-CountPerFrame sttd-Indicator }, tdd channelisationCode	SEQUENCE { ChannelisationCode256, PI-CountPerFrame, BOOLEAN } SEQUENCE { TDD-PICH-CCode }	OPTIONAL,


```

        prach-PowerOffset          PRACH-PowerOffset          OPTIONAL,
        rach-TransmissionParameters RACH-TransmissionParameters OPTIONAL,
        aich-Info                  AICH-Info                  OPTIONAL
    },
    tdd                            NULL
}
}

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

PreambleRetransMax ::= INTEGER (1..64)

PreambleScramblingCodeWordNumber ::= INTEGER (0..15)

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

PrimaryCCPCH-Info ::= CHOICE {
    fdd                          SEQUENCE {
        tx-DiversityIndicator    BOOLEAN
    },
    tdd                          SEQUENCE {
        syncCase                 CHOICE {
            syncCase1            SEQUENCE {
                timeslot          TimeslotNumber
            },
            syncCase2            SEQUENCE {
                timeslotSync2     TimeslotSync2
            }
        }
        cellParametersID         CellParametersID          OPTIONAL,
        blockSTTD-Indicator      BOOLEAN                  OPTIONAL,
    }
}

PrimaryCCPCH-InfoPost ::= SEQUENCE {
    syncCase                     CHOICE {
        syncCase1                SEQUENCE {
            timeslot              TimeslotNumber
        },
        syncCase2                SEQUENCE {
            timeslotSync2         TimeslotSync2
        }
    },
    cellParametersID             CellParametersID,
    blockSTTD-Indicator          BOOLEAN
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode        PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::= INTEGER (-10..50)

PrimaryScramblingCode ::= INTEGER (0..511)

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-CapacityAllocationInfo ::= SEQUENCE {
    pusch-Allocation             CHOICE {
        pusch-AllocationPending  NULL,
        pusch-AllocationAssignment SEQUENCE {
            pdsch-AllocationPeriodInfo AllocationPeriodInfo,
            pusch-PowerControlInfo    UL-TargetSIR          OPTIONAL,
            tfcs-Identity              TFCS-IdentityPlain    OPTIONAL,
            configuration              CHOICE {
                old-Configuration     SEQUENCE {
                    pusch-Identity    PUSCH-Identity
                }
            }
        }
    }
}

```

```

    },
    new-Configuration
    pusch-Info
    pusch-Identity
    }
  }
}

PUSCH-Identity ::= INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::= SEQUENCE {
  tfcs-Identity          TFCS-IdentityPlain          OPTIONAL,
  commonTimeslotInfo    CommonTimeslotInfo          OPTIONAL,
  pusch-TimeslotsCodes  UplinkTimeslotsCodes        OPTIONAL
}

PUSCH-SysInfo ::= SEQUENCE {
  pusch-Identity        PUSCH-Identity,
  pusch-Info            PUSCH-Info,
  usch-TFS              TransportFormatSet          OPTIONAL,
  usch-TFCS             TFCS                        OPTIONAL
}

PUSCH-SysInfoList ::= SEQUENCE (SIZE (1..maxPUSCH)) OF
  PUSCH-SysInfo

PUSCH-SysInfoList-SFN ::= SEQUENCE (SIZE (1..maxPDSCH)) OF
  SEQUENCE {
    pusch-SysInfo        PUSCH-SysInfo,
    sfn-TimeInfo         SFN-TimeInfo                OPTIONAL
  }

RACH-TransmissionParameters ::= SEQUENCE {
  mmax                  INTEGER (1..32),
  nb01Min               NB01,
  nb01Max               NB01
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
  repetitionPeriod1     NULL,
  repetitionPeriod2     INTEGER (1..1),
  -- repetitionPeriod2 could just as well be NULL also.
  repetitionPeriod4     INTEGER (1..3),
  repetitionPeriod8     INTEGER (1..7),
  repetitionPeriod16    INTEGER (1..15),
  repetitionPeriod32    INTEGER (1..31),
  repetitionPeriod64    INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
  repetitionPeriod1     NULL,
  repetitionPeriod2     SEQUENCE {
    length              NULL,
    offset              INTEGER (0..1)
  },
  repetitionPeriod4     SEQUENCE {
    length              INTEGER (1..3),
    offset              INTEGER (0..3)
  },
  repetitionPeriod8     SEQUENCE {
    length              INTEGER (1..7),
    offset              INTEGER (0..7)
  },
  repetitionPeriod16    SEQUENCE {
    length              INTEGER (1..15),
    offset              INTEGER (0..15)
  },
  repetitionPeriod32    SEQUENCE {
    length              INTEGER (1..31),
    offset              INTEGER (0..31)
  },
  repetitionPeriod64    SEQUENCE {

```

```

        length                INTEGER (1..63),
        offset                INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::= SEQUENCE {
    tfci-Field2              MaxTFCI-Field2Value,
    spreadingFactor          SF-PDSCH,
    codeNumber               CodeNumberDSCH,
    multiCodeInfo            MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::= SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::= CHOICE {
    rpp4-2                   INTEGER (0..3),
    rpp8-2                   INTEGER (0..7),
    rpp8-4                   INTEGER (0..7),
    rpp16-2                  INTEGER (0..15),
    rpp16-4                  INTEGER (0..15),
    rpp32-2                  INTEGER (0..31),
    rpp32-4                  INTEGER (0..31),
    rpp64-2                  INTEGER (0..63),
    rpp64-4                  INTEGER (0..63)
}

RestrictedTrCH ::= SEQUENCE {
    restrictedDL-TrCH-Identity
    allowedTFIList
}

RestrictedTrCH-InfoList ::= SEQUENCE (SIZE(1..maxTrCH)) OF
    RestrictedTrCH

RL-AdditionInformation ::= SEQUENCE {
    primaryCPICH-Info        PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL        DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator   BOOLEAN,
    sccpch-InfoforFACH        SCCPCH-InfoforFACH
} OPTIONAL

RL-AdditionInformationList ::= SEQUENCE (SIZE (1..maxRL)) OF
    RL-AdditionInformation

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

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

RPP ::= ENUMERATED {
    mode0, mode1
}

S-Field ::= ENUMERATED {
    elbit, e2bits
}

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

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

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

SCCPCH-SystemInformation ::= SEQUENCE {
    secondaryCCPCH-Info      SecondaryCCPCH-Info,
    tfcs                     TFCS
} OPTIONAL,

```

```

    fach-PCH-InformationList          FACH-PCH-InformationList          OPTIONAL,
    pich-Info                          PICH-Info                          OPTIONAL
}

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

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

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode        SecondaryScramblingCode        OPTIONAL,
    channelisationCode                ChannelisationCode256
}

SecondaryScramblingCode ::= INTEGER (1..15)

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::= CHOICE {
    sf4          INTEGER (0..3),
    sf8          INTEGER (0..7),
    sf16         INTEGER (0..15),
    sf32         INTEGER (0..31),
    sf64         INTEGER (0..63),
    sf128        INTEGER (0..127),
    sf256        INTEGER (0..255)
}

-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::= CHOICE {
    sf4          INTEGER (0..3),
    sf8          INTEGER (0..7),
    sf16         INTEGER (0..15),
    sf32         INTEGER (0..31),
    sf64         INTEGER (0..63),
    sf128        INTEGER (0..127),
    sf256        INTEGER (0..255),
    sf512        INTEGER (0..511)
}

-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::= CHOICE {
    sf4          NULL,
    sf8          NULL,
    sf16         NULL,
    sf32         NULL,
    sf64         NULL,
    sf128        NULL,
    sf256        NULL,
    sf512        NULL,
}

```

```

        sfd128                PilotBits128,
        sfd256                PilotBits256,
        sfd512                NULL
    }
SF-PDSCH ::=
    ENUMERATED {
        sfp4, sfp8, sfp16, sfp32,
        sfp64, sfp128, sfp256 }

SF-PRACH ::=
    ENUMERATED {
        sfpr32, sfpr64, sfpr128, sfpr256 }

SFN-TimeInfo ::=
    activationTimeSFN
    physChDuration
}

SpreadingFactor ::=
    ENUMERATED {
        sf4, sf8, sf16, sf32,
        sf64, sf128, sf256 }

SSDT-CellIdentity ::=
    ENUMERATED {
        ssdt-id-a, ssdt-id-b, ssdt-id-c,
        ssdt-id-d, ssdt-id-e, ssdt-id-f,
        ssdt-id-g, ssdt-id-h }

SSDT-Information ::=
    s-Field
    codeWordSet
}

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

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

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

TDD-PRACH-CCodeList ::=
    sf8
    sf16
}

TFC-ControlDuration ::=
    ENUMERATED {
        tfc-cd1, tfc-cd2, tfc-cd4, tfc-cd8,
        tfc-cd16, tfc-cd24, tfc-cd32,
        tfc-cd48, tfc-cd64, tfc-cd128,
        tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::=
    ENUMERATED {
        tfci-bits-4, tfci-bits-8,
        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=
}

TGCFN ::=
    INTEGER (0..255)

-- The value 270 represents "undefined" in the tabular description.
TGD ::=
    INTEGER (15..270)

TGL ::=
    INTEGER (1..14)

TGMP ::=
    ENUMERATED {
        tdd-Measurement, fdd-Measurement,

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```

                                gsm-CarrierRSSIMeasurement,
                                gsm-initialBSICIdentification,
gsmBSICReconfirmation }

TGP-Sequence ::=                SEQUENCE {
    tgpsi                       TGPSI,
    tgps-StatusFlag             TGPS-StatusFlag,
    tgcfn                       TGCFN,
    tgps-ConfigurationParams    TGPS-ConfigurationParams           OPTIONAL
}

TGP-SequenceList ::=           SEQUENCE (SIZE (1..maxTGPS)) OF
                                TGP-Sequence

TGP-SequenceShort ::=         SEQUENCE {
    tgpsi                       TGPSI,
    tgps-StatusFlag             TGPS-StatusFlag,
    tgcfn                       TGCFN
}

TGPL ::=                       INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=                     INTEGER (0..63)

TGPS-ConfigurationParams ::=  SEQUENCE {
    tgmp                        TGMP,
    tgprc                      TGPRC,
    tgsn                       TGSN,
    tg11                       TGL,
    tg12                       TGL                                OPTIONAL,
    tgd                        TGD,
    tgpl1                      TGPL,
    tgpl2                      TGPL                                OPTIONAL,
    rpp                        RPP,
    itp                        ITP,
    ul-DL-Mode                 UL-DL-Mode,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
    dl-FrameType               DL-FrameType,
    deltaSIR1                  DeltaSIR,
    deltaSIRAfter1             DeltaSIR,
    deltaSIR2                  DeltaSIR                                OPTIONAL,
    deltaSIRAfter2             DeltaSIR                                OPTIONAL
}

TGPS-StatusFlag ::=           ENUMERATED {
    tgpsActive, tgpsInactive }

TGPSI ::=                     INTEGER (1..maxTGPS)

TGSN ::=                       INTEGER (0..14)

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

TimeslotList ::=              SEQUENCE (SIZE (1..maxTS)) OF
                                TimeslotNumber

TimeslotNumber ::=            INTEGER (0..14)

TimeslotSync2 ::=             INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=              INTEGER (0..149)

TPC-CombinationIndex ::=      INTEGER (0..5)

TPC-StepSizeFDD ::=           INTEGER (0..1)

TPC-StepSizeTDD ::=           INTEGER (1..3)

TX-DiversityMode ::=          ENUMERATED {
    noDiversity,
    sttd,
}

```

```

closedLoopMode1,
closedLoopMode2 }

UARFCN ::=
INTEGER (0..16383)

UCSM-Info ::=
SEQUENCE {
  minimumSpreadingFactor MinimumSpreadingFactor,
  nf-Max NF-Max,
  channelReqParamsForUCSM ChannelReqParamsForUCSM
}

UL-CCTrCH ::=
SEQUENCE {
  tfcs-Identity TFCS-IdentityPlain OPTIONAL,
  timeInfo TimeInfo,
  commonTimeslotInfo CommonTimeslotInfo OPTIONAL,
  ul-CCTrCH-TimeslotsCodes UplinkTimeslotsCodes OPTIONAL
}

UL-CCTrCHList ::=
SEQUENCE (SIZE (1..maxCCTrCH)) OF
UL-CCTrCH

UL-CCTrChTPCList ::=
SEQUENCE (SIZE (0..maxCCTrCH)) OF
TFCS-Identity

UL-ChannelRequirement ::=
CHOICE {
  ul-DPCH-Info UL-DPCH-Info,
  cpch-SetInfo CPCH-SetInfo
}

UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
  ul-DPCH-Info UL-DPCH-Info,
  cpch-SetInfo CPCH-SetInfo,
  cpch-SetID CPCH-SetID
}

UL-CompressedModeMethod ::=
ENUMERATED {
  sf-2,
  higherLayerScheduling }

UL-DL-Mode ::=
CHOICE {
  ul UL-CompressedModeMethod,
  dl DL-CompressedModeMethod
}

UL-DPCCH-SlotFormat ::=
ENUMERATED {
  slf0, slf1, slf2 }

UL-DPCH-Info ::=
SEQUENCE {
  ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo OPTIONAL,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      scramblingCodeType ScramblingCodeType,
      scramblingCode UL-ScramblingCode,
      numberOfDPDCH NumberOfDPDCH DEFAULT 1,
      spreadingFactor SpreadingFactor,
      tfci-Existence BOOLEAN,
      numberOFBI-Bits NumberOfFBI-Bits OPTIONAL,
      -- The IE above is conditional based on history
      puncturingLimit PuncturingLimit
    },
    tdd SEQUENCE {
      ul-TimingAdvance UL-TimingAdvanceControl OPTIONAL,
      ul-CCTrCHList UL-CCTrCHList
    }
  }
}

UL-DPCH-InfoPostFDD ::=
SEQUENCE {
  ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfoPostFDD,
  scramblingCodeType ScramblingCodeType,
  reducedScramblingCodeNumber ReducedScramblingCodeNumber,
  spreadingFactor SpreadingFactor
}

UL-DPCH-InfoPostTDD ::=
SEQUENCE {

```

```

    ul-DPCH-PowerControlInfo          UL-DPCH-PowerControlInfoPostTDD,
    ul-TimingAdvance                  UL-TimingAdvanceControl
    ul-CCTrCH-TimeslotsCodes          UplinkTimeslotsCodes
}
OPTIONAL,

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo          SEQUENCE {
    modeSpecificInfo                  UL-DPCH-PowerControlInfoPredef,
        fdd                            CHOICE {
            tfci-Existence              SEQUENCE {
                puncturingLimit        BOOLEAN,
            },                          PuncturingLimit
            tdd                          SEQUENCE {
                commonTimeslotInfo     CommonTimeslotInfo
            }
        }
    }
}

UL-DPCH-PowerControlInfo ::=
    fdd                                CHOICE {
        dpcch-PowerOffset              SEQUENCE {
            pc-Preamble                DPCCH-PowerOffset,
            powerControlAlgorithm       PC-Preamble,
            -- TABULAR: TPC step size nested inside PowerControlAlgorithm PowerControlAlgorithm
        },
        tdd                             SEQUENCE {
            ul-TargetSIR                UL-TargetSIR,
            ul-OL-PC-Signalling          CHOICE {
                broadcast-UL-OL-PC-info NULL,
                handoverGroup           SEQUENCE {
                    individualTS-InterferenceList IndividualTS-InterferenceList,
                    dpch-ConstantValue     ConstantValue,
                    primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power
                }
            }
        }
    }
}
OPTIONAL

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    powerControlAlgorithm              PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
}

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR                      UL-TargetSIR,
    ul-TimeslotInterference            UL-Interference
}

UL-DPCH-PowerControlInfoPredef ::=
    fdd                                CHOICE {
        dpcch-PowerOffset              SEQUENCE {
            pc-Preamble                DPCCH-PowerOffset,
        },                              PC-Preamble
        tdd                             SEQUENCE {
            dpch-ConstantValue          ConstantValue
        }
    }
}

UL-Interference ::=
    INTEGER (-110..-70)

UL-ScramblingCode ::=
    INTEGER (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::=
    INTEGER (0..62)

UL-TimingAdvance ::=
    INTEGER (0..63)

UL-TimingAdvanceControl ::=
    disabled                            CHOICE {
    enabled                              NULL,
        ul-TimingAdvance                SEQUENCE {
            activationTime              UL-TimingAdvance
        }
    }
}
OPTIONAL,
OPTIONAL

UL-TS-ChannelisationCode ::=
    ENUMERATED {

```



```

        cc1-1, cc2-1, cc2-2,
        cc4-1, cc4-2, cc4-3, cc4-4,
        cc8-1, cc8-2, cc8-3, cc8-4,
        cc8-5, cc8-6, cc8-7, cc8-8,
        cc16-1, cc16-2, cc16-3, cc16-4,
        cc16-5, cc16-6, cc16-7, cc16-8,
        cc16-9, cc16-10, cc16-11, cc16-12,
        cc16-13, cc16-14, cc16-15, cc16-16 }

UL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..2)) OF
    UL-TS-ChannelisationCode

UplinkAdditionalTimeslots ::= SEQUENCE {
    parameters CHOICE {
        sameAsLast SEQUENCE {
            timeslotNumber TimeslotNumber
        },
        newParameters SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo,
            ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList
        }
    }
}

UplinkTimeslotsCodes ::= SEQUENCE {
    dynamicSFusage BOOLEAN,
    firstIndividualTimeslotInfo IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList,
    moreTimeslots CHOICE {
        noMore NULL,
        additionalTimeslots CHOICE {
            consecutive SEQUENCE {
                numAdditionalTimeslots INTEGER (1..maxTS-1)
            },
            timeslotList SEQUENCE (SIZE (1..maxTS-1)) OF
                UplinkAdditionalTimeslots
        }
    }
}

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

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

AcquisitionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
    AcquisitionSatInfo

AdditionalAssistanceData ::= OCTET STRING (SIZE (1..38))

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

AlmanacSatInfo ::= SEQUENCE {
    satID SatID,
    e BIT STRING (SIZE (16)),
    t-oa BIT STRING (SIZE (8)),
    deltaI BIT STRING (SIZE (16)),
    omegaDot BIT STRING (SIZE (16)),
    satHealth BIT STRING (SIZE (8)),
    a-Sqrt BIT STRING (SIZE (24)),
    omega0 BIT STRING (SIZE (24)),
    m0 BIT STRING (SIZE (24)),
    omega BIT STRING (SIZE (24)),
}

```

```

    af0                BIT STRING (SIZE (11)),
    afl                BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
    AlmanacSatInfo

AverageRLC-BufferPayload ::= ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k,
    pla32k, pla64k, pla128k, pla256k,
    pla512k, pla1024k }

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

BadSatList ::= SEQUENCE (SIZE (1..maxSat)) OF
    INTEGER (0..63)

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

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

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

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

BSIC-VerificationRequired ::= ENUMERATED {
    required, notRequired }

BSICReported ::= CHOICE {
    verifiedBSIC       INTEGER (0..maxCellMeas),
    nonVerifiedBSIC   BCCH-ARFCN
}

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

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

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

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

```

```

CellInfoSI-RSCP ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
    }
  },
  cellSelectionReselectionInfo
OPTIONAL
}

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

CellInfoSI-ECNO ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
    }
  },
  cellSelectionReselectionInfo
OPTIONAL
}

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

CellInfoSI-HCS-RSCP ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
    }
  },
  cellSelectionReselectionInfo
OPTIONAL
}

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

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

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

```

```

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

CellMeasuredResults ::=
    cellIdentity                      CellIdentity                      OPTIONAL,
    sfn-SFN-ObsTimeDifference        SFN-SFN-ObsTimeDifference        OPTIONAL,
    cellSynchronisationInfo          CellSynchronisationInfo          OPTIONAL,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            primaryCPICH-Info          PrimaryCPICH-Info,
            cpich-Ec-N0                CPICH-Ec-N0                      OPTIONAL,
            cpich-RSCP                 CPICH-RSCP                       OPTIONAL,
            pathloss                    Pathloss                          OPTIONAL
        },
        tdd                            SEQUENCE {
            cellParametersID           CellParametersID,
            proposedTGSN               TGSN                              OPTIONAL,
            primaryCCPCH-RSCP          PrimaryCCPCH-RSCP                OPTIONAL,
            timeslotISCP-List          TimeslotISCP-List                OPTIONAL
        }
    }
}

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

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

CellReportingQuantities ::=
    sfn-SFN-OTD-Type                 SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator    BOOLEAN,
    cellSynchronisationInfoReportingIndicator    BOOLEAN,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            cpich-Ec-N0-reportingIndicator    BOOLEAN,
            cpich-RSCP-reportingIndicator      BOOLEAN,
            pathloss-reportingIndicator        BOOLEAN
        },
        tdd                            SEQUENCE {
            timeslotISCP-reportingIndicator    BOOLEAN,
            proposedTGSN-ReportingRequired    BOOLEAN,
            primaryCCPCH-RSCP-reportingIndicator    BOOLEAN,
            pathloss-reportingIndicator        BOOLEAN
        }
    }
}

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

CellSelectReselectInfoSIB-11-12-RSCP ::= SEQUENCE {

```

```

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

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

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

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

CellSynchronisationInfo ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference OPTIONAL,
            tm              INTEGER(0..38399)
        }
    }
}

```

```

    },
    tdd
    countC-SFN-Frame-difference
}
}
}

CellToMeasure ::=
    sfn-sfn-Drift
    primaryCPICH-Info
    frequencyInfo
    sfn-SFN-ObservedTimeDifference
    fineSFN-SFN
    cellPosition
}

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

CellToReport ::=
    bsicReported
}

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

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

CountC-SFN-Frame-difference ::= SEQUENCE {
    countC-SFN-High
    256
    off
}

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

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

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

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

DeltaRRC ::=
    INTEGER (-7..7)

DGPS-CorrectionSatInfo ::=
    satID
    iode
    udre
    prc
    rrc
    deltaPRC2
    deltaRRC2
    deltaPRC3
    deltaRRC3
}

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

DGPS-Information ::=
    satID
    iode
    udre
    prc
    rrc
    deltaPRC2
    deltaRRC2
}

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

```

```

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

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

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

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

EllipsoidPoint ::=               OCTET STRING (SIZE (7))

EllipsoidPointAltitude ::=       OCTET STRING (SIZE (9))

EllipsoidPointAltitudeEllipse ::= OCTET STRING (SIZE (14))

EllipsoidPointUncertCircle ::=   OCTET STRING (SIZE (8))

EllipsoidPointUncertEllipse ::=  OCTET STRING (SIZE (11))

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

Event1a ::=                      SEQUENCE {
                                   triggeringCondition      TriggeringCondition2,
                                   reportingRange           ReportingRange,
                                   forbiddenAffectCellList   ForbiddenAffectCellList      OPTIONAL,
                                   w                         W,
                                   reportDeactivationThreshold ReportDeactivationThreshold,
                                   reportingAmount           ReportingAmount,
                                   reportingInterval         ReportingInterval
                                   }

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

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

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

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

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

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

```



```

interRATEventResults      InterRATEventResults,
trafficVolumeEventResults TrafficVolumeEventResults,
qualityEventResults       QualityEventResults,
ue-InternalEventResults   UE-InternalEventResults,
up-MeasurementEventResults UP-MeasurementEventResults
}

ExtraDopplerInfo ::=      SEQUENCE {
    doppler1stOrder        INTEGER (-42..21),
    dopplerUncertainty     DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::= SEQUENCE {
    fACH-meas-occasion-coeff INTEGER (1..12)           OPTIONAL,
    inter-freq-FDD-meas-ind  BOOLEAN,
    inter-freq-TDD-meas-ind  BOOLEAN,
    inter-RAT-meas-ind       SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                RAT-Type           OPTIONAL
}

FilterCoefficient ::=     ENUMERATED {
    fc0, fc1, fc2, fc3, fc4, fc5,
    fc6, fc7, fc8, fc9, fc11, fc13,
    fc15, fc17, fc19, spare1 }

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

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

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

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

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

GPS-MeasurementParam ::= SEQUENCE {
    satelliteID             INTEGER (0..63),
    c-N0                   INTEGER (0..63),
    doppler                INTEGER (-32768..32768),
    wholeGPS-Chips         INTEGER (0..1023),
    fractionalGPS-Chips    INTEGER (0..1023),
    multipathIndicator     MultipathIndicator,
    pseudorangeRMS-Error  INTEGER (0..63)
}

GPS-MeasurementParamList ::= SEQUENCE (SIZE (1..maxSat)) OF
    GPS-MeasurementParam

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

GSM-MeasuredResults ::= SEQUENCE {
    gsm-CarrierRSSI        GSM-CarrierRSSI           OPTIONAL,
    pathloss               Pathloss                 OPTIONAL,
    bsicReported           BSICReported,
    observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
}

GSM-MeasuredResultsList ::= SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
    GSM-MeasuredResults

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

GPS-TOW-1msec ::=        INTEGER (0..604799999)

GPS-TOW-lusec ::=        SEQUENCE {

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```

        tow-1msec                GPS-TOW-1msec,
        tow-rem-usec             GPS-TOW-rem-usec
    }

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

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

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

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

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

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO                     HCS-PRIO                                DEFAULT 0,
    q-HCS                        Q-HCS                                DEFAULT 0,
    hcs-CellReselectInformation  HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECNO ::= SEQUENCE {
    hcs-PRIO                     HCS-PRIO                                DEFAULT 0,
    q-HCS                        Q-HCS                                DEFAULT 0,
    hcs-CellReselectInformation  HCS-CellReselectInformation-ECNO
}

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

HCS-ServingCellInformation ::= SEQUENCE {
    hcs-PRIO                     HCS-PRIO                                DEFAULT 0,
    q-HCS                        Q-HCS                                DEFAULT 0,
    t-CR-Max                     T-CR-Max                                OPTIONAL
}

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria CHOICE {
        intraFreqReportingCriteria SEQUENCE {
            intraFreqMeasQuantity IntraFreqMeasQuantity
        },
        interFreqReportingCriteria SEQUENCE {
            filterCoefficient FilterCoefficient DEFAULT fc0,
            modeSpecificInfo CHOICE {
                fdd SEQUENCE {
                    freqQualityEstimateQuantity-FDD FreqQualityEstimateQuantity-FDD
                },
                tdd SEQUENCE {
                    freqQualityEstimateQuantity-TDD FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

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

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

InterFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-RSCP OPTIONAL
}

InterFreqMeasurementSysInfo-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-ECNO OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP OPTIONAL
}

```

```

InterFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-ECNO OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    interFreqReportingCriteria InterFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalWithReportingCellStatus,
    noReporting ReportingCellStatusOpt
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList InterFreqEventList OPTIONAL
}

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

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList InterFreqCellInfoList,
    interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
    interFreqReportingQuantity InterFreqReportingQuantity OPTIONAL,
    measurementValidity MeasurementValidity OPTIONAL,
    interFreqSetUpdate UE-AutonomousUpdateMode OPTIONAL,
    reportCriteria InterFreqReportCriteria
}

InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo CHOICE {
        gsm SEQUENCE {
            bsic BSIC,
            bcch-ARFCN BCCH-ARFCN,
            ncMode NC-Mode OPTIONAL
        },
        is-2000 NULL,
        spare NULL
    }
}

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

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

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

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

InterRATEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
    InterRATEvent

InterRATEventResults ::= SEQUENCE {
    eventID EventIDInterRAT,
    cellToReportList CellToReportList
}

InterRATInfo ::= ENUMERATED {
    gsm
}

InterRATMeasQuantity ::= SEQUENCE {
    measQuantityUTRAN-QualityEstimate IntraFreqMeasQuantity OPTIONAL,
    ratSpecificInfo CHOICE {
        gsm SEQUENCE {
            measurementQuantity MeasurementQuantityGSM,

```

```

        filterCoefficient          FilterCoefficient          DEFAULT fc1,
        bsic-VerificationRequired  BSIC-VerificationRequired
    },
    is-2000
        tadd-EcIo                  SEQUENCE {
        tcomp-EcIo                  INTEGER (0..63),
        softSlope                   INTEGER (0..15),
        addIntercept                INTEGER (0..63)          OPTIONAL,
    }                                OPTIONAL
}
}

InterRATMeasuredResults ::= CHOICE {
    gsm                             GSM-MeasuredResultsList,
    spare                            NULL
}

InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
    InterRATMeasuredResults

InterRATMeasurement ::= SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList          OPTIONAL,
    interRATMeasQuantity            InterRATMeasQuantity          OPTIONAL,
    interRATReportingQuantity       InterRATReportingQuantity     OPTIONAL,
    reportCriteria                  InterRATReportCriteria
}

InterRATMeasurementSysInfo ::= SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList          OPTIONAL
}

InterRATMeasurementSysInfo-HCS ::= SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList-HCS     OPTIONAL
}

InterRATReportCriteria ::= CHOICE {
    interRATReportingCriteria       InterRATReportingCriteria,
    periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
    noReporting                      ReportingCellStatusOpt
}

InterRATReportingCriteria ::= SEQUENCE {
    interRATEventList              InterRATEventList          OPTIONAL
}

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

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

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

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

IntraFreqCellInfoSI-List-ECN0 ::= SEQUENCE {
    removedIntraFreqCellList        RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList            NewIntraFreqCellSI-List-ECN0
}

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

```

```

}

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

IntraFreqEvent ::= CHOICE {
    ela Event1a,
    elb Event1b,
    elc Event1c,
    eld NULL,
    ele Event1e,
    elf Event1f,
    elg NULL,
    elh ThresholdUsedFrequency,
    eli ThresholdUsedFrequency
}

IntraFreqEventCriteria ::= SEQUENCE {
    event IntraFreqEvent,
    hysteresis Hysteresis,
    timeToTrigger TimeToTrigger,
    reportingCellStatus ReportingCellStatus OPTIONAL
}

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

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

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

IntraFreqMeasQuantity-FDD ::= ENUMERATED {
    cpich-ec-no,
    cpich-rscp,
    pathloss,
    ultra-carrier-rssi }

IntraFreqMeasQuantity-TDD ::= ENUMERATED {
    primary-cpich-rscp,
    pathloss,
    timeslot-rscp,
    ultra-carrier-rssi }

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

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

IntraFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    intraFreqMeasurementID MeasurementIdentity DEFAULT 1,
    intraFreqCellInfoSI-List IntraFreqCellInfoSI-List-RSCP OPTIONAL,
    intraFreqMeasQuantity IntraFreqMeasQuantity OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH MaxReportedCellsOnRACH OPTIONAL,
    reportingInfoForCellDCH ReportingInfoForCellDCH OPTIONAL
}

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

```

```

        intraFreqMeasQuantity          IntraFreqMeasQuantity          OPTIONAL,
        intraFreqReportingQuantityForRACH  IntraFreqReportingQuantityForRACH  OPTIONAL,
        maxReportedCellsOnRACH           MaxReportedCellsOnRACH           OPTIONAL,
        reportingInfoForCellDCH           ReportingInfoForCellDCH           OPTIONAL
    }

    IntraFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
        intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
        intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-RSCP  OPTIONAL,
        intraFreqMeasQuantity           IntraFreqMeasQuantity       OPTIONAL,
        intraFreqReportingQuantityForRACH  IntraFreqReportingQuantityForRACH  OPTIONAL,
        maxReportedCellsOnRACH           MaxReportedCellsOnRACH       OPTIONAL,
        reportingInfoForCellDCH          ReportingInfoForCellDCH       OPTIONAL
    }

    IntraFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE {
        intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
        intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-ECNO  OPTIONAL,
        intraFreqMeasQuantity           IntraFreqMeasQuantity       OPTIONAL,
        intraFreqReportingQuantityForRACH  IntraFreqReportingQuantityForRACH  OPTIONAL,
        maxReportedCellsOnRACH           MaxReportedCellsOnRACH       OPTIONAL,
        reportingInfoForCellDCH          ReportingInfoForCellDCH       OPTIONAL
    }

    IntraFreqReportCriteria ::= CHOICE {
        intraFreqReportingCriteria      IntraFreqReportingCriteria,
        periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
        noReporting                     ReportingCellStatusOpt
    }

    IntraFreqReportingCriteria ::= SEQUENCE {
        eventCriteriaList               IntraFreqEventCriteriaList  OPTIONAL
    }

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

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

    IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
        cpich-EcNO, cpich-RSCP,
        pathloss, noReport }

    IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
        timeslotISCP,
        primaryCCPCH-RSCP,
        noReport }

    IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
        IntraFreqRepQuantityRACH-TDD

    IntraFrequencyMeasurement ::= SEQUENCE {
        intraFreqCellInfoList          IntraFreqCellInfoList      OPTIONAL,
        intraFreqMeasQuantity          IntraFreqMeasQuantity      OPTIONAL,
        intraFreqReportingQuantity     IntraFreqReportingQuantity  OPTIONAL,
        measurementValidity             MeasurementValidity         OPTIONAL,
        reportCriteria                 IntraFreqReportCriteria    OPTIONAL
    }

    IODE ::= INTEGER (0..255)

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

```

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

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

MaxNumberOfReportingCellsType1 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}

MaxNumberOfReportingCellsType3 ::= ENUMERATED {
    viactCellsPlus1,
    viactCellsPlus2,
    viactCellsPlus3,
    viactCellsPlus4,
    viactCellsPlus5,
    viactCellsPlus6 }

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

MeasuredResults ::= CHOICE {
    intraFreqMeasuredResultsList IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList InterFreqMeasuredResultsList,
    interRATMeasuredResultsList InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults QualityMeasuredResults,
    ue-InternalMeasuredResults UE-InternalMeasuredResults,
    up-MeasuredResults UP-MeasuredResults
}

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

MeasuredResultsOnRACH ::= SEQUENCE {
    currentCell SEQUENCE {
        modeSpecificInfo CHOICE {
            fdd SEQUENCE {
                measurementQuantity CHOICE {
                    cpich-Ec-N0 CPICH-Ec-N0,
                    cpich-RSCP CPICH-RSCP,
                    pathloss Pathloss
                }
            },
            tdd SEQUENCE {
                timeslotISCP TimeslotISCP-List OPTIONAL,
                primaryCCPCH-RSCP PrimaryCCPCH-RSCP OPTIONAL
            }
        }
    },
    monitoredCells MonitoredCellRACH-List OPTIONAL
}

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

MeasurementControlSysInfo ::= SEQUENCE {
    use-of-HCS CHOICE {
        hcs-not-used SEQUENCE {

```



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        cellSelectQualityMeasure CHOICE {
            cpich-RSCP SEQUENCE {
                intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-RSCP OPTIONAL,
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-RSCP OPTIONAL
            },
            cpich-Ec-No SEQUENCE {
                intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-ECN0 OPTIONAL,
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-ECN0 OPTIONAL
            }
        },
        interRATMeasurementSysInfo InterRATMeasurementSysInfo-HCS OPTIONAL
    },
    hcs-used SEQUENCE {
        cellSelectQualityMeasure CHOICE {
            cpich-RSCP SEQUENCE {
                intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-
RSCP OPTIONAL,
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-
RSCP OPTIONAL
            },
            cpich-Ec-No SEQUENCE {
                intraFreqMeasurementSysInfo IntraFreqMeasurementSysInfo-HCS-
ECN0 OPTIONAL,
                interFreqMeasurementSysInfo InterFreqMeasurementSysInfo-HCS-
ECN0 OPTIONAL
            }
        },
        interRATMeasurementSysInfo InterRATMeasurementSysInfo OPTIONAL
    },
    trafficVolumeMeasSysInfo TrafficVolumeMeasSysInfo OPTIONAL,
    ue-InternalMeasurementSysInfo UE-InternalMeasurementSysInfo OPTIONAL
}

MeasurementIdentity ::= INTEGER (1..16)

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

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

MeasurementType ::= CHOICE {
    intraFrequencyMeasurement IntraFrequencyMeasurement,
    interFrequencyMeasurement InterFrequencyMeasurement,
    interRATMeasurement InterRATMeasurement,
    up-Measurement UP-Measurement,
    trafficVolumeMeasurement TrafficVolumeMeasurement,
    qualityMeasurement QualityMeasurement,
    ue-InternalMeasurement UE-InternalMeasurement
}

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

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

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

```

```

        primaryCCPCH-RSCP
    }
}
}

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

N-CR-T-CRMaxHyst ::=
    n-CR
    t-CRMaxHyst
}

NavigationModelSatInfo ::=
    satID
    satelliteStatus
    navModel
}

NavigationModelSatInfoList ::=
    SEQUENCE (SIZE (1..maxSat)) OF
        NavigationModelSatInfo

NavModel ::=
    codeOnL2
    uraIndex
    satHealth
    iodc
    l2Pflag
    sflRevd
    t-GD
    t-oc
    af2
    af1
    af0
    c-rs
    delta-n
    m0
    c-uc
    e
    c-us
    a-Sqrt
    t-oe
    fitInterval
    aodo
    c-ic
    omega0
    c-is
    i0
    c-rc
    omega
    omegaDot
    iDot
}

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

Neighbour ::=
    neighbourIdentity
    neighbourQuantity
    sfn-SFN-ObsTimeDifference2
}

NeighbourList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
        Neighbour

-- **TODO**, to be defined fully
NeighbourQuantity ::=
}

NewInterFreqCell ::=
    interFreqCellID
    frequencyInfo
    cellInfo
}

```

```

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

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

NewInterFreqCellSI-ECN0 ::=              SEQUENCE {
  interFreqCellID                        OPTIONAL,
  frequencyInfo                          OPTIONAL,
  cellInfo                                CellInfoSI-ECN0
}

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

NewInterFreqCellSI-HCS-ECN0 ::=          SEQUENCE {
  interFreqCellID                        OPTIONAL,
  frequencyInfo                          OPTIONAL,
  cellInfo                                CellInfoSI-HCS-ECN0
}

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

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

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

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

NewInterRATCell ::=                      SEQUENCE {
  interRATCellID                          OPTIONAL,
  technologySpecificInfo                   CHOICE {
    gsm                                     SEQUENCE {
      cellSelectionReselectionInfo         CellSelectReselectInfoSIB-11-12
    },
    bsic                                    BSIC,
      bcch-ARFCN                            BCCH-ARFCN,
      gsm-OutputPower                        GSM-OutputPower                OPTIONAL
  },
  is-2000                                  SEQUENCE {
      is-2000SpecificMeasInfo              IS-2000SpecificMeasInfo
    },
    spare1                                  NULL,
    spare2                                  NULL
  }
}

NewInterRATCell-HCS ::=                  SEQUENCE {
  interRATCellID                          OPTIONAL,
  technologySpecificInfo                   CHOICE {
    gsm                                     SEQUENCE {
      cellSelectionReselectionInfo         CellSelectReselectInfoSIB-11-12
    },
    bsic                                    BSIC,
      bcch-ARFCN                            BCCH-ARFCN,
      gsm-OutputPower                        GSM-OutputPower                OPTIONAL
  },
  is-2000                                  SEQUENCE {
      is-2000SpecificMeasInfo              IS-2000SpecificMeasInfo
    },
    spare1                                  NULL,
    spare2                                  NULL
  }
}

```

```

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

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

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

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

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

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

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

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

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

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

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

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

NodeB-ClockDrift ::=            INTEGER (0..15)

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

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

ObservedTimeDifferenceToGSM ::=  INTEGER (0..4095)

OTDOA-SearchWindowSize ::=      ENUMERATED {
    c10, c20, c30, c40, c50,
    c60, c70, moreThan70 }

Pathloss ::=                     INTEGER (46..158)

PenaltyTime-RSCP ::=            CHOICE {
    notUsed                       NULL,
    pt10                          TemporaryOffset,
    pt20                          TemporaryOffset,
    pt30                          TemporaryOffset,
    pt40                          TemporaryOffset,
    pt50                          TemporaryOffset,
    pt60                          TemporaryOffset
}

PenaltyTime-ECN0 ::=            CHOICE {
    notUsed                       NULL,
    pt10                          TemporaryOffsetList,

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    pt20          TemporaryOffsetList,
    pt30          TemporaryOffsetList,
    pt40          TemporaryOffsetList,
    pt50          TemporaryOffsetList,
    pt60          TemporaryOffsetList
}

PendingTimeAfterTrigger ::=      ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=     ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::=  SEQUENCE {
    reportingAmount                ReportingAmount                DEFAULT ra-
    reportingInterval              ReportingIntervalLong
}

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

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

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

PRC ::=                          INTEGER (-2047..2047)

PrimaryCCPCH-RSCP ::=           INTEGER (-115..-25)

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

Q-OffsetS-N ::=                  INTEGER (-50..50)

Q-QualMin ::=                     INTEGER (-20..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=                    INTEGER (-58..-13)

QualityEventResults ::=          SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

QualityMeasuredResults ::=       SEQUENCE {
    blerMeasurementResultsList     BLER-MeasurementResultsList    OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                       NULL,
        tdd                       SEQUENCE {
            sir-MeasurementResults SIR-MeasurementList          OPTIONAL
        }
    }
}

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

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

```

```

QualityReportingCriteria ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    totalCRC INTEGER (1..512),
    badCRC INTEGER (1..512),
    pendingAfterTrigger INTEGER (1..512)
}

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

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

RAT-Type ::= ENUMERATED {
    gsm, is2000 }

ReferenceCellPosition ::= CHOICE {
    ellipsoidPoint EllipsoidPoint,
    ellipsoidPointWithAltitude EllipsoidPointAltitude
}

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

-- As defined in 23.032 (2D with 24bits for each coordinate)
ReferenceLocationforSIB ::= SEQUENCE {
    ellipsoidPoint EllipsoidPoint
}

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

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

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

ReferenceSFN ::= INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::= CHOICE {
    -- Actual value = IE value * 40
    accuracy40 INTEGER (0..960),
    -- Actual value = IE value * 256
    accuracy256 INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560 INTEGER (0..15)
}

RemovedInterFreqCellList ::= CHOICE {
    removeAllInterFreqCells NULL,
    removeSomeInterFreqCells SEQUENCE (SIZE (1..maxCellMeas)) OF
        InterFreqCellID,
    removeNoInterFreqCells NULL
}

RemovedInterRATCellList ::= CHOICE {
    removeAllInterRATCells NULL,
    removeSomeInterRATCells SEQUENCE (SIZE (1..maxCellMeas)) OF

```

```

        InterRATCellID,
    }
    removeNoInterRATCells        NULL
}

RemovedIntraFreqCellList ::= CHOICE {
    removeAllIntraFreqCells      NULL,
    removeSomeIntraFreqCells     SEQUENCE (SIZE (1..maxCellMeas)) OF
        IntraFreqCellID,
    removeNoIntraFreqCells      NULL
}

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportingAmount ::= ENUMERATED {
    ra1, ra2, ra4, ra8, ra16, ra32,
    ra64, ra-Infinity }

ReportingCellStatus ::= CHOICE{
    withinActiveSet                MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq     MaxNumberOfReportingCellsType1,
    withinActiveAndOrMonitoredUsedFreq MaxNumberOfReportingCellsType1,
    withinDetectedSetUsedFreq     MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrDetectedUsedFreq
        MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet     MaxNumberOfReportingCellsType3,
    allActivePlusDetectedSet      MaxNumberOfReportingCellsType3,
    allActivePlusMonitoredAndOrDetectedSet
        MaxNumberOfReportingCellsType3,
    withinVirtualActSet           MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrActiveSetNonUsedFreq
        MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
        MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet   MaxNumberOfReportingCellsType2,
    withinActSetAndOrMonitoredUsedFreqOrMonitoredNonUsedFreq
        MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::= SEQUENCE {
    reportingCellStatus           ReportingCellStatus           OPTIONAL
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity   IntraFreqReportingQuantity,
    measurementReportingMode     MeasurementReportingMode,
    reportCriteria               CellDCH-ReportCriteria
}

ReportingInterval ::= ENUMERATED {
    noPeriodicalreporting, ri0-25,
    ri0-5, ril, ri2, ri4, ri8, ril6 }

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

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

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

RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList          RL-AdditionInfoList          OPTIONAL,
    rl-RemovalInfoList          RL-RemovalInfoList          OPTIONAL
}

```

```

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

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

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

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

SatID ::=                        INTEGER (0..63)

SFN-SFN-ObsTimeDifference ::=   CHOICE {
    type1                          SFN-SFN-ObsTimeDifference1,
    -- Actual value for type2 = IE value * 0.0625 - 1280
    type2                          SFN-SFN-ObsTimeDifference2
}

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

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

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

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

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

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

SIR-TFCS ::=                     TFCS-IdentityPlain

SIR-TFCS-List ::=               SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                  SIR-TFCS

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

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=          SEQUENCE {
    reserved1                          BIT STRING (SIZE (23)),
    reserved2                          BIT STRING (SIZE (24)),
    reserved3                          BIT STRING (SIZE (24)),
    reserved4                          BIT STRING (SIZE (16))
}

T-CRMax ::=                      CHOICE {
    notUsed                            NULL,
    t30                                N-CR-T-CRMaxHyst,
    t60                                N-CR-T-CRMaxHyst,
    t120                               N-CR-T-CRMaxHyst,
    t180                               N-CR-T-CRMaxHyst,
    t240                               N-CR-T-CRMaxHyst
}

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

```



```

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

TemporaryOffsetList ::=
    SEQUENCE {
        temporaryOffset1
        temporaryOffset2
    }

Threshold ::=
    INTEGER (-115..0)

ThresholdPositionChange ::=
    ENUMERATED {
        pc10, pc20, pc30, pc40, pc50,
        pc100, pc200, pc300, pc500,
        pc1000, pc2000, pc5000, pc10000,
        pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::=
    ENUMERATED {
        ms1, ms2, ms3, ms5, ms10,
        ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::=
    ENUMERATED {
        c0-25, c0-5, c1, c2, c3, c4, c5,
        c10, c20, c50, c100, c200, c500,
        c1000, c2000, c5000 }

ThresholdUsedFrequency ::=
    INTEGER (-115..165)

-- Actual value = IE value * 20.
TimeInterval ::=
    INTEGER (1..13)

TimeslotInfo ::=
    SEQUENCE {
        timeslotNumber
        burstType
    }

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

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

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

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

TimeslotWithISCP ::=
    SEQUENCE {
        timeslot
        timeslotISCP
    }

TimeToTrigger ::=
    ENUMERATED {
        ttt0, ttt10, ttt20, ttt40, ttt60,
        ttt80, ttt100, ttt120, ttt160,
        ttt200, ttt240, ttt320, ttt640,
        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=
    SEQUENCE {
        eventID
        reportingThreshold
        timeToTrigger
        pendingTimeAfterTrigger
        tx-InterruptionAfterTrigger
    }
    OPTIONAL,
    OPTIONAL,
    OPTIONAL

TrafficVolumeEventResults ::=
    SEQUENCE {
        ul-transportChannelCausingEvent
        trafficVolumeEventIdentity
    }

TrafficVolumeEventType ::=
    ENUMERATED {

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```

        e4a,
        e4b }

TrafficVolumeMeasQuantity ::= CHOICE {
    rlc-BufferPayload          NULL,
    averageRLC-BufferPayload  TimeInterval,
    varianceOfRLC-BufferPayload TimeInterval
}

TrafficVolumeMeasSysInfo ::= SEQUENCE {
    trafficVolumeMeasurementID MeasurementIdentity          DEFAULT 4,
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity TrafficVolumeMeasQuantity      OPTIONAL,
    trafficVolumeReportingQuantity TrafficVolumeReportingQuantity OPTIONAL,
    trafficVolumeMeasRepCriteria TrafficVolumeReportingCriteria OPTIONAL,
    measurementValidity MeasurementValidity                  OPTIONAL,
    measurementReportingMode MeasurementReportingMode,
    reportCriteriaSysInf TrafficVolumeReportCriteriaSysInfo
}

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

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

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

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

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

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList TransChCriteriaList OPTIONAL
}

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

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

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

```

```

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

TransferMode ::=                ENUMERATED {
                                  acknowledgedModeRLC,
                                  unacknowledgedModeRLC }

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

TriggeringCondition1 ::=       ENUMERATED {
                                  activeSetCellsOnly,
                                  monitoredSetCellsOnly,
                                  activeSetAndMonitoredSetCells }

TriggeringCondition2 ::=       ENUMERATED {
                                  activeSetCellsOnly,
                                  monitoredSetCellsOnly,
                                  activeSetAndMonitoredSetCells,
                                  detectedSetCellsOnly,
                                  detectedSetAndMonitoredSetCells }

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

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

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

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

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

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

UE-InternalEventParamList ::=  SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                  UE-InternalEventParam

UE-InternalEventResults ::=    CHOICE {
                                  event6a                NULL,
                                  event6b                NULL,
                                  event6c                NULL,
                                  event6d                NULL,
                                  event6e                NULL,
                                  event6f                PrimaryCPICH-Info,
                                  event6g                PrimaryCPICH-Info
                                  }

UE-InternalMeasQuantity ::=    SEQUENCE {
                                  measurementQuantity    UE-MeasurementQuantity,
                                  filterCoefficient      FilterCoefficient
                                  }
                                                                    DEFAULT fc1

```

```

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

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

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID MeasurementIdentity DEFAULT 5,
    ue-InternalMeasQuantity UE-InternalMeasQuantity
}

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

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

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

-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    utra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1 UE-RX-TX-TimeDifferenceType1
}

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

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

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

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

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

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

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

-- For sfID=0 (sf4), pageNo=18, and sfID=0 & sfID=1 (sf4 & sf5), pageNo=25,
-- the IE fields for word3 - word110 are the same as UP-GPS-IonosphericModel

```

```

-- and UP-GPS-UTC-Model. For the rest of the pages, they are the same as
-- UP-GPS-Almanac.
UP-Alma-SIB-Data ::=
    SEQUENCE {
        sfID                INTEGER (0..1),
        dataID              INTEGER (0..3),
        pageNo              INTEGER (0..63),
        word3               BIT STRING (SIZE (16)),
        word4               BIT STRING (SIZE (24)),
        word5               BIT STRING (SIZE (24)),
        word6               BIT STRING (SIZE (24)),
        word7               BIT STRING (SIZE (24)),
        word8               BIT STRING (SIZE (24)),
        word9               BIT STRING (SIZE (24)),
        word10              BIT STRING (SIZE (22))
    }

UP-Alma-SIB-DataList ::=
    SEQUENCE (SIZE (1..3)) OF
        UP-Alma-SIB-Data

UP-CipherParameters ::=
    SEQUENCE {
        cipheringKeyFlag    BIT STRING (SIZE (1)),
        cipheringSerialNumber
    }

UP-DGPS-SIB-Data ::=
    SEQUENCE {
        nodeBClockDrift    NodeB-ClockDrift                OPTIONAL,
        referenceLocationforSIB
        ReferenceLocationforSIB                OPTIONAL,
        referenceSFN        ReferenceSFN
        referenceGPS-TOW    GPS-TOW-lusec,
        statusHealth        DiffCorrectionStatus,
        dgps-InformationList
        DGPS-InformationList
    }

UP-Ephe-SIB-Data ::=
    SEQUENCE {
        transmissionTOW    INTEGER (0..1048575),
        satID              SatID,
        tlmMessage         BIT STRING (SIZE (14)),
        tlmRevd           BIT STRING (SIZE (2)),
        how                BIT STRING (SIZE (22)),
        wn                 BIT STRING (SIZE (10)),
        navModel           NavModel
    }

UP-Error ::=
    SEQUENCE {
        errorReason        UP-ErrorCause,
        additionalAssistanceData
        AdditionalAssistanceData
    }

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

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

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

UP-EventParamList ::=
    SEQUENCE (SIZE (1..maxMeasEvent)) OF
        UP-EventParam

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

```

```

UP-GPS-AcquisitionAssistance ::= SEQUENCE {
    referenceTime CHOICE {
        utran-ReferenceTime UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly INTEGER (0..604799999)
    },
    satelliteInformationList AcquisitionSatInfoList
}

UP-GPS-Almanac ::= SEQUENCE {
    wn-a BIT STRING (SIZE (8)),
    almanacSatInfoList AlmanacSatInfoList
}

UP-GPS-AssistanceData ::= SEQUENCE {
    up-GPS-ReferenceTime UP-GPS-ReferenceTime OPTIONAL,
    up-GPS-ReferenceLocation EllipsoidPointAltitude OPTIONAL,
    up-GPS-DGPS-Corrections UP-GPS-DGPS-Corrections OPTIONAL,
    up-GPS-NavigationModel UP-GPS-NavigationModel OPTIONAL,
    up-GPS-IonosphericModel UP-GPS-IonosphericModel OPTIONAL,
    up-GPS-UTC-Model UP-GPS-UTC-Model OPTIONAL,
    up-GPS-Almanac UP-GPS-Almanac OPTIONAL,
    up-GPS-AcquisitionAssistance UP-GPS-AcquisitionAssistance OPTIONAL,
    up-GPS-Real-timeIntegrity BadSatList OPTIONAL
}

UP-Cipher-GPS-Data-Indicator ::= SEQUENCE {
    up-CipherParameters UP-CipherParameters OPTIONAL
}

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

UP-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))
}

UP-GPS-Measurement ::= SEQUENCE {
    referenceSFN ReferenceSFN OPTIONAL,
    gps-TOW-lmsec GPS-TOW-lmsec,
    gps-TOW-rem-usec GPS-TOW-rem-usec OPTIONAL,
    gps-MeasurementParamList GPS-MeasurementParamList
}

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

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

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

```

```

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

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

UP-Measurement ::= SEQUENCE {
    up-ReportingQuantity UP-ReportingQuantity,
    reportCriteria        UP-ReportCriteria,
    up-OTDOA-AssistanceData UP-OTDOA-AssistanceData    OPTIONAL,
    up-GPS-AssistanceData UP-GPS-AssistanceData      OPTIONAL
}

UP-MeasurementEventResults ::= CHOICE {
    event7a          UP-Position,
    event7b          UP-OTDOA-Measurement,
    event7c          UP-GPS-Measurement
}

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

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

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

UP-OTDOA-AssistanceData ::= SEQUENCE {
    up-OTDOA-ReferenceCell      UP-OTDOA-ReferenceCell      OPTIONAL,
    up-OTDOA-MeasurementAssistDataList UP-OTDOA-MeasurementAssistDataList OPTIONAL,
    up-IPDL-Parameters          UP-IPDL-Parameters          OPTIONAL
}

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

UP-OTDOA-Measurement ::= SEQUENCE {
    sfn                INTEGER (0..4095),
    ue-RX-TX-TimeDifferenceType2 UE-RX-TX-TimeDifferenceType2,
    qualityChoice      CHOICE {
        std-10          ReferenceQuality10,
        std-50          ReferenceQuality50,
        cpich-EcN0      CPICH-Ec-N0-OTDOA,
        defaultQuality  ReferenceQuality
    },
    neighbourList      NeighbourList          OPTIONAL
}

UP-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
}

UP-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         UP-OTDOA-MeasurementAssistData

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

UP-Position ::=                     SEQUENCE {
    referenceSFN                 ReferenceSFN,
    gps-TOW                      GPS-TOW-lusec,
    positionEstimate             PositionEstimate
}

UP-ReportCriteria ::=              CHOICE {
    up-ReportingCriteria         UP-EventParamList,
    periodicalReportingCriteria  PeriodicalReportingCriteria,
    noReporting                  NULL
}

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

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

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

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

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

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

-- *****
--
--   OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****

BCC ::=                            INTEGER (0..7)

BCCH-ModificationInfo ::=         SEQUENCE {
    mib-ValueTag                 MIB-ValueTag,
    bcch-ModificationTime        BCCH-ModificationTime  OPTIONAL
}

-- Actual value = IE value * 8
BCCH-ModificationTime ::=         INTEGER (0..511)

BSIC ::=                          SEQUENCE {
    ncc                          NCC,

```



```

    bcc                BCC
}

CBS-DRX-Level1Information ::= SEQUENCE {
    ctch-AllocationPeriod    INTEGER (1..256),
    cbs-FrameOffset          INTEGER (0..255)
}

CDMA2000-Message ::= SEQUENCE {
    msg-Type                BIT STRING (SIZE (8)),
    payload                 BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    CDMA2000-Message

CDMA2000-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
    FrequencyInfoCDMA2000

CellValueTag ::= INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimerFactor ::= INTEGER (1..8)

FDD-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
    FrequencyInfoFDD

FrequencyInfoCDMA2000 ::= SEQUENCE {
    band-Class             BIT STRING (SIZE (5)),
    cdma-Freq             BIT STRING (SIZE(11))
}

GSM-BA-Range ::= SEQUENCE {
    gsmLowRangeUARFCN     UARFCN,
    gsmUpRangeUARFCN     UARFCN
}

GSM-BA-Range-List ::= SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
    GSM-BA-Range

GSM-Classmark2 ::= OCTET STRING (SIZE (5))

GSM-Classmark3 ::= OCTET STRING

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

IdentificationOfReveivedMessage ::= SEQUENCE {
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    receivedMessageType      ReceivedMessageType
}

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure       NULL,
    protocolError                ProtocolErrorInformation,
    unspecified                  NULL,
    spare1                       NULL,
    spare2                       NULL,
    spare3                       NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm                          SEQUENCE {
        gsm-Classmark2          GSM-Classmark2,
        gsm-Classmark3          GSM-Classmark3
    },
    cdma2000                     SEQUENCE {
        cdma2000-MessageList    CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
    InterRAT-UE-RadioAccessCapability

InterRAT-HO-Failure ::= SEQUENCE {

```

```

interRAT-HO-FailureCause          InterRAT-HO-FailureCause          OPTIONAL,
interRATMessage                   InterRATMessage                   OPTIONAL
}

InterRAT-HO-FailureCause ::=      CHOICE {
configurationUnacceptable          NULL,
physicalChannelFailure             NULL,
protocolError                     ProtocolErrorInformation,
interRAT-ProtocolError            NULL,
unspecified                       NULL,
spare1                             NULL,
spare2                             NULL,
spare3                             NULL,
spare4                             NULL
}

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

InterRATMessageList ::=          SEQUENCE (SIZE (1..maxSystemCapability)) OF
InterRATMessage

MasterInformationBlock ::=       SEQUENCE {
mib-ValueTag                       MIB-ValueTag,
plmn-Type                          PLMN-Type,
-- TABULAR: The PLMN identity and ANSI-41 core network information
-- are included in PLMN-Type.
sibSb-ReferenceList                SIBSb-ReferenceList,
-- Extension mechanism for non- release99 information
nonCriticalExtensions              SEQUENCE {}
}
}

MIB-ValueTag ::=                 INTEGER (1..8)

NCC ::=                           INTEGER (0..7)

PLMN-ValueTag ::=                INTEGER (1..256)

PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
predefinedConfigIdentity            PredefinedConfigIdentity,
predefinedConfigValueTag           PredefinedConfigValueTag
}
}

ProtocolErrorInformation ::=      SEQUENCE {
diagnosticsType                    CHOICE {
    type1                          SEQUENCE {
        protocolErrorCause        ProtocolErrorCause
    },
    spare                           NULL
}
}

ReceivedMessageType ::=           ENUMERATED {
activeSetUpdate,
cellUpdateConfirm,
counterCheck,
downlinkDirectTransfer,
interRATHandoverCommand,
measurementControl,
pagingType2,
physicalChannelReconfiguration,
physicalSharedChannelAllocation,
radioBearerReconfiguration,
radioBearerRelease,
radioBearerSetup,
rrcConnectionRelease,
rrcConnectionReject,
rrcConnectionSetup,
securityModeCommand,
}
}

```

```

        signallingConnectionRelease,
        transportChannelReconfiguration,
        transportFormatCombinationControl,
        ueCapabilityEnquiry,
        ueCapabilityInformationConfirm,
        uplinkPhysicalChannelControl,
        uraUpdateConfirm,
        utranMobilityInformation,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7
    }
}

Rplmn-Information ::= SEQUENCE {
    OPTIONAL,
    List OPTIONAL,
    List OPTIONAL,
    Frequency-List OPTIONAL
}

SchedulingInformation ::= SEQUENCE {
    scheduling SEQUENCE {
        segCount SegCount DEFAULT 1,
        sib-Pos CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4 INTEGER (0..1),
            rep8 INTEGER (0..3),
            rep16 INTEGER (0..7),
            rep32 INTEGER (0..15),
            rep64 INTEGER (0..31),
            rep128 INTEGER (0..63),
            rep256 INTEGER (0..127),
            rep512 INTEGER (0..255),
            rep1024 INTEGER (0..511),
            rep2048 INTEGER (0..1023),
            rep4096 INTEGER (0..2047)
        },
        sib-PosOffsetInfo SibOFF-List OPTIONAL
    }
}

SchedulingInformationSIB ::= SEQUENCE {
    sib-Type SIB-TypeAndTag,
    scheduling SchedulingInformation
}

SchedulingInformationSIBSb ::= SEQUENCE {
    sibSb-Type SIBSb-TypeAndTag,
    scheduling SchedulingInformation
}

SegCount ::= INTEGER (1..16)

SegmentIndex ::= INTEGER (1..15)

-- Actual value = 2 * IE value
SFN-Prime ::= INTEGER (0..2047)

SIB-Data-fixed ::= BIT STRING (SIZE (222))

SIB-Data-variable ::= BIT STRING (SIZE (1..214))

SIBOccurrenceIdentityAndValueTag ::= SEQUENCE {
    sibOccurIdentity SIBOccurIdentity,
    sibOccurValueTag SIBOccurValueTag OPTIONAL
}

SIBOccurrenceIdentity ::= INTEGER (0..15)

```

```

SIBOccurrenceValueTag ::= INTEGER (0..15)

SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIB

SIBSb-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIBSb

SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSIB-FACH)) OF
    SchedulingInformationSIB

SIB-Type ::= ENUMERATED {
    masterInformationBlock,
    systemInformationBlockType1,
    systemInformationBlockType2,
    systemInformationBlockType3,
    systemInformationBlockType4,
    systemInformationBlockType5,
    systemInformationBlockType6,
    systemInformationBlockType7,
    systemInformationBlockType8,
    systemInformationBlockType9,
    systemInformationBlockType10,
    systemInformationBlockType11,
    systemInformationBlockType12,
    systemInformationBlockType13,
    systemInformationBlockType13-1,
    systemInformationBlockType13-2,
    systemInformationBlockType13-3,
    systemInformationBlockType13-4,
    systemInformationBlockType14,
    systemInformationBlockType15,
    systemInformationBlockType15-1,
    systemInformationBlockType15-2,
    systemInformationBlockType15-3,
    systemInformationBlockType16,
    systemInformationBlockType17,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

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

SIBSb-TypeAndTag ::= CHOICE {
    sysInfoType1 PLMN-ValueTag,
    sysInfoType2 PLMN-ValueTag,
    sysInfoType3 CellValueTag,
    sysInfoType4 CellValueTag,
    sysInfoType5 CellValueTag,
    sysInfoType6 CellValueTag,
    sysInfoType7 NULL,
    sysInfoType8 CellValueTag,
}

```

```

sysInfoType9                NULL,
sysInfoType10               NULL,
sysInfoType11               CellValueTag,
sysInfoType12               CellValueTag,
sysInfoType13               CellValueTag,
sysInfoType13-1             CellValueTag,
sysInfoType13-2             CellValueTag,
sysInfoType13-3             CellValueTag,
sysInfoType13-4             CellValueTag,
sysInfoType14               NULL,
sysInfoType15               CellValueTag,
sysInfoType16               PredefinedConfigIdentityAndValueTag,
sysInfoType17               NULL,
sysInfoTypeSB1              CellValueTag,
sysInfoTypeSB2              CellValueTag,
sysInfoType15-1             CellValueTag,
sysInfoType15-2             SIBOccurrenceIdentityAndValueTag,
sysInfoType15-3             SIBOccurrenceIdentityAndValueTag,
}

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

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

SysInfoType1 ::=              SEQUENCE {
    -- Core network IEs
    cn-CommonGSM-MAP-NAS-SysInfo  NAS-SystemInformationGSM-MAP,
    cn-DomainSysInfoList          CN-DomainSysInfoList,
    -- User equipment IEs
    ue-ConnTimersAndConstants      UE-ConnTimersAndConstants,
    ue-IdleTimersAndConstants      UE-IdleTimersAndConstants,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}
}

SysInfoType2 ::=              SEQUENCE {
    -- UTRAN mobility IEs
    ura-IdentityList              URA-IdentityList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}
}

SysInfoType3 ::=              SEQUENCE {
    sib4indicator                  BOOLEAN,
    -- UTRAN mobility IEs
    cellIdentity                   CellIdentity,
    cellSelectReselectInfo         CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction          CellAccessRestriction,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}
}

SysInfoType4 ::=              SEQUENCE {
    -- UTRAN mobility IEs
    cellIdentity                   CellIdentity,
    cellSelectReselectInfo         CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction          CellAccessRestriction,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}
}

SysInfoType5 ::=              SEQUENCE {
    sib6indicator                  BOOLEAN,
    -- Physical channel IEs
    pich-PowerOffset              PICH-PowerOffset,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            aich-PowerOffset       AICH-PowerOffset
        },
        tdd                       SEQUENCE {
            pusch-SysInfoList-SFN  PUSCH-SysInfoList-SFN      OPTIONAL,

```

```

        pdsch-SysInfoList-SFN          PDSCH-SysInfoList-SFN          OPTIONAL,
        midambleConfiguration          MidambleConfiguration          OPTIONAL,
        openLoopPowerControl-TDD       OpenLoopPowerControl-TDD
    }
    },
    primaryCCPCH-Info                  PrimaryCCPCH-Info                  OPTIONAL,
    prach-SystemInformationList        PRACH-SystemInformationList,
    sCCPCH-SystemInformationList       SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information          CBS-DRX-Level1Information          OPTIONAL,
    -- Conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}

SysInfoType6 ::=                      SEQUENCE {
    -- Physical channel IEs
    pich-PowerOffset                  PICH-PowerOffset,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            aich-PowerOffset            AICH-PowerOffset,
            csich-PowerOffset           CSICH-PowerOffset           OPTIONAL
        },
        tdd                            SEQUENCE {
            pusch-SysInfoList-SFN      PUSCH-SysInfoList-SFN      OPTIONAL,
            pdsch-SysInfoList-SFN      PDSCH-SysInfoList-SFN      OPTIONAL,
            midambleConfiguration      MidambleConfiguration      OPTIONAL,
            openLoopPowerControl-TDD   OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info                  PrimaryCCPCH-Info                  OPTIONAL,
    prach-SystemInformationList        PRACH-SystemInformationList        OPTIONAL,
    sCCPCH-SystemInformationList       SCCPCH-SystemInformationList       OPTIONAL,
    cbs-DRX-Level1Information          CBS-DRX-Level1Information          OPTIONAL,
    -- Conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}

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

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

SysInfoType9 ::=                      SEQUENCE {
    -- Physical channel IEs
    cpch-PersistenceLevelsList        CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}

SysInfoType10 ::=                     SEQUENCE {
    -- User equipment IEs
    drac-SysInfoList                  DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}

```

```

}

SysInfoType11 ::=                               SEQUENCE {
    sib12indicator                               BOOLEAN,
    -- Measurement IEs
    fach-MeasurementOccasionInfo                FACH-MeasurementOccasionInfo    OPTIONAL,
    measurementControlSysInfo                   MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType12 ::=                               SEQUENCE {
    -- Measurement IEs
    fach-MeasurementOccasionInfo                FACH-MeasurementOccasionInfo    OPTIONAL,
    measurementControlSysInfo                   MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType13 ::=                               SEQUENCE {
    -- Core network IEs
    cn-DomainSysInfoList                       CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants                   UE-IdleTimersAndConstants      OPTIONAL,
    capabilityUpdateRequirement                 CapabilityUpdateRequirement     OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType13-1 ::=                             SEQUENCE {
    -- ANSI-41 IEs
    ansi-41-RAND-Information                    ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType13-2 ::=                             SEQUENCE {
    -- ANSI-41 IEs
    ansi-41-UserZoneID-Information              ANSI-41-UserZoneID-Information,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType13-3 ::=                             SEQUENCE {
    -- ANSI-41 IEs
    ansi-41-PrivateNeighbourListInfo           ANSI-41-PrivateNeighbourListInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

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

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

SysInfoType15 ::=                               SEQUENCE {
    -- Measurement IEs
    up-GPS-Assistance                           UP-Cipher-GPS-Data-Indicator   OPTIONAL,
    up-OTDOA-Assistance                         UP-OTDOA-AssistanceSIB        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}
}

SysInfoType15-1 ::=                             SEQUENCE {
    -- DGPS corrections

```

```

        up-DGPS-SIB-Data                UP-DGPS-SIB-Data
    }
SysInfoType15-2 ::=
-- Ephemeris and clock corrections
    up-Ephe-SIB-Data                    UP-Ephe-SIB-Data
}
SysInfoType15-3 ::=
-- Almanac and other data
    transmissionTOW                    INTEGER (0..1048575),
    satMask                             BIT STRING (SIZE (1..32)),
    lsbTOW                              BIT STRING (SIZE (8)),
    up-Alma-SIB-DataList                UP-Alma-SIB-DataList
}
SysInfoType16 ::=
-- Radio bearer IEs
    preDefinedRadioConfiguration      PreDefRadioConfiguration,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}
SysInfoType17 ::=
-- Physical channel IEs
    pusch-SysInfoList                 PUSCH-SysInfoList                OPTIONAL,
    pdsch-SysInfoList                 PDSCH-SysInfoList                OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}
SysInfoTypeSB1 ::=
-- Other IEs
    sib-ReferenceList                 SIB-ReferenceList                OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}
SysInfoTypeSB2 ::=
-- Other IEs
    sib-ReferenceList                 SIB-ReferenceList                OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}
}
TDD-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
    FrequencyInfoTDD

-- *****
--
--     ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- *****

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::=        ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::=  ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::=          BIT STRING (SIZE (1..2048))

Min-P-REV ::=                       BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::=     ANSI-41-NAS-Parameter
NID ::=                             BIT STRING (SIZE (16))

P-REV ::=                            BIT STRING (SIZE (8))

SID ::=                             BIT STRING (SIZE (15))

END

```


CHANGE REQUEST

⌘ **25.331 CR 685** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Correction to ECN modules		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 2001-02-20
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ Inconsistency between ECN and ASN.1		
Summary of change:	⌘ Correction of ECN with respect to ASN.1 module names. Addition of ECN for Internode-definitions which was missing.		
Consequences if not approved:	⌘ Inconsistency between ECN and ASN.1		

Clauses affected:	⌘ 12.2, 12.3		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

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

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

12.2 ECN link module for RRC

```

RRC-ECN-Link-Module LINK-DEFINITIONS ::=
BEGIN
Class-definitions ENCODED BY perUnaligned WITH Class-definitions-ECN-Module
PDU-definitions ENCODED BY perUnaligned WITH PDU-definitions-ECN-Module
CoreNetwork-IEs ENCODED BY perUnaligned WITH CoreNetwork-IEs-ECN-Module
UTRAN-Mobility-IEs ENCODED BY perUnaligned WITH UTRAN-Mobility-IEs-ECN-Module
User-Equipment-IEs ENCODED BY perUnaligned WITH User-Equipment-IEs-ECN-Module
RadioBearer-IEs ENCODED BY perUnaligned WITH RadioBearer-IEs-ECN-Module
TransportChannel-IEs ENCODED BY perUnaligned WITH TransportChannel-IEs-ECN-Module
PhysicalChannel-IEs ENCODED BY perUnaligned WITH PhysicalChannel-IEs-ECN-Module
Measurement-IEs ENCODED BY perUnaligned WITH Measurement-IEs-ECN-Module
Other-IEs ENCODED BY perUnaligned WITH Other-IEs-ECN-Module
ANSI-41-IEs ENCODED BY perUnaligned WITH ANSI-41-IEs-ECN-Module
END

IMPORTS
  RRC-encodings -- Encoding objects for RRC messages
FROM RRC-Encoding-Definitions;

ENCODE Class-definitions
  WITH RRC-encodings
  COMPLETED BY PER-BASIC-UNALIGNED

ENCODE PDU-definitions
  WITH RRC-encodings
  COMPLETED BY PER-BASIC-UNALIGNED

ENCODE InformationElements
  WITH RRC-encodings
  COMPLETED BY PER-BASIC-UNALIGNED

ENCODE Internode-definitions
  WITH RRC-encodings
  COMPLETED BY PER-BASIC-UNALIGNED

END

```

12.3 ECN modules for RRC

The encoding definition module "RRC-Encoding-Definitions" contains definition of the encoding object set "RRC-encodings". The encoding object set contains all the specialized encoding for RRC.

```

RRC-Encoding-Definitions ENCODING-DEFINITIONS ::=
BEGIN

EXPORTS
  RRC-encodings;

RRC-encodings #ENCODINGS ::= {
  -- Trailing bits
  outer-encoding
}

--*****
--
-- The trailing bits in all RRC messages shall be ignored
-- (including unknown message contents & unknown extensions).
-- This overrides the default PER behavior which pads the last
-- octet with zero bits.
--
--*****

outer-encoding #OUTER ::= {
  ENCODER-DECODER {
  }
  DECODE AS IF {
    POST-PADDING encoder-option
  }
}

```

```
}  
  
END  
  
Class-definitions-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
PDU-definitions-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
Core-network-IEs-InformationElements-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
Internode-definitions-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
UTRAN-Mobility-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
User-Equipment-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
RadioBearer-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
TransportChannel-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
PhysicalChannel-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
Measurement-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
Other-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END  
  
ANSI-41-IEs-ECN-Module ENCODING-DEFINITIONS ::=  
BEGIN  
END
```

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 686** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Improvement of the description of timing advance for TDD		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 14.02.01
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The description of timing advance for TDD should be improved for better understanding.		
Summary of change:	⌘ 2: a reference to 25.224 was included 8.6.3.7: description of handling the IE "UL timing advance" was improved 10.3.7.76: description of reporting of applied timing advance was improved		
Consequences if not approved:	⌘ Setting and reporting of timing advance for TDD remains partly unclear.		

Clauses affected:	⌘ 2, 8.6.3.7, 10.3.7.76		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 25.301: "Radio Interface Protocol Architecture".
- [3] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
- [4] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
- [5] 3GPP TS 24.008: "Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3".
- [6] 3GPP TS 25.103: "RF Parameters in Support of RRM".
- [7] 3GPP TS 25.215: "Physical layer – Measurements (FDD)".
- [8] 3GPP TS 25.225: "Physical layer – Measurements (TDD)".
- [9] 3GPP TS 25.401: "UTRAN overall description".
- [10] 3GPP TS 25.402: "Synchronization in UTRAN, stage 2".
- [11] 3GPP TS 23.003: "Numbering, addressing and identification".
- [12] ICD-GPS-200: "Navstar GPS Space Segment/Navigation User Interface".
- [13] RTCM-SC104: "RTCM Recommended Standards for Differential GNSS Service (v.2.2)".
- [14] 3GPP TR 25.921: "Guidelines and Principles for protocol description and error handling".
- [15] 3GPP TS 25.321: "MAC protocol specification".
- [16] 3GPP TS 25.322: "RLC Protocol Specification".
- [17] 3GPP TS 24.007: "Mobile radio interface signalling layer 3" General Aspects.
- [18] 3GPP TS 25.305: "Stage 2 Functional Specification of Location Services in UTRAN".
- [19] 3GPP TS 25.133: "Requirements for Support of Radio Resource Management (FDD)".
- [20] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".
- [21] 3GPP TS 25.101: "UE Radio Transmission and Reception (FDD)".
- [22] 3GPP TS 25.102: "UE Radio Transmission and Reception (TDD)".
- [23] 3GPP TS 23.060: "General Packet Radio Service (GPRS), Service description, Stage 2".
- [24] [3GPP TS 25.224: "Physical Layer Procedures \(TDD\)".](#)

8.6.3.7 UL Timing Advance

If the IE "UL Timing Advance Control" is present, the UE shall:

- if IE "Uplink Timing Advance Control" has the value "disabled":
 - reset timing advance to 0;
 - disable calculated timing advance following handover;
 - in case of handover start uplink transmissions in the target cell without applying timing advance;
- if IE "Uplink Timing Advance Control" has the value "enabled":
 - in case of no cell change
 - evaluate and apply the timing advance value for uplink transmission as indicated in IE "Uplink Timing Advance" at the CFN indicated in the IE "Activation Time";
 - ~~—evaluate and apply the timing advance value for uplink transmission as indicated in IE "Uplink Timing Advance" at the CFN indicated in the IE "Activation Time";~~
 - ~~—enable UE autonomous timing advance calculation for handover;~~
 - ~~—update uplink timing advance as indicated in IE "Uplink Timing Advance" in advance of the UE autonomous timing advance calculation~~
 - in case of cell change
 - use the IE "Uplink Timing Advance" as TA_{old} and apply TA_{new} for uplink transmission in the target cell at the CFN indicated in the IE "Activation Time" as specified in [24]
 - include the value of the applied timing advance in the IE "Timing Advance" in the COMPLETE message

10.3.7.76 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		UE transmitted power info 10.3.7.85	
>>UE Rx-Tx report entries	OP	1 to <maxRL >		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference type 1	MP		UE Rx-Tx time difference type 1 10.3.7.83	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE transmitted Power list	OP	1 to <maxTS >		UE transmitted power for each used uplink timeslot in ascending timeslot number order
>>>UE transmitted power	MP		UE transmitted power info 10.3.7.85	
>>Applied TA	OP		Uplink Timing Advance 10.3.6.95	Uplink timing advance applied by the UE

CHANGE REQUEST

⌘ **25.331 CR 687** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Correction on timing advance and allocation for shared channels		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 14/02/2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The current system isn't able to provide sufficient timing advance accuracy after a break in USCH transmission for more than a few frames. In order to obtain an accurate timing on PUSCH, it is proposed that the network should be enabled to instruct the UE to confirm a PHYSICAL SHARED CHANNEL ALLOCATION message with a PUSCH CAPACITY REQUEST message sent on the RACH. This correction can be achieved by using the existing IE "Confirm request" in the PHYSICAL SHARED CHANNEL ALLOCATION message. Additional the range of the IE "Allocation Activation Time" was corrected according to the range of the CFN.
Summary of change:	⌘ 8.2.8.2, 8.2.8.3 : Change of PUSCH CAPACITY REQUEST procedure 10.3.6.4 : Correction of the range of the IE "Allocation Activation Time" in the table of Allocation period info 11.2 : Correction of the range of the IE "Allocation Activation Time" in the ASN.1 code of Allocation period info
Consequences if not approved:	⌘ Due to inaccurate timing advance after a break in USCH transmission for more than a few frames, messages can not be received properly by the UTRAN and the interference will be increased for those UEs using the same timeslot.

Clauses affected:	⌘ 8.2.8.2 8.2.8.3 10.3.6.4 11.2		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

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

8.2.8.2 Initiation

This procedure is initiated

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

The procedure can be initiated if:

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

The UE shall:

- set the IEs in the PUSCH CAPACITY REQUEST message according to subclause 8.2.8.3;
- If the procedure is triggered to reply to a previous PHYSICAL SHARED CHANNEL ALLOCATION message by the IE "Confirm request" set to "Confirm PUSCH" and the IE "PUSCH capacity allocation info" is not present then:
 - transmit the PUSCH CAPACITY REQUEST message on RACH;
- else:
 - transmitsubmit the PUSCH CAPACITY REQUEST message ~~for transmission~~ on the uplink SHCCH
- reset counter V310;
- start timer T310.

8.2.8.3 PUSCH CAPACITY REQUEST message contents to set

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

- C-RNTI to be used as UE identity if the message is sent on RACH;
- Traffic volume measured results for each radio bearer satisfying the reporting criteria as specified in the MEASUREMENT CONTROL procedure (if no radio bearer satisfies the reporting criteria, traffic volume measured results shall not be included). These results shall include:
 - Radio Bearer ID of the Radio Bearer being reported;
 - RLC buffer payload for these radio bearers, as specified by the MEASUREMENT CONTROL procedure;
- If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PDSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:
 - set the CHOICE "Allocation confirmation" to "PDSCH Confirmation" with the value given in the IE "PDSCH Identity" in the received message.
- If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PUSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message and the IE "PUSCH capacity allocation info" is present in this message, the UE shall:
 - set the CHOICE "Allocation confirmation" to "PUSCH Confirmation" with the value given in the IE "PUSCH Identity" in the received message.
- If the variable PROTOCOL_ERROR_REJECT is set to TRUE, the UE shall:

- include the IE "RRC transaction identifier" in the response message transmitted below; and
- set it to the value of "RRC transaction identifier" in the entry for the PHYSICAL SHARED CHANNEL ALLOCATION message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "protocol error indicator" to TRUE;
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.
- if the value of the variable PROTOCOL_ERROR_REJECT is FALSE;
 - set the IE "Protocol error indicator" to FALSE;

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

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

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 (01..255256)	Start of the allocation period at the given CFN.
Allocation Duration	MP		Integer (1..256)	Total number of frames for the allocation period.

11.2 PDU definitions

```

-- *****
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

AllocationPeriodInfo ::=
    SEQUENCE {
        allocationActivationTime    INTEGER (01..255256),
        allocationDuration           INTEGER (1..256)
    }

```

CHANGE REQUEST

⌘ **25.331 CR 688** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Clarification on SF 1 signalling		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 10.02.2001
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ For the downlink DPCH SF 1 could also be used. It is not clearly described how the signalling for this case is provided. This clarification is included.
Summary of change:	⌘ Interpretation of the coding of IE "Channelisation code bitmap" clarified
Consequences if not approved:	⌘ Signalling of SF1 unclear

Clauses affected:	⌘ 10.3.6.17		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

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

10.3.6.17 Downlink channelisation codes

NOTE: Only for TDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>codes representation</i>	MP			
>Consecutive codes				
>>First channelisation code	MP		Enumerated ((16/1)...(16/16))	The codes from First channelisation code to Last channelisation code shall be used in that order by the physical layer in this timeslot. If a TFCI exists in this timeslot, it is mapped in the First channelisation code.
>>Last channelisation code	MP		Enumerated ((16/1)...(16/16))	If this is the same as First channelisation code, only one code is used by the physical layer.
>Bitmap				
>>Channelisation codes bitmap	MP		Bitmap(16)	<p>The first bit in this bitmap corresponds to channelisation code (16/1) the second to (16/2) and so on. A 1 in the bitmap means that the code is used in this timeslot, a 0 that the code is not used. The codes shall be used in the order from (16/1) to (16/16) by the physical layer.</p> <p><u>0000000000000000:</u> <u>Usage of SF1</u> <u>0000000000000001:</u> <u>Channelisation Code 1,</u> <u>SF16</u> <u>0000000000000010:</u> <u>Channelisation Code 2,</u> <u>SF16</u> <u>0000000000000011:</u> <u>Channelisation Code 1 & 2,</u> <u>SF16</u> <u>.....</u> <u>1111111111111111:</u> <u>Channelisation Code 1 to 16,</u> <u>SF16</u> (For SF 16, a 1 in the bitmap means that the corresponding code is used, a 0 means that the corresponding code is not used.)</p>

CHANGE REQUEST

⌘ **25.331 CR 689** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Correction to power control in TDD		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 8.02.2001
Category:	⌘ F	Release:	⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ At the time being similar descriptions for uplink open loop power control in TDD are provided in 25.224 and 25.331. It is proposed to describe open loop power control in 25.331. Therefore it is proposed to move the relevant parts in 25.224 of the open loop power control procedure to 25.331 and remove the descriptions from 25.224. Additionally, one element that was relevant for TDD also (Downlink DPCH power control) was erroneously not signalled for TDD. This has been corrected also in the attached CR.
Summary of change:	⌘ 1) Descriptions on open loop power control updated 2) Signalling changed to allow signalling of IE "Downlink DPCH power control" for TDD.
Consequences if not approved:	⌘ 1) Parts of the description of open loop power control in two documents. 2) Essential information for downlink power control missing in the UE if signalling is not corrected.

Clauses affected:	⌘ 8.5.7, 10.3.6.18, 10.3.6.19, 10.3.6.25, 11.2, 11.3		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘ The proposed change affects the message encoding for TDD mode. However, this is not avoidable. Encoding of FDD mode messages is not affected with this CR.		

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http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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

8.5.7 Open loop power control

For FDD and prior to PRACH or PCPCH transmission the UE shall:

- read the IEs "Primary CPICH DL TX power", "UL interference" and "Constant value" in System Information Block type 6 (or System Information Block type 5, if system information block type 6 is not being broadcast) and System Information Block type 7.
- measure the value for the CPICH_RSCP
- calculate the power for the first preamble as:

$$\text{Preamble_Initial_Power} = \text{Primary CPICH DL TX power} - \text{CPICH_RSCP} + \text{UL interference} + \text{Constant Value}$$

Where,

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

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

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

- as long as the physical layer is configured for PRACH or PCPCH transmission, continuously recalculate the Preamble_Initial_Power when any of the broadcast parameters used in the above formula changes and resubmit to the physical layer the new calculated Preamble_Initial_Power.

For TDD the UE shall:

- if in the IE "Uplink DPCH Power Control" the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info":
 - acquire Reference Power, Constant Values from System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5) ~~5 and System Information Block type 6~~, and I_{BTS} for all active UL timeslots from System Information Block type 14 on the BCH;
 - otherwise:
 - acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the IE "Uplink DPCH Power Control".
- for PUSCH and PRACH power control acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from ~~System Information Block type 5~~, System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5) and System Information Block type 14 on the BCH,

calculate the UL transmit power according to the following formula for the PRACH continuously while the physical channel is active:

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

where, 3dB shall be added to RACH Constant Value for the case where RACH Spreading Factor = 8

- calculate the UL transmit power according to the following formula for the DPCH continuously while the physical channel is active:

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

- calculate the UL transmit power according to the following formula for the PUSCH continuously while the physical channel is active:

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

Where,

- P_{PRACH} , P_{DPCH} , & P_{USCH} : Transmitter power level in dBm,
- Pathloss values:
 - L_{PCCPCH} : Measurement representing path loss in dB based on beacon channels (The reference transmit power is signalled as the value of the IE "Primary CCPCH Tx Power" is broadcast on BCH in System Information Block type 5 and System Information Block type 6 (or System Information Block type 5, according to 8.1.1.6.5), or individually signalled to each UE in the IE "Uplink DPCH Power Control").
 - L_0 : Long term average of path loss in dB

If the midamble is used in the evaluation of L_{PCCPCH} and L_0 , and the Tx diversity scheme used for the P-CCPCH involves the transmission of different midambles from the diversity antennas, the received power of the different midambles from the different antennas shall be combined prior to evaluation of the variables.

- I_{BTS} : Interference signal power level at cell's receiver in dBm. I_{BTS} shall have the value of the IE "UL Timeslot Interference" (IE "UL Timeslot Interference" is broadcast on BCH in System Information Block type 14 or individually signalled to each UE in the IE "Uplink DPCH Power Control" 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. α shall be smaller or equal to the value of the IE "Alpha". If the IE "Alpha" is not explicitly signalled to the UE α shall be set to 1.
- $\text{SIR}_{\text{TARGET}}$: Target SNR in dB. This value is individually signalled to UEs in IE "UL target SIR" in IE "UL DPCH Power Control Info" and/or in IE "PUSCH Power Control Info" respectively.
- RACH Constant value: RACH Constant value shall have the value of the IE "RACH Constant value" This value is broadcast on BCH and shall be read on System Information Block type 5 and System Information Block type 6.
- DPCH Constant value: DPCH Constant value shall have the value of the IE "DPCH Constant value" This value is broadcast on BCH and shall be read on System Information Block type 5 and System Information Block type 6, or individually signalled to each UE in the IE "Uplink DPCH Power Control".
- USCH Constant Value: USCH Constant value shall have the value of the IE "USCH Constant value" This value is broadcast on BCH and shall be read on System Information Block type 5 and System Information Block type 6.

Values received by dedicated signalling shall take precedence over broadcast values.

10.3.6.18 Downlink DPCH info common for all RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated(Initialise, Maintain)	
CFN-targetSFN frame offset	CV TimInd		Integer(0..255)	In frame
CHOICE mode				
>FDD				
>>Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	
CHOICE mode				
>FDD				
>>Downlink rate matching restriction information	OP		Downlink rate matching restriction information 10.3.6.31	If this IE is set to "absent", no Transport CH is restricted in TFI.
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	
>>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	MP		Integer (2,4,8)	In bits
>>> SF = 128				
>>>>Number of bits for Pilot bits	MP		Integer(4,8)	In bits
>>> Otherwise				
>TDD				
>>Common timeslot info	MD		Common Timeslot Info 10.3.6.10	Default is the current Common timeslot info

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

Condition	Explanation
<i>TimInd</i>	This IE is OPTIONAL if the IE "Timing Indication" is set to "Initialise". Otherwise it is absent.

10.3.6.19 Downlink DPCH info common for all RL Post

NOTE: ~~Only for FDD~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.23	

10.3.6.25 Downlink information common for all radio links Post

NOTE: ~~Only for FDD~~

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Downlink DPCH info common for all RL	MP		Downlink DPCH info common for all RL Post 10.3.6.19	

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

-- Core Network IEs :
  CN-DomainIdentity,
  CN-InformationInfo,
  NAS-Message,
  PagingRecordTypeID,
-- UTRAN Mobility IEs :
  URA-Identity,
-- User Equipment IEs :
  ActivationTime,
  C-RNTI,
  CapabilityUpdateRequirement,
  CellUpdateCause,
  CipheringAlgorithm,
  CipheringModeInfo,
  EstablishmentCause,
  FailureCauseWithProtErr,
  FailureCauseWithProtErrTrId,
  InitialUE-Identity,
  IntegrityProtActivationInfo,
  IntegrityProtectionModeInfo,
  N-308,
  PagingCause,
  PagingRecordList,
  ProtocolErrorIndicator,
  ProtocolErrorIndicatorWithMoreInfo,
  Rb-timer-indicator,
  Re-EstablishmentTimer,
  RedirectionInfo,
  RejectionCause,
  ReleaseCause,
  RRC-StateIndicator,
  RRC-TransactionIdentifier,
  SecurityCapability,
  START-Value,
  STARTList,
  U-RNTI,
  U-RNTI-Short,
  UE-RadioAccessCapability,
  UE-ConnTimersAndConstants,
  URA-UpdateCause,
  UTRAN-DRX-CycleLengthCoefficient,
  WaitTime,
-- Radio Bearer IEs :
  PredefinedConfigIdentity,
  RAB-Info,
  RAB-Info-Post,
  RAB-InformationList,
  RAB-InformationReconfigList,
  RAB-InformationSetupList,
  RB-ActivationTimeInfo,
  RB-ActivationTimeInfoList,
  RB-COUNT-C-InformationList,
  RB-COUNT-C-MSB-InformationList,
  RB-IdentityList,
  RB-InformationAffectedList,
  RB-InformationReconfigList,
  RB-InformationReleaseList,
  RB-InformationSetupList,

```

```

RB-WithPDCP-InfoList,
SRB-InformationSetupList,
SRB-InformationSetupList2,
-- Transport Channel IEs:
CPCH-SetID,
DL-AddReconfTransChInfo2List,
DL-AddReconfTransChInfoList,
DL-CommonTransChInfo,
DL-DeletedTransChInfoList,
DRAC-StaticInformationList,
TFC-Subset,
TFC-Identity,
UL-AddReconfTransChInfoList,
UL-CommonTransChInfo,
UL-DeletedTransChInfoList,
-- Physical Channel IEs :
AllocationPeriodInfo,
Alpha,
CCTrCH-PowerControlInfo,
ConstantValue,
CPCH-SetInfo,
DL-CommonInformation,
DL-CommonInformationPost,
DL-InformationPerRL,
DL-InformationPerRL-List,
DL-InformationPerRL-ListPostFDD,
DL-InformationPerRL-PostTDD,
DL-DPCH-PowerControlInfo,
DL-PDSCH-Information,
DPCH-CompressedModeStatusInfo,
FrequencyInfo,
FrequencyInfoFDD,
FrequencyInfoTDD,
IndividualTS-InterferenceList,
MaxAllowedUL-TX-Power,
PDSCH-CapacityAllocationInfo,
PDSCH-Identity,
PDSCH-Info,
PRACH-RACH-Info,
PrimaryCCPCH-TX-Power,
PUSCH-CapacityAllocationInfo,
PUSCH-Identity,
RL-AdditionInformationList,
RL-RemovalInformationList,
SSDT-Information,
TFC-ControlDuration,
TimeslotList,
TX-DiversityMode,
UL-ChannelRequirement,
UL-ChannelRequirementWithCPCH-SetID,
UL-DPCH-Info,
UL-DPCH-InfoPostFDD,
UL-DPCH-InfoPostTDD,
UL-TimingAdvance,
UL-TimingAdvanceControl,
-- Measurement IEs :
AdditionalMeasurementID-List,
EventResults,
InterRAT-TargetCellDescription,
LCS-GPS-AssistanceData,
LCS-OTDOA-AssistanceData,
MeasuredResults,
MeasuredResultsList,
MeasuredResultsOnRACH,
MeasurementCommand,
MeasurementIdentityNumber,
MeasurementReportingMode,
PrimaryCCPCH-RSCP,
TimeslotListWithISCP,
TrafficVolumeMeasuredResultsList,
-- Other IEs :
BCCH-ModificationInfo,
CDMA2000-MessageList,
GSM-MessageList,
InterRAT-ChangeFailureCause,
InterRAT-HO-Failure,
InterRAT-UE-RadioAccessCapabilityList, InterSystemMessage,
IntraDomainNasNodeSelector,
ProtocolErrorInformation,
ProtocolErrorMoreInformation,
Rplmn-Information,
SegCount,
SegmentIndex,
SFN-Prime,

```



```

SIB-Data-fixed,
SIB-Data-variable,
SIB-Type
FROM InformationElements

maxSIBperMsg,
maxSystemCapability
FROM Constant-definitions;

...
HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
-- User equipment IES
new-U-RNTI                U-RNTI-Short,
activationTime            ActivationTime            OPTIONAL,
cipheringAlgorithm        CipheringAlgorithm        OPTIONAL,
-- Radio bearer IES
rab-Info                  RAB-Info-Post,
-- Specification mode information
specificationMode         CHOICE {
complete                  SEQUENCE {
srb-InformationSetupList  SRB-InformationSetupList,
rab-InformationSetupList  RAB-InformationSetupList            OPTIONAL,
ul-CommonTransChInfo     UL-CommonTransChInfo,
ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
dl-CommonTransChInfo     DL-CommonTransChInfo,
dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
ul-DPCH-Info             UL-DPCH-Info,
modeSpecificInfo         CHOICE {
fdd                      SEQUENCE {
dl-PDSCH-Information    DL-PDSCH-Information OPTIONAL,
cpch-SetInfo            CPCH-SetInfo          OPTIONAL
},
tdd                      NULL
},
dl-CommonInformation     DL-CommonInformation,
dl-InformationPerRL-List DL-InformationPerRL-List,
frequencyInfo            FrequencyInfo
},
preconfiguration         SEQUENCE {
-- All IES that include an FDD/TDD choice are split in two IES for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
predefinedConfigIdentity PredefinedConfigIdentity,
rab-Info                  RAB-Info-Post            OPTIONAL,
modeSpecificInfo         CHOICE {
fdd                      SEQUENCE {
ul-DPCH-Info           UL-DPCH-InfoPostFDD,
dl-CommonInformationPost DL-CommonInformationPost,
dl-InformationPerRL-List DL-InformationPerRL-ListPostFDD,
frequencyInfo          FrequencyInfoFDD
},
tdd                      SEQUENCE {
ul-DPCH-Info           UL-DPCH-InfoPostTDD,
dl-CommonInformationPost DL-CommonInformationPost,
dl-InformationPerRL-List DL-InformationPerRL-ListPostTDD,
frequencyInfo          FrequencyInfoTDD,
primaryCCPCH-TX-Power  PrimaryCCPCH-TX-Power
}
}
},
-- Physical channel IES
maxAllowedUL-TX-Power    MaxAllowedUL-TX-Power
}
}

```

11.3 Information element definitions

```

InformationElements DEFINITIONS AUTOMATIC TAGS ::=
-- *****
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

DL-DPCH-InfoCommon ::=
    SEQUENCE {
        cfnHandling
            CHOICE {
                maintain
                initialise
                cfntargetsfnsframeoffset
            }
            OPTIONAL
        },
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        dl-DPCH-PowerControlInfo
                            DL-DPCH-PowerControlInfo
                            OPTIONAL,
                        dl-rate-matching-restriction
                            DL-rate-matching-restriction
                            OPTIONAL,
                        spreadingFactorAndPilot
                            SF512-AndPilot,
                        -- TABULAR: The number of pilot bits is nested inside the spreading factor.
                        positionFixedOrFlexible
                            PositionFixedOrFlexible,
                        tfci-Existence
                            BOOLEAN
                    }
                },
                tdd
                    SEQUENCE {
                        dl-DPCH-PowerControlInfo
                            DL-DPCH-PowerControlInfo
                            OPTIONAL,
                        commonTimeslotInfo
                            CommonTimeslotInfo
                            OPTIONAL
                    }
            }
    }

DL-DPCH-InfoCommonPost ::=
    SEQUENCE {
        dl-DPCH-PowerControlInfo
            DL-DPCH-PowerControlInfo
            OPTIONAL
    }

DL-DPCH-PowerControlInfo ::=
    SEQUENCE {
        modeSpecificInfo
            CHOICE {
                fdd
                    SEQUENCE {
                        dpc-Mode
                            DPC-Mode
                    }
                },
                tdd
                    SEQUENCE {
                        tpc-StepSizeTDD
                            TPC-StepSizeTDD
                            OPTIONAL
                    }
            }
    }

```

Sophia Antipolis, France, 19.02.2000 - 23.02.2001

CR-Form-v3

CHANGE REQUEST⌘ **25.331 CR 690** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Midamble - Channelisation code association for TDD		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 08.01.2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ Parameters that define the association between channelisation code and midamble are missing. At the time being the parameter is defined as a cell specific parameter broadcast on BCH. However, this information is not available after handover to a TDD cell.
Summary of change:	⌘ Reference to 25.221 added. Parameter "Midamble Configuration" (split between burst types) included in dedicated messages. Parameter "Midamble Configuration" removed from system information block type 5 and 6
Consequences if not approved:	⌘ The UE will not be able to know which configuration is requested to be used because it is not clear which tree or table (defined in 25.221) has to be used.

Clauses affected:	⌘ 2, 8.1.1.6.5, 10.2.48.8.8, 10.2.48.8.9, 10.3.6.40, 10.3.6.41, 11.3		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications	⌘ 25.433	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 25.301: "Radio Interface Protocol Architecture".
- [3] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".
- [4] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".
- [5] 3GPP TS 24.008: "Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3".
- [6] 3GPP TS 25.103: "RF Parameters in Support of RRM".
- [7] 3GPP TS 25.215: "Physical layer – Measurements (FDD)".
- [8] 3GPP TS 25.225: "Physical layer – Measurements (TDD)".

- [24] 3GPP TS 25.221: "Physical channels and mapping of transport channels onto physical channels (TDD)".
- [9] 3GPP TS 25.401: "UTRAN overall description".
- [10] 3GPP TS 25.402: "Synchronization in UTRAN, stage 2".
- [11] 3GPP TS 23.003: "Numbering, addressing and identification".
- [12] ICD-GPS-200: "Navstar GPS Space Segment/Navigation User Interface".
- [13] RTCM-SC104: "RTCM Recommended Standards for Differential GNSS Service (v.2.2)".
- [14] 3GPP TR 25.921: "Guidelines and Principles for protocol description and error handling".
- [15] 3GPP TS 25.321: "MAC protocol specification".
- [16] 3GPP TS 25.322: "RLC Protocol Specification".
- [17] 3GPP TS 24.007: "Mobile radio interface signalling layer 3" General Aspects.
- [18] 3GPP TS 25.305: "Stage 2 Functional Specification of Location Services in UTRAN".
- [19] 3GPP TS 25.133: "Requirements for Support of Radio Resource Management (FDD)".
- [20] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".
- [21] 3GPP TS 25.101: "UE Radio Transmission and Reception (FDD)".
- [22] 3GPP TS 25.102: "UE Radio Transmission and Reception (TDD)".
- [23] 3GPP TS 23.060: "General Packet Radio Service (GPRS), Service description, Stage 2".

8.1.1.6.5 System Information Block type 5

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

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

If in idle mode and System Information Block type 5 is not scheduled on BCH or System Information Block type 5 is scheduled but AICH info or PICH info is not present, the UE shall:

- consider the cell to be barred according to [4]; and
- consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE " T_{barred} ".

If in connected mode and System Information Block type 5 is not scheduled on BCH, and System Information Block type 6 is not scheduled on BCH, or any of System Information Block type 5 or type 6 is scheduled but IE "AICH info" or IE "PICH info" is not present, the UE shall:

- consider the cell to be barred according to [4]; and
- consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE " T_{barred} ".

10.2.48.8.8 System Information Block type 5

The system information block type 5 contains parameters for the configuration of the common physical channels in the cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SIB6 Indicator	MP		Boolean	TRUE indicates that SIB6 is broadcast in the cell.
PhyCH information elements				
PICH Power offset	MP		PICH Power offset 10.3.6.50	
CHOICE <i>mode</i>	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>Midamble configuration	MD		Midamble configuration 10.3.6.40	Default value is defined in 10.3.6.40
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.57	Note 1
PRACH system information list	MP		PRACH system information list 10.3.6.55	
Secondary CCPCH system information	MP		Secondary CCPCH system information 10.3.6.72	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

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

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

10.2.48.8.9 System Information Block type 6

The system information block type 6 contains parameters for the configuration of the common and shared physical channels to be used in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PhyCH information elements				
PICH Power offset	MP		PICH Power offset 10.3.6.50	
CHOICE <i>mode</i>	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	
>>CSICH Power offset	OP		CSICH Power offset 10.3.6.15	
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>Midamble configuration	MD		Midamble configuration 10.3.6.40	Default value is defined in 10.3.6.40
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	
Primary CCPCH info	OP		Primary CCPCH info 10.3.6.57	Note 1
PRACH system information list	OP		PRACH system information list 10.3.6.55	
Secondary CCPCH system information	OP		Secondary CCPCH system information 10.3.6.72	
CBS DRX Level 1 information	CV CTCH		CBS DRX Level 1 information 10.3.8.3	

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

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

~~10.3.6.40 Midamble configuration~~~~NOTE: Only for TDD.~~

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

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

10.3.6.41 Midamble shift and burst type

NOTE: Only for TDD.

This information element indicates burst type and midamble allocation. Three different midamble allocation schemes exist:

- Default midamble: the midamble shift is selected by layer 1 depending on the associated channelisation code (DL and UL)
- Common midamble: the midamble shift is chosen by layer 1 depending on the number of channelisation codes (possible in DL only)
- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Burst Type	MP			
>Type 1				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	
>>Midamble configuration burst type 1 and 3	<u>MP</u>		<u>Integer(4, 8, 16)</u>	<u>As defined in [24]</u>
>>Midamble Shift	CV UE		Integer(0..15)	
>Type 2				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	
>>Midamble configuration burst type 2	<u>MP</u>		<u>Integer(3, 6)</u>	<u>As defined in [24]</u>
>>Midamble Shift	CV UE		Integer(0..5)	
>Type 3				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, UE specific midamble)	
>>Midamble configuration burst type 1 and 3	<u>MP</u>		<u>Integer(4, 8, 16)</u>	<u>As defined in [24]</u>
>>Midamble Shift	CV UE		Integer (0..15)	NOTE: Burst Type 3 is only used in uplink.

Condition	Explanation
UE	This information element is only sent when the value of the "Midamble Allocation Mode" IE is "UE-specific midamble".

11.3 Information element definitions

...

```

MidambleConfigurationBurstTypeand3 ::= ENUMERATED(ms4, ms8, ms16) SEQUENCE {
  burstType1 BURSTTYPE1 DEFAULT ms8,
  TABULAR: The default value for BurstType2 has not been specified due to
  compactness reasons.
  burstType2 BURSTTYPE2
}

```

```

MidambleConfigurationBurstType2 ::= ENUMERATED(ms3, ms6)

```

```

MidambleShiftAndBurstType ::= SEQUENCE {
  burstType CHOICE {
    type1 SEQUENCE {
      midambleConfigurationBurstTypeand3 MidambleConfigurationBurstTypeand3,
      midambleAllocationMode CHOICE {
        defaultMidamble NULL,
        commonMidamble NULL,
        ueSpecificMidamble SEQUENCE {
          midambleShift MidambleShiftLong
        }
      }
    },
    type2 SEQUENCE {
      midambleConfigurationBurstType2 MidambleConfigurationBurstType2,
      midambleAllocationMode CHOICE {
        defaultMidamble NULL,
        commonMidamble NULL,
        ueSpecificMidamble SEQUENCE {
          midambleShift MidambleShiftShort
        }
      }
    },
    type3 SEQUENCE {
      midambleConfigurationBurstTypeand3 MidambleConfigurationBurstTypeand3,
      midambleAllocationMode CHOICE {
        defaultMidamble NULL,
        ueSpecificMidamble SEQUENCE {
          midambleShift MidambleShiftLong
        }
      }
    }
  }
}

```

CHANGE REQUEST

⌘ **25.331 CR 691** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Network requested reporting for physical shared channel allocation		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 14/02/2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The current UE buffer measurement reporting triggers, either threshold crossing or periodic, do not match with the transient availability of transmission resources that occur with USCH transport channels. Therefore, it is proposed that the network should be enabled to instruct the UE to send a traffic volume report within an USCH allocation cycle, using the PHYSICAL SHARED CHANNEL ALLOCATION message. The traffic volume measurement will be reported by using a PUSCH CAPACITY REQUEST message. This correction can be achieved with the introduction of a new IE (Traffic volume report request) in the PHYSICAL SHARED CHANNEL ALLOCATION message.
Summary of change:	⌘ 8.2.7.3 : Change of PHYSICAL SHARED CHANNEL ALLOCATION procedure 8.2.8.3 : Change of PUSCH CAPACITY REQUEST procedure 10.2.25 : Introduction of IE "Traffic volume report request" in the table of the PHYSICAL SHARED CHANNEL ALLOCATION message 11.2 : Introduction of IE "Traffic volume report request" in the ASN.1 code of the PHYSICAL SHARED CHANNEL ALLOCATION message
Consequences if not approved:	⌘ Large transmission delay for data arriving between two events, because the measurement trigger events are not related to the shared channel allocation cycle.

Clauses affected:	⌘ 8.2.7.3, 8.2.8.3, 10.2.25, 11.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	<input type="checkbox"/>
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

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

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

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

Upon reception of a "PHYSICAL SHARED CHANNEL ALLOCATION" message, if the message is received on the downlink SHCCH the UE shall:

- check the C-RNTI to see if the UE is addressed by the message. If the UE is addressed by the message, or if the message is received on the downlink DCCH, the UE shall perform the following actions, otherwise the UE shall ignore the message:
- act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:
- if the IE "ISCP Timeslot list" is included:
 - store the timeslot numbers given there for future Timeslot ISCP measurements and reports;
- if the IE "PDSCH capacity allocation info" is included:
 - configure the physical resources used for the downlink CCH given by the IE "TFCS ID" according to the following:
 - if the CHOICE "Configuration" has the value "Old configuration":
 - if the UE has stored a PDSCH configuration with the identity given by the IE "PDSCH Identity":
 - configure the physical resources according to that configuration;
 - otherwise:
 - ignore the IE "PDSCH capacity allocation info";
 - if the CHOICE "Configuration" has the value "New configuration":
 - configure the physical resources according to the information given in IE "PDSCH Info". If IE "Common timeslot info" or IE "PDSCH timeslots and codes" IE are not present in IE "PDSCH Info":
 - reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCH;
 - if the IE "PDSCH Identity" is included:
 - store the new configuration using that identity;
 - start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration";
 - if the IE "Confirm request" has the value "Confirm PDSCH" and IE "PDSCH Identity" is included in IE "PDSCH capacity allocation info":
 - initiate the PUSCH CAPACITY REQUEST procedure as described in subclause 8.2.8.
- if the IE "PUSCH capacity allocation info" is included:
 - stop the timer T310, if running;
 - if the CHOICE "PUSCH allocation" has the value "PUSCH allocation pending":
 - start the timer T311;
 - if the CHOICE "PUSCH allocation" has the value "PUSCH allocation assignment":
 - stop the timer T311, if running;
 - configure the physical resources used for the uplink CCH given by the IE "TFCS ID" according to the following:

- if the CHOICE "Configuration" has the value "Old configuration":
 - if the UE has stored a PUSCH configuration with the identity given by the IE "PUSCH Identity":
 - configure the physical resources according to that configuration;
 - otherwise:
 - ignore the IE "PUSCH capacity allocation info" ;
- if the CHOICE "Configuration" has the value "New configuration", the UE shall:
 - configure the physical resources according to the information given in IE "PUSCH Info". If IE "Common timeslot info" or IE "PUSCH timeslots and codes" is not present in IE "PUSCH Info":
 - reuse the configuration specified in the previous "PHYSICAL SHARED CHANNEL ALLOCATION" message for this CCTrCH.
 - if the IE "PUSCH Identity" is included:
 - store the new configuration using that identity;
- start using the new configuration at the CFN specified by the IE "Allocation activation time", and use that for the duration given by the IE "Allocation duration";
- if the IE "Traffic volume report request " is included:
 - initiate the PUSCH CAPACITY REQUEST procedure as described in subclause 8.2.8 at the time indicated by the IE "Traffic volume report request ".
- if the IE "Confirm request" has the value "Confirm PDSCH" and IE "PDSCH Identity" is included in IE "PDSCH capacity allocation info":
 - initiate the PUSCH CAPACITY REQUEST procedure as described in subclause 8.2.8.
- determine the TFCS subset and hence the TFCI values which are possible given the PUSCH allocation for that CCTrCH;
- configure the MAC-c/sh in the UE with this TFCS restriction if necessary;
- transmit USCH Transport Block Sets as required, within the TFCS limits given by the PUSCH allocation.

NOTE: If the UE has just entered a new cell and System Information Block Type 6 has not yet been scheduled, PUSCH/PDSCH information should be specified in the allocation message.

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

8.2.8.3 PUSCH CAPACITY REQUEST message contents to set

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

- C-RNTI to be used as UE identity if the message is sent on RACH;
- Traffic volume measured results for each radio bearer satisfying the reporting criteria as specified in the MEASUREMENT CONTROL procedure (if no radio bearer satisfies the reporting criteria, traffic volume measured results shall not be included). These results shall include:
 - Radio Bearer ID of the Radio Bearer being reported;
 - RLC buffer payload for these radio bearers, as specified by the MEASUREMENT CONTROL procedure;
- If the initiation of the procedure is triggered by the IE "Traffic volume report request" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:

- report the traffic volume measurement result for the radio bearer mapped on USCH transport channel specified in the received message. These results shall include:
 - Radio Bearer ID of the Radio Bearer being reported;
 - RLC buffer payload for this radio bearer;
- If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PDSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:
 - set the CHOICE "Allocation confirmation" to "PDSCH Confirmation" with the value given in the IE "PDSCH Identity" in the received message.
- If the initiation of the procedure is triggered by the IE "Confirm request" set to "Confirm PUSCH" in a previously received PHYSICAL SHARED CHANNEL ALLOCATION message, the UE shall:
 - set the CHOICE "Allocation confirmation" to "PUSCH Confirmation" with the value given in the IE "PUSCH Identity" in the received message.
- If the variable `PROTOCOL_ERROR_REJECT` is set to TRUE, the UE shall:
 - include the IE "RRC transaction identifier" in the response message transmitted below; and
 - set it to the value of "RRC transaction identifier" in the entry for the PHYSICAL SHARED CHANNEL ALLOCATION message in the table "Rejected transactions" in the variable `TRANSACTIONS`; and
 - clear that entry.
 - set the IE "protocol error indicator" to TRUE;
 - include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.
- if the value of the variable `PROTOCOL_ERROR_REJECT` is FALSE;
 - set the IE "Protocol error indicator" to FALSE;

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

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

10.2.25 PHYSICAL SHARED CHANNEL ALLOCATION

NOTE: Only for TDD.

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

RLC-SAP: UM on SHCCH, UM on DCCH

Logical channel: SHCCH or DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
C-RNTI	OP		C-RNTI 10.3.3.8	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Uplink timing advance Control	MD		Uplink Timing Advance Control 10.3.6.96	Default value is the existing value for uplink timing advance
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.64	
PDSCH capacity allocation info	OP		PDSCH Capacity Allocation info 10.3.6.42	
Confirm request	MD		Enumerated(No Confirm, Confirm PDSCH, Confirm PUSCH)	Default value is No Confirm
<u>Traffic volume report request</u>	<u>OP</u>		<u>Integer (0 .. 255)</u>	<u>Indicates the number of frames between start of the allocation period and sending measurement report. The value should be less than the value for Allocation Duration.</u>
ISCP Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.84	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

11.2 PDU definitions

```

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

PhysicalSharedChannelAllocation-r3 ::= CHOICE {
    r3
        SEQUENCE {
            physicalSharedChannelAllocation-r3
            PhysicalSharedChannelAllocation-r3-IEs,
            nonCriticalExtensions SEQUENCE {}
        },
    criticalExtensions SEQUENCE {}
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
    c-RNTI C-RNTI OPTIONAL,
    rrc-TransactionIdentifier RRC-TransactionIdentifier,
    -- Physical channel IEs

```

ul-TimingAdvance	UL-TimingAdvanceControl	OPTIONAL,
pusch-CapacityAllocationInfo	PUSCH-CapacityAllocationInfo	OPTIONAL,
pdsch-CapacityAllocationInfo	PDSCH-CapacityAllocationInfo	OPTIONAL,
confirmRequest	ENUMERATED {	
	confirmPDSCH, confirmPUSCH }	OPTIONAL,
-- TABULAR: If the above value is not present, the default value "No Confirm"		
-- shall be used as specified in 10.2.25.		
trafficVolumeReportRequest	INTEGER (0..255)	OPTIONAL,
iscpTimeslotList	TimeslotList	OPTIONAL

|
}

CHANGE REQUEST

⌘ **25.331 CR 693** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

Title:	⌘ System Information		
Source:	⌘ TSG-RAN WG2		
Work item code:			Date: ⌘ 22/2/2001
Category:	⌘ F		Release: ⌘ R99

<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>
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Reason for change:	⌘ In R2#17, it was agreed that the UE considers SIB type 7 and type 14 to be valid for the period of their SIB_REP * Expiration Time Factor. It was also agreed that if that validity period is shorter than 320ms, the UE should consider SIB type 7 and type 14 to be valid for 320ms. This is not described correctly in Table 8.1.1 There also were mismatch between tabular description and ASN.1 description of "SIB-Type" and "SIB-TypeAndTag"
Summary of change:	⌘ MIN() was changed to MAX() Scheduling Block 1 and 2 were missing from "SIB-Type" SIB15-1, 15-2, 15-3 missing from "SIB-TypeAndTag"
Consequences if not approved:	⌘ The UE must re-read SIB type 7 and type 14 frequently, which leads to shorter battery life. When reading system information, UE cannot verify Scheduling Block was sent as scheduled. UE cannot determine if SIB15-1, 15-2, 15-3 are updated.

Clauses affected:	⌘ 8.1.1.1.2, 11.3		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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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's value tag is valid. If the area scope is *cell*, the UE shall consider the system information block to be valid only in the cell in which it was read. If system information blocks have been previously stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. 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 stored in the UE, the UE shall re-read the system information block.

For System information block type 16, which may have multiple occurrences, each occurrence has its own independent value tag. The UE shall re-read a particular occurrence if the value tag of this occurrence has changed compared to that stored in the UE.

The *UE mode/state column when block is valid* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be regarded as valid by the UE. In other words, the indicated system information block becomes invalid upon change to a mode/state that is not included in this column.

The *UE mode/state column when block is read* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be read by the UE.

NOTE 1 There are a number of system information blocks that include the same IEs while the UE mode/state in which the information is valid differs. This approach is intended to allow the use of different IE values in different UE mode/states.

NOTE 2 The requirements concerning when a UE shall read system information blocks are specified indirectly; these requirements may be derived from the procedure specifications that specify which IEs are required in the different UE modes/states in conjunction with the different performance requirements that are specified.

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 8.1.1.7.1 or 8.1.1.7.2. For system information blocks with an expiration timer, the UE shall, when the timer expires, perform an update of the information according to subclause 8.1.1.7.4.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
Scheduling block 2	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
System information block type 1	PLMN	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	Cell	URA_PCH	URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	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)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	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	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Expiration timer = $\text{MINMAX}([320 \text{ ms}], \text{SIB_REP} * \text{ExpirationTimeFactor})$	

System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 10	Cell	CELL_DCH	CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH)	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH	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	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = $\text{MINMAX}([320 \text{ ms}], \text{SIB_REP} * \text{ExpirationTimeFactor})$	This system information block is used in TDD mode only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	

System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurrences
System information block type 17	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block is used in TDD mode only.

The UE shall acquire all system information blocks except system information block type 10 on BCH. System Information Block type 10 shall be acquired on the FACH and only by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If System Information Block type 10 is not broadcast in a cell, the DRAC procedures do not apply in this cell. System Information Block type 10 is used in FDD mode only.

11.3 Information element definitions

<Cut from other information elements..>

```
-- *****
--
-- OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****
```

```
SIB-Type ::= ENUMERATED {
    masterInformationBlock,
    systemInformationBlockType1,
    systemInformationBlockType2,
    systemInformationBlockType3,
    systemInformationBlockType4,
    systemInformationBlockType5,
    systemInformationBlockType6,
    systemInformationBlockType7,
    systemInformationBlockType8,
    systemInformationBlockType9,
    systemInformationBlockType10,
    systemInformationBlockType11,
    systemInformationBlockType12,
    systemInformationBlockType13,
    systemInformationBlockType13-1,
    systemInformationBlockType13-2,
    systemInformationBlockType13-3,
    systemInformationBlockType13-4,
    systemInformationBlockType14,
    systemInformationBlockType15,
    systemInformationBlockType15-1,
    systemInformationBlockType15-2,
    systemInformationBlockType15-3,
    systemInformationBlockType16,
    systemInformationBlockType17,
    schedulingBlock1,
    schedulingBlock2,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }
```

```
SIB-TypeAndTag ::= CHOICE {
    sysInfoType1 PLMN-ValueTag,
    sysInfoType2 PLMN-ValueTag,
    sysInfoType3 CellValueTag,
    sysInfoType4 CellValueTag,
    sysInfoType5 CellValueTag,
    sysInfoType6 CellValueTag,
    sysInfoType7 NULL,
    sysInfoType8 CellValueTag,
    sysInfoType9 NULL,
    sysInfoType10 NULL,
    sysInfoType11 CellValueTag,
    sysInfoType12 CellValueTag,
    sysInfoType13 CellValueTag,
    sysInfoType13-1 CellValueTag,
    sysInfoType13-2 CellValueTag,
    sysInfoType13-3 CellValueTag,
```


sysInfoType13-4	CellValueTag,
sysInfoType14	NULL,
sysInfoType15	CellValueTag,
sysInfoType16	PredefinedConfigIdentityAndValueTag,
sysInfoType17	NULL
sysInfoType15-1	CellValueTag,
sysInfoType15-2	CellValueTag,
sysInfoType15-3	CellValueTag,

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

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 694** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Clarification on Transport Channel Identity		
Source:	⌘ TSG-RAN WG2		
Work item code:			Date: ⌘ Feb. 22, 2001
Category:	⌘ F		Release: ⌘ R99

<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>
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Reason for change:	⌘ - Transport Channel ID is assigned for within same type of transport channels, but the indication to which type of transport channel that ID belongs to is currently missing. -Transport Channel IDs for RACH and FACH are removed.
Summary of change:	⌘ Indication of which type of transport channel that TrCH ID belongs to is added to wherever TrCH ID is included in the IE Clarified TrCH ID is not assigned for RACH and FACH
Consequences if not approved:	⌘ Receiver will not able to know which transport channel sender is referring to in the relevant IE.

Clauses affected:	⌘ 8.1.1.6.5, 8.1.1.6.6, 8.6.5.1, 8.6.5.3, 10.3.4.21, 10.3.5.1, 10.3.5.2, 10.3.5.4, 10.3.5.5, 10.3.5.17, 10.3.5.22, 10.3.6.31, 10.3.7.55, 10.3.7.57, 10.3.7.58, 10.3.7.59, 10.3.7.69, 10.3.7.70, 10.3.7.72, 11.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘ Changes made by revision is highlighted by yellow

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

8.1.1.6.5 System Information Block type 5

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

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

If in idle mode and System Information Block type 5 is not scheduled on BCH or System Information Block type 5 is scheduled but AICH info or PICH info is not present, the UE shall:

- consider the cell to be barred according to [4]; and
- consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE " T_{barred} ".

If in connected mode and System Information Block type 5 is not scheduled on BCH, and System Information Block type 6 is not scheduled on BCH, or any of System Information Block type 5 or type 6 is scheduled but IE "AICH info" or IE "PICH info" is not present, the UE shall:

- consider the cell to be barred according to [4]; and
- consider the barred cell as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE " T_{barred} ".

8.1.1.6.6 System Information Block type 6

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall:

- replace the TFS of the ~~transport channel RACH~~ with the identical ~~transport channel identity~~ with the one stored in the UE if any;

- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink if UE is in CELL_FACH state. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in System Information Block type 5 and use that information to configure the PRACH;
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" when associated PRACH is used. If the IE "AICH info" is not included, the UE shall read the corresponding IE in System Information Block type 5 and use that information (FDD only);
- replace the TFS of the FACH/PCH with the one stored in the UE if any;
- select a Secondary CCPCH as specified in subclause 8.6, and start to receive the physical channel of type PICH associated with the PCH carried by the selected Secondary CCPCH using the parameters given by the IE "PICH info" if the UE is in CELL_PCH or URA_PCH state. If the IE "PICH info" is not included, the UE shall read the corresponding IE in System Information Block type 5 and use that information;
- start to monitor its paging occasions on the selected PICH if the UE is in CELL_PCH or URA_PCH state;
- start to receive the selected physical channel of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if the UE is in CELL_FACH state. If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in System Information Block type 5 and use that information;
- in TDD: use the IE "TDD open loop power control" as defined in subclause 8.5.7;
- in TDD: if the IE "PDSCH system information" and/or the IE "PUSCH system information" is included, store each of the configurations given there with the associated identity given in the IE "PDSCH Identity" and/or "PUSCH Identity" respectively. For every configuration, for which the IE "SFN Time info" is included, the information shall be stored for the duration given there.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.6.5 Transport channel information elements

8.6.5.1 Transport Format Set

If the IE "transport channel type", the IE "transport channel identity"(not needed for RACH and FACH) and the IE "Transport format set" is ~~are~~ included, the UE shall, for the indicated transport channel:

- if the value (index) of any IE "RB identity" (and "Logical Channel" for RBs using two UL logical channels) in the IE "Logical channel list" does not correspond to a logical channel indicated to be mapped onto this transport channel in any RB multiplexing option (either included in the same message or previously stored and not changed by this message):
 - keep the transport format set for that that transport channel;
 - set the variable INVALID_CONFIGURATION to TRUE;
- else:
 - store the transport format set for that transport channel.
 - if the IE "Transport format Set" has the choice "Transport channel type" set to "Dedicated transport channel":
 - calculate the transport block size for all transport formats in the TFS using the following

$$TB \text{ size} = RLC \text{ PDU size} + MAC \text{ header size},$$

where:

- MAC header size is calculated according to 3GPP TS 25.321 if MAC multiplexing is used. Otherwise it is 0 bits.

- If neither the IE "transport channel identitytype" nor the IE "Transport format set" is included, the UE shall:
- consider the stored transport format set as valid information.

The UTRAN should not assign transport formats with different "RLC Size" to any logical channel transferring data using AM RLC. If an AM RLC entity is mapped to two logical channels, UTRAN may configure more than one "RLC Size" for the logical channel transferring control PDUs only.

8.6.5.3 Transport format combination subset

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

- if the IE "Minimum allowed Transport format combination index" is included; and
 - if the value of the IE "Minimum allowed Transport format combination index" is outside the range of transport format combinations in the current transport format combination set:
 - consider the TFC subset to be incompatible with the current transport format combination set;
- if the IE "Allowed transport format combination list" is included; and
 - if the value of any of the IEs "Allowed transport format combination" included in the IE "Allowed transport format combination list" is outside the range of transport format combinations in the current transport format combination set:
 - consider the TFC subset to be incompatible with the current transport format combination set;
- if the IE "Non-allowed transport format combination list" is included; and
 - if the value of any of the IEs "Non-allowed transport format combination" included in the IE "Non-allowed transport format combination list" is outside the range of transport format combinations in the current transport format combination set:
 - consider the TFC subset to be incompatible with the current transport format combination set;
- if the IE "Restricted TrCH information" is included:
 - if the value of any of the IEs "Uplink transport channel type" and "Restricted UL TrCH identity" included in the IE "Restricted TrCH information" does not correspond to any of the transport channels for which the current transport format combination set is valid:
 - consider the TFC subset to be incompatible with the current transport format combination set;
- if the IE "Allowed TFIs" is included; and
 - if the value of any of the IEs "Allowed TFI" included in the IE "Allowed TFIs" does not correspond to a transport format for that transport channel within the current transport format combination set:
 - consider the TFC subset to be incompatible with the current transport format combination set;
- if the UE considers the TFC subset to be incompatible with the current Transport format combination set according to the above:
 - keep any previous restriction of the transport format combination set;
 - set the variable INVALID_CONFIGURATION to TRUE;
- if the UE does not consider the TFC subset to be incompatible with the current Transport format combination set according to the above:

- restrict the transport format combination set in the uplink to the value of the IE "Transport format combination subset" (in case of TDD for the uplink CcTrCH specified by the IE "TFCS Id");
- set the value of the IE "Default TFC subset" (in case of TDD for the uplink CcTrCH specified by the IE "TFCS Id") in the variable TFC_SUBSET to the value of the IE "Current TFC subset" in the variable TFC_SUBSET;
- set the IE "Current TFC subset" (in case of TDD for the uplink CcTrCH specified by the IE "TFCS Id") in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";
- clear the IE "Duration" in the variable TFC_SUBSET;
- if the transport format combination subset indicates the "full transport format combination set":
 - any restriction on transport format combination set is released and the UE may use the full transport format combination set.

10.3.4.21 RB mapping info

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Information for each multiplexing option	MP	1 to <maxRBmuxOptions>		Note1
>RLC logical channel mapping indicator	CV-UL-RLCLogicalChannels		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels.
>Number of uplink RLC logical channels	CV-UL-RLC info	1 to MaxLoChperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322]
>>Uplink transport channel type	MP		Enumerated(DCH,RACH,CPCH,USCH)	CPCH is FDD only USCH is TDD only
>>ULTransport channel identity	CV-UL-DCH/USCH		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.
>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
>>>CHOICE RLC size list	MP			The RLC sizes that are allowed for this logical channel
>>>>All			Null	All RLC sizes listed in the <i>Transport Format Set</i> 10.3.5.23
>>>>Configured			Null	The RLC sizes configured for this logical channel in the <i>Transport Format Set</i> 10.3.5.23 if present in this message or in the previously stored configuration otherwise
>>>>Explicit List		1 to <maxTF>		Lists the RLC sizes that are valid for the logical channel.
>>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the <i>RLC size</i> which arrived at that position in the <i>Transport Format Set</i> 10.3.5.23
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [25.321]
>Downlink RLC logical channel info	CV-DL-RLC info			

>>Number of downlink RLC logical channels	<i>MD</i>	1 to MaxLoChperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [TS 25.322] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8.
>>>Downlink transport channel type	MP		Enumerated(DCH, FACH/PCH, DSCH)	
>>>DL Transport channel identity	<i>CV-DL-DCH/DSCH</i>		Transport channel identity 10.3.5.18	
>>>Logical channel identity	OP		Integer(1..15)	16 is reserved

Condition	Explanation
<i>UL-RLC info</i>	If "CHOICE Uplink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
<i>DL-RLC info</i>	If "CHOICE Downlink RLC mode" in IE "RLC info" is present this IE is MP. Otherwise the IE is not needed.
<i>UL-RLCLogicalChannels</i>	If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, then this is present. Otherwise this IE is not needed.
<i>UL-DCH/USCH</i>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is MP. Otherwise the IE is not needed.
<i>DL-DCH/DSCH</i>	If IE "Downlink transport channel type" is equal to "DCH" or "DSCH" this IE is MP. Otherwise the IE is not needed.

NOTE 1: In DCH state a logical channel may be mapped onto DCH and DSCH simultaneously, therefore maximum 4 different multiplexing options are possible in that case. In all other states maximum one RB multiplexing option is possible.

10.3.5.1 Added or Reconfigured DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Downlink transport channel type</u>	<u>MP</u>		<u>Enumerated(DCH,DSCH)</u>	
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
CHOICE DL parameters				
>Independent				
>>TFS	MP		Transport Format Set 10.3.5.23	
>SameAsUL				
>>Uplink transport channel type	<u>MP</u>		<u>Enumerated(DCH,USCH)</u>	<u>USCH is TDD only</u>
>>UL TrCH identity	MP		Transport channel identity 10.3.5.18	Same TFS applies as specified for indicated UL TrCH
DCH quality target	OP		Quality target 10.3.5.10	
Transparent mode signalling info	CV-MessageType		Transparent mode signalling info 10.3.5.17	This IE is not used in RB RELEASE message nor RB RECONFIGURATION message

Condition	Explanation
<i>MessageType</i>	This IE is absent in Radio Bearer Release message and Radio Bearer Reconfiguration message. Otherwise it is OPTIONAL.

10.3.5.2 Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Uplink transport channel type</u>	<u>MP</u>		<u>Enumerated(DCH,USCH)</u>	<u>USCH is TDD only</u>
UL Transport channel identity	MP		Transport channel identity 10.3.5.18	
TFS	MP		Transport Format Set 10.3.5.23	

NOTE This information element is included within IE "Predefined RB configuration"

10.3.5.4 Deleted DL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Downlink transport channel type</u>	<u>MP</u>		<u>Enumerated(DCH,DSCH)</u>	
DL Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.5.5 Deleted UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Uplink transport channel type</u>	<u>MP</u>		<u>Enumerated(DCH,USCH)</u>	<u>USCH is TDD only</u>
UL Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.5.17 Transparent mode signalling info

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

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

Information Element	Need	Multi	Type and reference	Semantics description
Type of message	MP		Enumerated (TRANSPORT FORMAT COMBINATION CONTROL)	Indicates which type of message sent on the transparent mode signalling DCCH
CHOICE <i>Transparent signalling mode</i>	MP			
>Mode 1				(no data)
>Mode 2				
>>Controlled transport channels list	MP	1 to <maxTrC H>		The transport channels that are effected by the rate control commands sent on this transparent mode DCCH
>>>UL Controlled transport channels	MP		Transport channel identity, 10.3.5.18	<u>transport channel type = DCH</u>

10.3.5.18 Transport channel identity

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

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

10.3.5.22 Transport Format Combination Subset

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

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

10.3.6.31 Downlink rate matching restriction information

This IE indicates which TrCH is restricted in TFI. DL rate matching should be done based on the TFCS which is the subset of the "DL TFCS with no restricted Transport channel".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Restricted TrCH information	OP	1 to <maxTrCH>		
>Downlink transport channel type	MP		Enumerated(DCH,DSCH)	
>Restricted DL TrCH identity	MP		Transport channel identity 10.3.5.18	
>Allowed TFIs	MP	1 to <maxTF>		
>>Allowed TFI	MP		Integer(0..31)	

10.3.6.55 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRA CH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.52	
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list (note : the first occurrence is then MP)
>RACH TFCS	MD		Transport Format Combination Set 10.3.5.20	Default value is the value of "RACH TFCS" for the previous PRACH in the list (note : the first occurrence is then MP)
>PRACH partitioning	MD		PRACH partitioning 10.3.6.46	Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)
>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.48	If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists
>AC-to-ASC mapping	OP		AC-to-ASC mapping 10.3.6.1	Only present in SIB 5 If this IE is absent, value is the value of "AC-to-ASC mapping" for the previous PRACH in the list if value exists
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH TX power	MD		Primary CPICH TX power 10.3.6.61	Default value is the value of "Primary CPICH TX power" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>Constant value	MD		Constant value 10.3.6.11	Default value is the value of "Constant value" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>PRACH power offset	MD		PRACH power offset 10.3.6.54	Default value is the value of "PRACH power offset" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>RACH transmission parameters	MD		RACH transmission parameters 10.3.6.67	Default value is the value of "RACH transmission parameters" for the previous PRACH in the list (note : the first occurrence is then MP)
>>>AICH info	MD		AICH info 10.3.6.2	Default value is the value of "AICH info" for the previous PRACH in the list (note : the first occurrence is then MP)

>>TDD				(no data)
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NOTE: If the setting of the PRACH information results in that a combination of a signature, preamble scrambling code and subchannel corresponds to a RACH with different TFS and/or TFCS, then for that combination only the TFS/TFCS of the PRACH listed first is valid, where PRACHs listed in System Information Block type 5 shall be counted first.

10.3.6.72 Secondary CCPCH system information

Information element	Need	Multi	Type and reference	Semantics description
Secondary CCPCH system information	MP	1 to <maxSCCPCH>		
>Secondary CCPCH info	MP		Secondary CCPCH info 10.3.6.71	Note 1
>TFCS	MD		Transport format set 10.3.5.23	For FACHs and PCH Default value is the value of "TFCS" for the previous SCCPCH in the list (note : the first occurrence is then MP)
>FACH/PCH information	MD	1 to <maxFACH/HPCH>		Default value is the value of "FACH/PCH" for the previous SCCPCH in the list (note : the first occurrence is then MP)
>>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>>TFS	MP		Transport format set 10.3.5.23	For each FACH and PCH Note 2
>>CTCH indicator	MP		Boolean	The value "TRUE" indicates that a CTCH is mapped on the FACH, and "FALSE" that no CTCH is mapped.
>PICH info	OP		PICH info 10.3.6.49	PICH info is present only when PCH is multiplexed on Secondary CCPCH

10.3.7.55 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to <maxTrCH>		
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	<u>transport channel type = DCH</u>
>DL Transport Channel BLER	OP		Integer (0..63)	Transport channel BLER according to the mapping of BLER_LOG value in 25.133
CHOICE mode				
>FDD				No data
>TDD				
>>SIR measurement results	OP	1 to <MaxCCTrCH>		SIR measurements for DL CCTrCH
>>>TFCS ID	MP		Enumerated (1..8)	
>>>Timeslot list	MP	1 to <maxTS>		for all timeslot on which the CCTrCH is mapped on

>>>>SIR	MP		Integer(-10...20)	the UE shall report in ascending timeslot order
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10.3.7.57 Quality measurement event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channels causing the event	OP	1 to <maxTrCH >		
> <u>DL</u> Transport channel identity	MP		Transport channel identity 10.3.5.18	<u>transport channel type = DCH</u>

10.3.7.58 Quality measurement reporting criteria

Event 5a: Number of bad CRCs on a certain transport channel exceeds a threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH >		
> <u>DL</u> Transport channel identity	MP		Transport channel identity 10.3.5.18	<u>transport channel type = DCH</u>
>Total CRC	MP		Integer(1..512)	Number of CRCs
>Bad CRC	MP		Integer(1..512)	Number of CRCs
>Pending after trigger	MP		Integer(1..512)	Number of CRCs

10.3.7.59 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <maxTrCH >		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	<u>transport channel type = DCH</u>
CHOICE mode				
>FDD				No data
>TDD				
>>SIR measurement list	OP	1 to <maxCCTrCH>		SIR measurements shall be reported for all listed TFCS IDs
>>>TFCS ID	MP		Enumerated (1...8)	

Condition	Explanation
<i>BLER reporting</i>	This information element is absent if 'DL Transport Channel BLER' is 'False' and optional, if 'DL Transport Channel BLER' is 'True'

10.3.7.69 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Uplink transport channel type causing the event</u>	MP		Enumerated(<u>DCH,RACH,USCH</u>)	<u>USCH is TDD only</u>
UL Transport Channel <u>identity</u> causing the event	<u>CV-UL-DCH/USC</u> <u>HMP</u>		Transport channel identity 10.3.5.18	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	

Condition	Explanation
<u>UL-DCH/USCH</u>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is MP. Otherwise the IE is not needed.

10.3.7.70 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <maxTrCH >		
> <u>Uplink transport channel type</u>	MP		Enumerated(<u>DCH,RACH,USCH</u>)	<u>USCH is TDD only</u>
>UL Target Transport Channel ID	<u>CV-UL-DCH/USC</u> <u>HMP</u>		Transport channel identity 10.3.5.18	

Condition	Explanation
<u>UL-DCH/USCH</u>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is MP. Otherwise the IE is not needed.

10.3.7.72 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 >		
>Uplink transport channel type	<u>MP</u>		Enumerated(<u>DCH,RACH, USCH</u>)	<u>USCH is TDD only</u>
>UL Transport Channel ID	<u>CV-UL-DCH/USC HOP</u>		Transport channel identity 10.3.5.18	
>Parameters required for each Event	OP	1 to <maxMeas perEvent>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	
>>Reporting Threshold	MP		Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K)	Threshold in bytes And N Kbytes = N*1024 bytes
>>Time to trigger	OP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>>Pending time after trigger	OP		Integer(250, 500, 1000, 2000, 4000, 8000, 16000)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same Traffic volume event identity even if the triggering condition is fulfilled again. Time in milliseconds
>>Tx interruption after trigger	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)	Time in milliseconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.

Condition	Explanation
<u>UL-DCH/USCH</u>	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is OP. Otherwise the IE is <u>not needed</u> .

11.3 Information element definitions

```

-- *****
--
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
--
-- *****

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::= SEQUENCE {
  dl-TransportChannelType      DL-TrCH-Type,
  dl-transportChannelIdentity  TransportChannelIdentity,
  tfs-SignallingMode          CHOICE {
    explicit                    TransportFormatSet,
    sameAsULTrCH                UL-TransportChannelIdentity
  },
  dch-QualityTarget           QualityTarget                OPTIONAL,
  tm-SignallingInfo           TM-SignallingInfo           OPTIONAL
}

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
  dl-TransportChannelType      DL-TrCH-Type,
  transportChannelIdentity     TransportChannelIdentity,
  tfs-SignallingMode          CHOICE {
    explicit                    TransportFormatSet,
    sameAsULTrCH                UL-TransportChannelIdentity
  },
  qualityTarget                QualityTarget                OPTIONAL
}

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

DL-TrCH-Type ::= ENUMERATED {dch, dsch}

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

RestrictedTrChInfo ::= SEQUENCE {
  ul-TransportChannelType      UL-TrCH-Type,
  restrictedTrChIdentity       TransportChannelIdentity,
  allowedTFI-List              AllowedTFI-List                OPTIONAL
}

UL-AddReconfTransChInformation ::= SEQUENCE {
  ul-TransportChannelType      UL-TrCH-Type,
  transportChannelIdentity     TransportChannelIdentity,
  transportFormatSet           TransportFormatSet
}

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

UL-TransportChannelIdentity ::= SEQUENCE {
  ul-TransportChannelType      UL-TrCH-Type,
  ul-TransportChannelIdentity  TransportChannelIdentity
}

UL-TrCH-Type ::= ENUMERATED {dch, usch}

-- *****
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****

```

```

FACH-PCH-Information ::= SEQUENCE {
    transportFormatSet TransportFormatSet,
    transportChannelIdentity TransportChannelIdentity,
    ctch-Indicator BOOLEAN
}

PRACH-SystemInformation ::= SEQUENCE {
    prach-RACH-Info PRACH-RACH-Info,
    transportChannelIdentity TransportChannelIdentity,
    rach-TransportFormatSet TransportFormatSet OPTIONAL,
    rach-TFCS TFCS OPTIONAL,
    prach-Partitioning PRACH-Partitioning OPTIONAL,
    persistenceScalingFactorList PersistenceScalingFactorList OPTIONAL,
    ac-To-ASC-MappingTable AC-To-ASC-MappingTable OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            primaryCPICH-TX-Power PrimaryCPICH-TX-Power OPTIONAL,
            constantValue ConstantValue OPTIONAL,
            prach-PowerOffset PRACH-PowerOffset OPTIONAL,
            rach-TransmissionParameters RACH-TransmissionParameters OPTIONAL,
            aich-Info AICH-Info OPTIONAL
        },
        tdd NULL
    }
}

RestrictedTrCH ::= SEQUENCE {
    dl-restrictedTrCh-Type DL-TrCH-Type,
    restrictedDL-TrCH-Identity TransportChannelIdentity,
    allowedTFIList AllowedTFI-List
}

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

TrafficVolumeEventResults ::= SEQUENCE {
    ul-transportChannelCausingEvent UL-TrCH-IdentityTransportChannelIdentity,
    trafficVolumeEventIdentity TrafficVolumeEventType
}
TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-TrCH-IdentityTransportChannelIdentity

TransChCriteria ::= SEQUENCE {
    ul-transportChannelID UL-TrCH-IdentityTransportChannelIdentity OPTIONAL,
    eventSpecificParameters SEQUENCE (SIZE (1..maxMeasParEvent)) OF
        TrafficVolumeEventParam OPTIONAL
}

UL-TrCH-Identity ::= CHOICE{
    dch TransportChannelIdentity,
    rach NULL,
    usch TransportChannelIdentity
}

```

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 696** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Editorial Correction		
Source:	⌘ TSG-RAN WG2		
Work item code:			Date: ⌘ February 22, 2001
Category:	⌘ F		Release: ⌘ R99

Use one of the following categories:

F (essential correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

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

Reason for change:	⌘ - Various editorial changes, including some change to make the document more consistent. - Since the concept of sub-channel index is removed, note is removed from "PRACH Partitioning". Part of the note regarding the usage of signature is moved to "ASC setting", where it is more appropriate (as it stated previously) - Usage of the word "measured" and "measurement" is made consistent. - ASN.1 for "Count-C Frame Reference" did not match the tabular description
Summary of change:	⌘ - "MP" added to some of "CHOICE" parameter. - Note is removed from "PRACH Partitioning". - Tabular description is modified for "PDSCH Power Control Info", to make it more consistent with rest of the tabular description. - Usage of the word "measured" and "measurement" is made consistent. - The structure of the IE is corrected in 10.3.4.24, to reduce signalling
Consequences if not approved:	⌘ Inconsistent style in tabular description. Outdated description (a note) left in the specification. Inconsistency between ASN.1 and tabular description

Clauses affected:	⌘ 10.2.8, 10.2.50, 10.3.6.45, 10.3.7.35, 10.3.7.37, 11.3		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

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

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

10.2.8 CELL UPDATE CONFIRM

This message confirms the cell update procedure and can be used to reallocate new RNTI information for the UE valid in the new cell.

RLC-SAP: UM

Logical channel: CCCH or DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.47	
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.49	Default value is the existing DRX cycle length coefficient
RLC reset indicator (for C-plane)	MD		RLC reset indicator 10.3.3.35	
RLC reset indicator (for U-plane)	MD		RLC reset indicator 10.3.3.35	
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN Information Elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB information to release list	OP	1 to <maxRB>		
>RB information to release	MP		RB information to release 10.3.4.19	
RB information to reconfigure list	OP	1 to <maxRB>		
>RB information to reconfigure	MP		RB information to reconfigure 10.3.4.18	
RB information to be affected list	OP	1 to <maxRB>		

>RB information to be affected	MP		RB information to be affected 10.3.4.17	
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
TrCH Information Elements				
Uplink transport channels				
UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted UL TrCH information	MP		Deleted UL TrCH information 10.3.5.5	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>>>Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Deleted TrCH information list	OP	1 to <maxTrCH >		
>Deleted DL TrCH information	MP		Deleted DL TrCH information 10.3.5.4	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		

>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
<i>CHOICE channel requirement</i>				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88.	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
Downlink radio resources				
<i>CHOICE mode</i>				
>FDD	<u>MP</u>			
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link to be set-up
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

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

10.2.50 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: AM or UM

Logical channel: DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE Information Elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Integrity protection mode info	OP		Integrity protection mode info 10.3.3.19	
Ciphering mode info	OP		Ciphering mode info 10.3.3.5	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
New U-RNTI	OP		U-RNTI 10.3.3.47	
New C-RNTI	OP		C-RNTI 10.3.3.8	
RRC State Indicator	MP		RRC State Indicator 10.3.3.10	
UTRAN DRX cycle length coefficient	MD		UTRAN DRX cycle length coefficient 10.3.3.49	Default value is the existing value of UTRAN DRX cycle length coefficient
CN Information Elements				
CN Information info	OP		CN Information info 10.3.1.3	
UTRAN mobility information elements				
URA identity	OP		URA identity 10.3.2.6	
RB information elements				
RB with PDCP information list	OP	1 to <maxRBall RABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
TrCH Information Elements				
Uplink transport channels				

UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2	
CHOICE <i>mode</i>	OP			
>FDD				
>>CPCH set ID	OP		CPCH set ID 10.3.5.3	
>> Added or Reconfigured TrCH information for DRAC list	OP	1 to <maxTrCH >		
>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>TDD				(no data)
Downlink transport channels				
DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
Added or Reconfigured TrCH information list	OP	1 to <maxTrCH >		
>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1	
PhyCH information elements				
Frequency info	MD		Frequency info 10.3.6.36	Default value is the existing value of frequency information
Uplink radio resources				
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power
CHOICE <i>channel requirement</i>	OP			
>Uplink DPCH info			Uplink DPCH info 10.3.6.88	
>CPCH SET Info			CPCH SET Info 10.3.6.13	
Downlink radio resources				
CHOICE <i>mode</i>	MP			
>FDD				
>>Downlink PDSCH information	OP		Downlink PDSCH information 10.3.6.30	
>TDD				(no data)

Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24	
Downlink information per radio link list	OP	1 to <maxRL>		Send downlink information for each radio link
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27	

10.3.6.45 PDSCH Power Control info

NOTE: Only for TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
TPC Step Size	OP		Integer (1, 2, 3)	In dB
UL CCTrCH TPC List	MPOP	01..<maxCCTrCH>		UL CCTrCH identities for TPC commands associated with this DL CCTrCH
>UL TPC TFCS Identity	MP		Transport Format Combination Set Identity 10.3.5.21	

10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measured measurement results	OP	1 to <maxCellMeas>		
>Cell measured results	MP		Cell measured results 10.3.7.3	

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 measurement event results	MP		Cell measured event results 10.3.7.4	

11.3 Information element definitions

-- *****

```

--
--      MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

CellSynchronisationInfo ::=          SEQUENCE {
  modeSpecificInfo                CHOICE {
    fdd                            SEQUENCE {
      countC-SFN-Frame-difference  CountC-SFN-Frame-difference  OPTIONAL,
      tm                            INTEGER(0..38399)
    },
    tdd                            SEQUENCE {
      countC-SFN-Frame-difference  CountC-SFN-Frame-difference  OPTIONAL
    }
  }
}

```

CHANGE REQUEST

⌘ **25.331 CR 698** ⌘ rev **r2** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Correction to add coding of intra domain NAS node selector		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ Feb. 15, 2001
Category:	⌘ F	Release:	⌘ R99
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	

Reason for change:	⌘ Specification of the intra domain NAS node selector fields following the recommendations from SA-WG2		
Summary of change:	⌘ Addition of tabular and ASN.1 coding in order to allow the use of the intra domain NAS node selector in order to provide turbo-charger like functionality within the UTRAN.		
Consequences if not approved:	<p>⌘ This field is currently unspecified and hence mobiles can be built with different encodings of this field: this runs against the principle of having a standardised radio interface. Note that the reason that the encoding of this field was not provided to RAN#10 was in order to simplify MCC's job by avoiding "change requests on top of other change requests".</p> <p>The current design of the GSM and GPRS A and Gb interfaces permits the BSC to be connected to multiple MSCs/SGSNs and to provide basic loadsharing functionality between these nodes. If this change is not agreed then this functionality will not be available in the RNC; UMTS will have an inferior network architecture design to 2G networks, and, UMTS will not be compatible with GSM: this latter point runs contrary to the principles of 'GSM-UMTS' interworking.</p>		

Clauses affected:	⌘ 8.1.8.3, 10.2.14, 10.3.1.6, 11.3		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

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

***** NEXT MODIFIED SECTION *****

8.1.8.3 Reception of INITIAL DIRECT TRANSFER message by the UTRAN

On reception of the INITIAL DIRECT TRANSFER message the NAS message should be routed using the IE "CN Domain Identity". ~~A UTRAN complying with this version of the protocol should ignore~~ may also use the IE "Intra Domain NAS Node Selector" for routing among the CN nodes for the addressed CN domain.

If no signalling connection exists towards the chosen node, then a signalling connection is established. If the IE "Measured results on RACH" is present in the message, the UTRAN should extract the contents to be used for radio resource control.

When the UTRAN receives an INITIAL DIRECT TRANSFER message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

10.2.14 INITIAL DIRECT TRANSFER

This message is used to initiate a signalling connection based on indication from the upper layers, and to transfer a NAS message.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE -> UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Integrity check info	CH		Integrity check info 10.3.3.16	
CN information elements				
CN domain identity	MP		CN domain identity 10.3.1.1	
Intra Domain NAS Node Selector	MP		Intra Domain NAS Node Selector 10.3.1.6	Allocated by NAS
NAS message	MP		NAS message 10.3.1.8	
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

10.3.1.6 Intra Domain NAS Node Selector

This IE carries information to be used to route the establishment of a signalling connection to a CN node within a CN domainis allocated by the NAS.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra Domain NAS-Node Selector	MP		Bitstring(16)	
CHOICE version	MP			
>R99				
>> CHOICE CN type	MP			
>>> GSM-MAP				
>>>>CHOICE Routing basis	MP			
>>>>> local (P)TMSI				TMSI allocated in the current LA or PTMSI allocated in the current RA
>>>>> Routing parameter	MP		Bitstring (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from 0 to 31, with bit 0 being the least significant The "Routing parameter" bitstring consists of bits 14 through 23 of the TMSI/ PTMSI
>>>>> (P)TMSI of same PLMN, different (RA)LA				TMSI allocated in another LA of this PLMN or PTMSI allocated in another RA this PLMN
>>>>> Routing parameter	MP		Bitstring (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from 0 to 31, with bit 0 being the least significant The "Routing parameter" bitstring consists of bits 14 through 23 of the TMSI/ PTMSI
>>>>> (P)TMSI of different PLMN				TMSI or a PTMSI allocated in another PLMN
>>>>>> Routing parameter	MP		Bitstring (10)	The TMSI/ PTMSI consists of 4 octets (32bits). The bits are numbered from 0 to 31, with bit 0 being the least significant The "Routing parameter" bitstring consists of bits 14 through 23 of the TMSI/ PTMSI
>>>>>> IMSI(response to IMSI paging)				NAS identity is IMSI
>>>>>>> Routing parameter	MP		Bitstring (10)	The "Routing parameter" bitstring consists of DecimalToBinary [(IMSI div 10) mod 1000]
>>>>>>> IMSI(cause UE initiated event)				NAS identity is IMSI
>>>>>>>> Routing parameter	MP		Bitstring (10)	The "Routing parameter" bitstring consists of DecimalToBinary [(IMSI div 10) mod 1000]
>>>>>>>> IMEI				NAS parameter is IMEI
>>>>>>>>> Routing parameter	MP		Bitstring (10)	The "Routing parameter" bitstring consists of DecimalToBinary [(IMEI div 10) mod 1000]
>>>>>>>>>> Spare 1			Bitstring (10)	This choice shall not be used in this version
>>>>>>>>>>> Spare 2			Bitstring (10)	This choice shall not be used in this version

>>>>Entered parameter	MP		Boolean	Entered parameter shall be set to TRUE if the most significant byte of the current LAI/RAI is different compared to the most significant byte of the LAI/RAI stored on the SIM; Entered parameter shall be set to FALSE otherwise
>>> ANSI-41			Bitstring (14)	All bits shall be set to 0
>Later			Bitstring(15)	This bitstring shall not be sent by mobiles who are compliant to this version of the protocol.

11.3 Information element definitions

```

IntraDomainNASNodeSelector ::=
    SEQUENCE {
        version CHOICE {
            release99 SEQUENCE {
                cn-Type CHOICE {
                    gsm-Map-IDNNS Gsm-map-IDNNS,
                    ansi-41-IDNNS Ansi-41-IDNNS
                },
                later SEQUENCE {
                    futurecoding BIT STRING (SIZE (15))
                }
            },
        }
    }

Gsm-map-IDNNS ::=
    SEQUENCE {
        routingbasis CHOICE {
            localPTMSI SEQUENCE {
                routingparameter RoutingParameter
            }
            tMSIofof samePLMN SEQUENCE {
                routingparameter RoutingParameter
            }
            tMSIofof differentPLMN SEQUENCE {
                routingparameter RoutingParameter
            }
            iMSIresponsetopaging SEQUENCE {
                routingparameter RoutingParameter
            }
            iMSIcausenotresponsetopaging SEQUENCE {
                routingparameter RoutingParameter
            }
            iMEI SEQUENCE {
                routingparameter RoutingParameter
            }
            spare1 SEQUENCE {
                routingparameter RoutingParameter
            }
            spare2 SEQUENCE {
                routingparameter RoutingParameter
            }
        },
        enteredparameter BOOLEAN
    }

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

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

```

CHANGE REQUEST

⌘ **25.331 CR 700** ⌘ rev **r1** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ Corrections to system information block characteristics in TDD		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 10.02.2001
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The relevance of system information blocks for TDD depends on whether shared channels are in use or not. There is a need to clarify which SIBs are to be acquired under which circumstances. Table 8.1.1 suggests that SIBs 7, 14, 17, 6 always have to be acquired if the UE is in CELL_DCH state. The actual requirements are clarified.
Summary of change:	⌘ 8.1.1 corrections in table for SIB characteristics and clarification of the different cases in a note below the table.
Consequences if not approved:	⌘ Requirements for SIB reception are unclear

Clauses affected:	⌘ 8.1.1.1.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘
Other comments:	⌘

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

8.1.1.1.2 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's value tag is valid. If the area scope is *cell*, the UE shall consider the system information block to be valid only in the cell in which it was read. If system information blocks have been previously stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. 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 stored in the UE, the UE shall re-read the system information block.

For System information block type 16, which may have multiple occurrences, each occurrence has its own independent value tag. The UE shall re-read a particular occurrence if the value tag of this occurrence has changed compared to that stored in the UE.

The *UE mode/state column when block is valid* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be regarded as valid by the UE. In other words, the indicated system information block becomes invalid upon change to a mode/state that is not included in this column.

The *UE mode/state column when block is read* in Table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block shall be read by the UE.

NOTE 1 There are a number of system information blocks that include the same IEs while the UE mode/state in which the information is valid differs. This approach is intended to allow the use of different IE values in different UE mode/states.

NOTE 2 The requirements concerning when a UE shall read system information blocks are specified indirectly; these requirements may be derived from the procedure specifications that specify which IEs are required in the different UE modes/states in conjunction with the different performance requirements that are specified.

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 8.1.1.7.1 or 8.1.1.7.2. For system information blocks with an expiration timer, the UE shall, when the timer expires, perform an update of the information according to subclause 8.1.1.7.4.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
Scheduling block 2	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information" in MIB	Value tag	
System information block type 1	PLMN	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	Cell	URA_PCH	URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	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, <u>CELL_DCH (TDD only)</u>)	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH, <u>CELL_DCH (TDD only)</u>)	Specified by the IE "Scheduling information"	Value tag	

System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Specified by the IE "Scheduling information"	Value tag	<p>If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5.</p> <p>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.</p> <p><u>In TDD mode system information block 6 shall only be read in CELL_DCH if required for open loop power control as specified in 8.5.7 and/or if shared transport channels are assigned to the UE. If in these cases system information block type 6 is not broadcast the UE shall read system information block type 5.</u></p>
System information block type 7	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, <u>CELL_DCH (TDD only)</u>	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, <u>CELL_DCH (TDD only)</u>	Specified by the IE "Scheduling information"	Expiration timer = MIN([320 ms], SIB_REP * ExpirationTimeFactor)	<u>In TDD mode system information block type 7 shall only be read in CELL_DCH if shared transport channels are assigned to the UE.</u>
System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	CELL_FACH, CELL_PCH, URA_PCH	CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 10	Cell	CELL_DCH	CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH)	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	Specified by the IE "Scheduling information"	Value tag	
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH	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	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	

System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = MIN([320 ms], SIB_REP * ExpirationTimeFactor)	This system information block is used in TDD mode only. System information block 14 shall only be read in CELL_DCH if required for open loop power control as specified in 8.5.7.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurrences
System information block type 17	Cell	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block is used in TDD mode only. System information block 17 shall only be read if shared transport channels are assigned to the UE.

The UE shall acquire all system information blocks except system information block type 10 on BCH. System Information Block type 10 shall be acquired on the FACH and only by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If System Information Block type 10 is not broadcast in a cell, the DRAC procedures do not apply in this cell. System Information Block type 10 is used in FDD mode only.

CHANGE REQUEST

⌘ **25.331 CR 701r2** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

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

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

Title:	⌘ ASN.1 corrections		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 2001-02-20
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ In the ASN.1 code, the nonCriticalExtensions IEs need to be OPTIONAL, in order to have a bit in the message indicating if an extension is present or not. This is done in most places, but forgotten in the system information blocks, which is corrected here. Some IEs present in the tabular description are missing in ASN.1. According to 25.921, a size constrained shall be specified for OCTET STRINGS, so that is corrected for GSM-Classmark3.
Summary of change:	⌘ The nonCriticalExtensions IEs in the system information blocks are changed to OPTIONAL. Missing elements are included in ASN.1. GSM-Classmark3 has been changed to a size constrained OCTET STRING.
Consequences if not approved:	⌘ Non-critical extensions will not work. Inconsistencies between tabular and ASN.1.

Clauses affected:	⌘ 10.3.8.7, 11		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

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- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

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

10.3.8.7 Inter-RAT UE radio access capability

This Information Element contains the inter-RAT UE radio access capability which is structured and coded according to the specification used for the corresponding system type.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>system</i>	MP			
>GSM				
>> Mobile Station Classmark 2	MP		Octet string (5)	Defined in [5]
>> Mobile Station Classmark 3	MP		Octet string (1..32)	Defined in [5]
>cdma2000				
>>cdma2000Message	MP	1.to.<maxlnterSysMessages>		
>>>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

11 Message and Information element abstract syntax (with ASN.1)

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in TR 25.921. PDU and IE definitions are grouped into separate ASN.1 modules.

11.1 General message structure

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

```
BEGIN
```

```
IMPORTS
```

```
    ActiveSetUpdate-r3,  
    ActiveSetUpdateComplete,  
    ActiveSetUpdateFailure,  
    AssistanceDataDelivery-r3,  
    CellChangeOrderFromUTRAN-r3,  
    CellChangeFailureFromUTRAN,  
    CellUpdate,  
    CellUpdateConfirm-CCCH-r3,  
    CellUpdateConfirm-r3,  
    CounterCheck-r3,  
    CounterCheckResponse,  
    DownlinkDirectTransfer-r3,  
    HandoverToUTRANComplete,  
    InitialDirectTransfer,  
    HandoverFromUTRANCommand-GSM-r3,  
    HandoverFromUTRANCommand-CDMA2000-r3,  
    HandoverFromUTRANFailure,  
    MeasurementControl-r3,  
    MeasurementControlFailure,  
    MeasurementReport,  
    PagingType1,  
    PagingType2,  
    PhysicalChannelReconfiguration-r3,  
    PhysicalChannelReconfigurationComplete,  
    PhysicalChannelReconfigurationFailure,  
    PhysicalSharedChannelAllocation-r3,  
    PUSCHCapacityRequest,  
    RadioBearerReconfiguration-r3,  
    RadioBearerReconfigurationComplete,  
    RadioBearerReconfigurationFailure,  
    RadioBearerRelease-r3,  
    RadioBearerReleaseComplete,  
    RadioBearerReleaseFailure,  
    RadioBearerSetup-r3,  
    RadioBearerSetupComplete,  
    RadioBearerSetupFailure,  
    RRCConnectionReject-r3,  
    RRCConnectionRelease-r3,  
    RRCConnectionRelease-CCCH-r3,  
    RRCConnectionReleaseComplete,  
    RRCConnectionRequest,  
    RRCConnectionSetup-r3,  
    RRCConnectionSetupComplete,  
    RRCStatus,  
    SecurityModeCommand-r3,  
    SecurityModeComplete,  
    SecurityModeFailure,  
    SignallingConnectionRelease-r3,  
    SignallingConnectionReleaseRequest,  
    SystemInformation-BCH,  
    SystemInformation-FACH,  
    SystemInformationChangeIndication,  
    TransportChannelReconfiguration-r3,  
    TransportChannelReconfigurationComplete,  
    TransportChannelReconfigurationFailure,  
    TransportFormatCombinationControl,  
    TransportFormatCombinationControlFailure,
```



```

UECapabilityEnquiry-r3,
UECapabilityInformation,
UECapabilityInformationConfirm-r3,
UplinkDirectTransfer,
UplinkPhysicalChannelControl-r3,
URAUpdate,
URAUpdateConfirm-r3,
URAUpdateConfirm-CCCH-r3,
UTRANMobilityInformation,
UTRANMobilityInformationConfirm,
UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
  IntegrityCheckInfo
FROM InformationElements;

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

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

DL-DCCH-MessageType ::= CHOICE {
  activeSetUpdate                ActiveSetUpdate-r3,
  assistanceDataDelivery         AssistanceDataDelivery-r3,
  cellChangeOrderFromUTRAN      CellChangeOrderFromUTRAN-r3,
  cellUpdateConfirm              CellUpdateConfirm-r3,
  counterCheck                   CounterCheck-r3,
  downlinkDirectTransfer         DownlinkDirectTransfer-r3,
  handoverFromUTRANCommand-GSM   HandoverFromUTRANCommand-GSM-r3,
  handoverFromUTRANCommand-CDMA2000 HandoverFromUTRANCommand-CDMA2000-r3,
  measurementControl             MeasurementControl-r3,
  pagingType2                    PagingType2,
  physicalChannelReconfiguration PhysicalChannelReconfiguration-r3,
  physicalSharedChannelAllocation PhysicalSharedChannelAllocation-r3,
  radioBearerReconfiguration     RadioBearerReconfiguration-r3,
  radioBearerRelease            RadioBearerRelease-r3,
  radioBearerSetup               RadioBearerSetup-r3,
  rrcConnectionRelease           RRCConnectionRelease-r3,
  securityModeCommand            SecurityModeCommand-r3,
  signallingConnectionRelease    SignallingConnectionRelease-r3,
  transportChannelReconfiguration TransportChannelReconfiguration-r3,
  transportFormatCombinationControl TransportFormatCombinationControl,
  ueCapabilityEnquiry            UECapabilityEnquiry-r3,
  ueCapabilityInformationConfirm  UECapabilityInformationConfirm-r3,
  uplinkPhysicalChannelControl   UplinkPhysicalChannelControl-r3,
  uraUpdateConfirm               URAUpdateConfirm-r3,
  utranMobilityInformation       UTRANMobilityInformation,
  extension                       NULL
}

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

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

UL-DCCH-MessageType ::= CHOICE {
  activeSetUpdateComplete        ActiveSetUpdateComplete,
  activeSetUpdateFailure         ActiveSetUpdateFailure,
  cellChangeFailureFromUTRAN     CellChangeFailureFromUTRAN,
  counterCheckResponse           CounterCheckResponse,
  handoverToUTRANComplete        HandoverToUTRANComplete,
  initialDirectTransfer          InitialDirectTransfer,
  handoverFromUTRANFailure       HandoverFromUTRANFailure,
  measurementControlFailure      MeasurementControlFailure,
  measurementReport              MeasurementReport,
}

```

```

physicalChannelReconfigurationComplete
physicalChannelReconfigurationFailure
radioBearerReconfigurationComplete
radioBearerReconfigurationFailure
radioBearerReleaseComplete
radioBearerReleaseFailure
radioBearerSetupComplete
radioBearerSetupFailure
rrcConnectionReleaseComplete
rrcConnectionSetupComplete
rrcStatus
securityModeComplete
securityModeFailure
signallingConnectionReleaseRequest
transportChannelReconfigurationComplete
transportChannelReconfigurationFailure
transportFormatCombinationControlFailure
ueCapabilityInformation
uplinkDirectTransfer
utranMobilityInformationConfirm
utranMobilityInformationFailure
extension
}

```

```

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

```

```

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

```

```

DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm      CellUpdateConfirm-CCCH-r3,
    rrcConnectionReject    RRCConnectionReject-r3,
    rrcConnectionRelease    RRCConnectionRelease-CCCH-r3,
    rrcConnectionSetup      RRCConnectionSetup-r3,
    uraUpdateConfirm        URAUpdateConfirm-CCCH-r3,
    extension                NULL
}

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

PCCH-MessageType ::= CHOICE {

```

```

    pagingTypel          PagingTypel,
    extension             NULL
}

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

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

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation    PhysicalSharedChannelAllocation-r3,
    extension                           NULL
}

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

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

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

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

BCCH-FACH-Message ::= SEQUENCE {
    message             BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation          SystemInformation-FACH,
    systemInformationChangeIndication    SystemInformationChangeIndication,
    extension                  NULL
}

--*****
--
-- BCCH messages sent on BCH
--
--*****

BCCH-BCH-Message ::= SEQUENCE {
    message             SystemInformation-BCH
}

END

```

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

```

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

-- Core Network IEs :
  CN-DomainIdentity,
  CN-InformationInfo,
  NAS-Message,
  PagingRecordTypeID,
-- UTRAN Mobility IEs :
  URA-Identity,
-- User Equipment IEs :
  ActivationTime,
  C-RNTI,
  CapabilityUpdateRequirement,
  CellUpdateCause,
  CipheringAlgorithm,
  CipheringModeInfo,
  EstablishmentCause,
  FailureCauseWithProtErr,
  FailureCauseWithProtErrTrId,
  InitialUE-Identity,
  IntegrityProtActivationInfo,
  IntegrityProtectionModeInfo,
  N-308,
  PagingCause,
  PagingRecordList,
  ProtocolErrorIndicator,
  ProtocolErrorIndicatorWithMoreInfo,
  Rb-timer-indicator,
  Re-EstablishmentTimer,
  RedirectionInfo,
  RejectionCause,
  ReleaseCause,
  RRC-StateIndicator,
  RRC-TransactionIdentifier,
  SecurityCapability,
  START-Value,
  STARTList,
  U-RNTI,
  U-RNTI-Short,
  UE-RadioAccessCapability,
  UE-ConnTimersAndConstants,
  URA-UpdateCause,
  UTRAN-DRX-CycleLengthCoefficient,
  WaitTime,
-- Radio Bearer IEs :
  PredefinedConfigIdentity,
  RAB-Info,
  RAB-Info-Post,
  RAB-InformationList,
  RAB-InformationReconfigList,
  RAB-InformationSetupList,
  RB-ActivationTimeInfo,
  RB-ActivationTimeInfoList,
  RB-COUNT-C-InformationList,
  RB-COUNT-C-MSB-InformationList,
  RB-IdentityList,
  RB-InformationAffectedList,
  RB-InformationReconfigList,
  RB-InformationReleaseList,
  RB-InformationSetupList,
  RB-WithPDCP-InfoList,
  SRB-InformationSetupList,
  SRB-InformationSetupList2,
-- Transport Channel IEs:
  CPCH-SetID,
  DL-AddReconfTransChInfo2List,
  DL-AddReconfTransChInfoList,
  DL-CommonTransChInfo,
  DL-DeletedTransChInfoList,
  DRAC-StaticInformationList,
  TFC-Subset,

```

```

    TFCS-Identity,
    UL-AddReconfTransChInfoList,
    UL-CommonTransChInfo,
    UL-DeletedTransChInfoList,
-- Physical Channel IEs :
    AllocationPeriodInfo,
    Alpha,
    CCTrCH-PowerControlInfo,
    ConstantValue,
    CPCH-SetInfo,
    DL-CommonInformation,
    DL-CommonInformationPost,
    DL-InformationPerRL,
    DL-InformationPerRL-List,
    DL-InformationPerRL-ListPostFDD,
    DL-InformationPerRL-PostTDD,
    DL-DPCH-PowerControlInfo,
    DL-PDSCH-Information,
    DPCH-CompressedModeStatusInfo,
    FrequencyInfo,
    FrequencyInfoFDD,
    FrequencyInfoTDD,
    IndividualTS-InterferenceList,
    MaxAllowedUL-TX-Power,
    PDSCH-CapacityAllocationInfo,
    PDSCH-Identity,
    PDSCH-Info,
    PRACH-RACH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-CapacityAllocationInfo,
    PUSCH-Identity,
    RL-AdditionInformationList,
    RL-RemovalInformationList,
    SSDT-Information,
    TFC-ControlDuration,
    TimeslotList,
    TX-DiversityMode,
    UL-ChannelRequirement,
    UL-ChannelRequirementWithCPCH-SetID,
    UL-DPCH-Info,
    UL-DPCH-InfoPostFDD,
    UL-DPCH-InfoPostTDD,
    UL-TimingAdvance,
    UL-TimingAdvanceControl,
-- Measurement IEs :
    AdditionalMeasurementID-List,
    EventResults,
    InterRAT-TargetCellDescription,
    MeasuredResults,
    MeasuredResultsList,
    MeasuredResultsOnRACH,
    MeasurementCommand,
    MeasurementIdentity,
    MeasurementReportingMode,
    PrimaryCCPCH-RSCP,
    TimeslotListWithISCP,
    TrafficVolumeMeasuredResultsList,
    UP-GPS-AssistanceData,
    UP-OTDOA-AssistanceData,
-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterRAT-ChangeFailureCause,
    InterRAT-HO-Failure,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRATMessage,
    IntraDomainNasNodeSelector,
    ProtocolErrorInformation,
    ProtocolErrorMoreInformation,
    Rplmn-Information,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements

```

```

    maxSIBperMsg,
    maxSystemCapability
FROM Constant-definitions;

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

ActiveSetUpdate-r3 ::= CHOICE {
    r3
        activeSetUpdate-r3          SEQUENCE {
            activeSetUpdate-r3-IEs,
            nonCriticalExtensions    SEQUENCE {} OPTIONAL
        },
        criticalExtensions          SEQUENCE {}
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                OPTIONAL,
    activationTime                  ActivationTime                    OPTIONAL,
    newU-RNTI                      U-RNTI                        OPTIONAL,
    -- Core network IEs
    cn-InformationInfo              CN-InformationInfo              OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList          OPTIONAL,
    -- Physical channel IEs
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power        OPTIONAL,
    rl-AdditionInformationList       RL-AdditionInformationList    OPTIONAL,
    rl-RemovalInformationList        RL-RemovalInformationList    OPTIONAL,
    tx-DiversityMode                 TX-DiversityMode              OPTIONAL,
    ssdt-Information                 SSDT-Information              OPTIONAL
}

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

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

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

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

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

AssistanceDataDelivery-r3 ::= CHOICE {
    r3
        assistanceDataDelivery-r3  SEQUENCE {
            assistanceDataDelivery-r3-IEs,
            nonCriticalExtensions    SEQUENCE {} OPTIONAL
        }
}

```

```

    },
    criticalExtensions          SEQUENCE {}
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
--Assistance Data Information Elements
  up-GPS-AssistanceData      UP-GPS-AssistanceData          OPTIONAL,
  up-OTDOA-AssistanceData    UP-OTDOA-AssistanceData        OPTIONAL
}

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

CellChangeOrderFromUTRAN-r3 ::= CHOICE {
  r3          SEQUENCE {
    cellChangeOrderFromUTRAN-IEs      CellChangeOrderFromUTRAN-r3-IEs,
    nonCriticalExtensions              SEQUENCE {} OPTIONAL
  },
  criticalExtensions          SEQUENCE {}
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
  activationTime                   ActivationTime                    OPTIONAL,
  rab-InformationList              RAB-InformationList                OPTIONAL,
  interRAT-TargetCellDescription   InterRAT-TargetCellDescription
}

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

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

CellChangeFailureFromUTRAN-r3-IEs ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
  interRAT-ChangeFailureCause      InterRAT-ChangeFailureCause
}

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

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

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

```

```

-- *****

CellUpdateConfirm-r3 ::= CHOICE {
  r3 SEQUENCE {
    cellUpdateConfirm-r3 CellUpdateConfirm-r3-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  criticalExtensions SEQUENCE {}
}

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

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

CellUpdateConfirm-CCCH-r3 ::= CHOICE {
  r3 SEQUENCE {
    -- User equipment IEs
    u-RNTI U-RNTI,
    -- The rest of the message is identical to the one sent on DCCH.
    cellUpdateConfirm-r3 CellUpdateConfirm-r3-IEs,
    nonCriticalExtensions SEQUENCE {} OPTIONAL
  },
  criticalExtensions SEQUENCE {}
}

-- *****

```



```

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

CounterCheck-r3 ::= CHOICE {
    r3          SEQUENCE {
        counterCheck-r3          CounterCheck-r3-IEs,
        nonCriticalExtensions    SEQUENCE {} OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

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

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

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

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

DownlinkDirectTransfer-r3 ::= CHOICE {
    r3          SEQUENCE {
        downlinkDirectTransfer-r3 DownlinkDirectTransfer-r3-IEs,
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

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

-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

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

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    new-U-RNTI                  U-RNTI-Short,
    activationTime               ActivationTime          OPTIONAL,
    cipheringAlgorithm           CipheringAlgorithm      OPTIONAL,
    -- Radio bearer IEs
}

```

```

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

-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

HandoverToUTRANComplete ::= SEQUENCE {
--TABULAR: Integrity protection shall not be performed on this message.
-- User equipment IEs
-- TABULAR: the IE below is conditional on history.
    startList                STARTList          OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions      SEQUENCE {}        OPTIONAL
}

-- *****
--
-- INITIAL DIRECT TRANSFER
--
-- *****

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

```

```

        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    }
-- *****
--
-- HANOVER FROM UTRAN COMMAND
--
-- *****

HandoverFromUTRANCommand-GSM-r3 ::= CHOICE {
    r3          SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    activationTime                      ActivationTime          OPTIONAL,
    -- Radio bearer IEs
    remainingRAB-Info                  RAB-Info                OPTIONAL,
    -- Other IEs
    message-and-extension              CHOICE {
        gsm-Message                    SEQUENCE {},
        -- In this case, what follows the basic production is a variable length bit string
        -- with no length field, containing the GSM message including GSM padding up to end
        -- of container, to be analysed according to GSM specifications
        with-extension                  SEQUENCE {
            messages                    GSM-MessageList
        }
    }
}

HandoverFromUTRANCommand-CDMA2000-r3 ::= CHOICE {
    r3          SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
        nonCriticalExtensions          SEQUENCE {}          OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

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

-- *****
--
-- HANOVER FROM UTRAN FAILURE
--
-- *****

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

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

MeasurementControl-r3 ::= CHOICE {
    r3          SEQUENCE {

```

```

        measurementControl-r3          MeasurementControl-r3-IEs,
        nonCriticalExtensions          SEQUENCE {} OPTIONAL
    },
    criticalExtensions                 SEQUENCE {}
}

MeasurementControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    -- Measurement IEs
    measurementIdentity                MeasurementIdentity,
    measurementCommand                 MeasurementCommand,
    -- TABULAR: The measurement type is included in MeasurementCommand.
    measurementReportingMode           MeasurementReportingMode           OPTIONAL,
    additionalMeasurementList           AdditionalMeasurementID-List     OPTIONAL,
    -- Physical channel IEs
    dpch-CompressedModeStatusInfo      DPCH-CompressedModeStatusInfo   OPTIONAL
}

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

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

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

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

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

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

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

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    pagingCause                         PagingCause,
    -- Core network IEs
    cn-DomainIdentity                  CN-DomainIdentity,
    pagingRecordTypeID                 PagingRecordTypeID,

```

```

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

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

PhysicalChannelReconfiguration-r3 ::= CHOICE {
  r3                            SEQUENCE {
    physicalChannelReconfiguration-r3
    PhysicalChannelReconfiguration-r3-IEs,
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
  },
  criticalExtensions            SEQUENCE {}
}

PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
-- User equipment IEs
  rrc-TransactionIdentifier     RRC-TransactionIdentifier,
  integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
  cipheringModeInfo            CipheringModeInfo             OPTIONAL,
  activationTime                ActivationTime                OPTIONAL,
  new-U-RNTI                    U-RNTI                       OPTIONAL,
  new-C-RNTI                    C-RNTI                       OPTIONAL,
  rrc-StateIndicator            RRC-StateIndicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- Core network IEs
  cn-InformationInfo            CN-InformationInfo            OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity                  URA-Identity                 OPTIONAL,
-- Radio bearer IEs
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList          OPTIONAL,
-- Physical channel IEs
  frequencyInfo                 FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power          OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirementWithCPCH-SetID OPTIONAL,
-- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
-- between UL DPCH info, CPCH SET info and CPCH set ID.
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonInformation           DL-CommonInformation           OPTIONAL,
  dl-InformationPerRL-List       DL-InformationPerRL-List       OPTIONAL
}

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

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

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {

```

```

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

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

PhysicalSharedChannelAllocation-r3 ::= CHOICE {
  r3                             SEQUENCE {
    physicalSharedChannelAllocation-r3
                                PhysicalSharedChannelAllocation-r3-IEs,
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
  },
  criticalExtensions            SEQUENCE {}
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message.
-- User equipment IEs
  c-RNTI                         C-RNTI                        OPTIONAL,
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
-- Physical channel IEs
  ul-TimingAdvance              UL-TimingAdvanceControl      OPTIONAL,
  pusch-CapacityAllocationInfo  PUSCH-CapacityAllocationInfo  OPTIONAL,
  pdsch-CapacityAllocationInfo  PDSCH-CapacityAllocationInfo  OPTIONAL,
  confirmRequest                ENUMERATED {
                                confirmPDSCH, confirmPUSCH }  OPTIONAL,
-- TABULAR: If the above value is not present, the default value "No Confirm"
-- shall be used as specified in 10.2.25.
  iscpTimeslotList              TimeslotList                  OPTIONAL
}

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

PUSCHCapacityRequest ::= SEQUENCE {
-- User equipment IEs
  c-RNTI                         C-RNTI                        OPTIONAL,
-- Measurement IEs
  trafficVolumeMeasuredResultsList
                                TrafficVolumeMeasuredResultsList,
  timeslotListWithISCP          TimeslotListWithISCP        OPTIONAL,
  primaryCCPCH-RSCP             PrimaryCCPCH-RSCP           OPTIONAL,
  allocationConfirmation        CHOICE {
    pdschConfirmation           PDSCH-Identity,
    puschConfirmation           PUSCH-Identity
  }                                OPTIONAL,
  protocolErrorIndicator        ProtocolErrorIndicatorWithMoreInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {} OPTIONAL
}

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

RadioBearerReconfiguration-r3 ::= CHOICE {
  r3                             SEQUENCE {
    radioBearerReconfiguration-r3 RadioBearerReconfiguration-r3-IEs,
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
  },
  criticalExtensions            SEQUENCE {}
}

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

```

```

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

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

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

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

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

```

```

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

RadioBearerRelease-r3 ::= CHOICE {
  r3                               SEQUENCE {
    radioBearerRelease-r3          RadioBearerRelease-r3-IEs,
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}

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

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

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

```



```

|-----rb-WithPDCP-InfoList-----RB-WithPDCP-InfoList-----OPTIONAL,
-- Extension mechanism for non- release99 information
   nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

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

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

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

RadioBearerSetup-r3 ::= CHOICE {
  r3                               SEQUENCE {
    radioBearerSetup-r3           RadioBearerSetup-r3-IEs,
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}

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

```

```

        dl-CommonInformation          DL-CommonInformation          OPTIONAL,
        dl-InformationPerRL-List      DL-InformationPerRL-List    OPTIONAL
    }
-- *****
--
-- RADIO BEARER SETUP COMPLETE
--
-- *****

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier          RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo          IntegrityProtActivationInfo    OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                   UL-TimingAdvance              OPTIONAL,
    start-Value                         START-Value                    OPTIONAL,
    -- Radio bearer IEs
    count-C-ActivationTime              ActivationTime                  OPTIONAL,
    rb-UL-CiphActivationTimeInfo         RB-ActivationTimeInfoList     OPTIONAL,
    rb-WithPDCP-InfoList                RB-WithPDCP-InfoList         OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}                  OPTIONAL
}
-- *****
--
-- RADIO BEARER SETUP FAILURE
--
-- *****

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

RRCConnectionReject-r3 ::= CHOICE {
    r3                                   SEQUENCE {
        rrcConnectionReject-r3         RRCConnectionReject-r3-IEs,
        nonCriticalExtensions           SEQUENCE {}                  OPTIONAL
    },
    criticalExtensions                  SEQUENCE {}
}

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

RRCConnectionRelease-r3 ::= CHOICE {
    r3                                   SEQUENCE {
        rrcConnectionRelease-r3       RRCConnectionRelease-r3-IEs,
        nonCriticalExtensions           SEQUENCE {}                  OPTIONAL
    },
    criticalExtensions                  SEQUENCE {}
}

```

```

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

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

RRCConnectionRelease-CCCH-r3 ::= CHOICE {
  r3                             SEQUENCE {
    rrcConnectionRelease-CCCH-r3  RRCConnectionRelease-CCCH-r3-IEs,
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}

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

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

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

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

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

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

RRCConnectionSetup-r3 ::= CHOICE {
  r3                             SEQUENCE {
    rrcConnectionSetup-r3        RRCConnectionSetup-r3-IEs,
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}

```

```

RRCConnectionSetup-r3-IEs ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
    initialUE-Identity          InitialUE-Identity,
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    activationTime               ActivationTime                OPTIONAL,
    new-U-RNTI                  U-RNTI,
    new-c-RNTI                  C-RNTI                    OPTIONAL,
    rrc-StateIndicator          RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient,
    capabilityUpdateRequirement CapabilityUpdateRequirement  OPTIONAL,
  -- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
  -- be used.
  -- Radio bearer IEs
    srb-InformationSetupList    SRB-InformationSetupList2,
  -- Transport channel IEs
    ul-CommonTransChInfo       UL-CommonTransChInfo                OPTIONAL,
    ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo       DL-CommonTransChInfo                OPTIONAL,
    dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
  -- Physical channel IEs
    frequencyInfo              FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power          OPTIONAL,
    ul-ChannelRequirement      UL-ChannelRequirement          OPTIONAL,
    dl-CommonInformation       DL-CommonInformation          OPTIONAL,
    dl-InformationPerRL-List    DL-InformationPerRL-List        OPTIONAL
}

```

```

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

```

```

RRCConnectionSetupComplete ::= SEQUENCE {
  -- TABULAR: Integrity protection shall not be performed on this message.
  -- User equipment IEs
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    startList                   STARTList,
    ue-RadioAccessCapability     UE-RadioAccessCapability        OPTIONAL,
  -- Other IEs
    ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}          OPTIONAL
}

```

```

-- *****
--
-- RRC STATUS
--
-- *****

```

```

RRCStatus ::= SEQUENCE {
  -- Other IEs
    protocolErrorInformation     ProtocolErrorMoreInformation,
  -- TABULAR: Identification of received message is nested in
  -- ProtocolErrorMoreInformation
  -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}          OPTIONAL
}

```

```

SecurityModeCommand-r3 ::= CHOICE {
  r3                             SEQUENCE {
    securityModeCommand-r3      SecurityModeCommand-r3-IEs,
    nonCriticalExtensions        SEQUENCE {}          OPTIONAL
  },
  criticalExtensions            SEQUENCE {}
}

```

```

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

```

```

SecurityModeCommand-r3-IEs ::= SEQUENCE {
  -- TABULAR: Integrity protection shall always be performed on this message.

```

```

-- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  securityCapability              SecurityCapability,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
-- Core network IEs
  cn-DomainIdentity              CN-DomainIdentity
}

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

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

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

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

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

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

SignallingConnectionRelease-r3 ::= CHOICE {
  r3                               SEQUENCE {
    signallingConnectionRelease-r3 SignallingConnectionRelease-r3-IEs,
    nonCriticalExtensions           SEQUENCE {}      OPTIONAL
  },
  criticalExtensions              SEQUENCE {}
}

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

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

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

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

```

```

--
-- *****
SystemInformation-BCH ::= SEQUENCE {
  -- Other information elements
  sfn-Prime          SFN-Prime,
  payload            CHOICE {
    noSegment        NULL,
    firstSegment     FirstSegment,
    subsequentSegment SubsequentSegment,
    lastSegmentShort LastSegmentShort,
    lastAndFirst     SEQUENCE {
      lastSegmentShort LastSegmentShort,
      firstSegment      FirstSegmentShort
    },
    lastAndComplete SEQUENCE {
      lastSegmentShort LastSegmentShort,
      completeSIB-List CompleteSIB-List
    },
    lastAndCompleteAndFirst SEQUENCE {
      lastSegmentShort LastSegmentShort,
      completeSIB-List CompleteSIB-List,
      firstSegment      FirstSegmentShort
    },
    completeSIB-List CompleteSIB-List,
    completeAndFirst SEQUENCE {
      completeSIB-List CompleteSIB-List,
      firstSegment      FirstSegmentShort
    },
    completeSIB      CompleteSIB,
    lastSegment      LastSegment
  }
}

```

```

-- *****
--
-- SYSTEM INFORMATION for FACH
--
-- *****

```

```

SystemInformation-FACH ::= SEQUENCE {
  -- Other information elements
  payload            CHOICE {
    noSegment        NULL,
    firstSegment     FirstSegment,
    subsequentSegment SubsequentSegment,
    lastSegmentShort LastSegmentShort,
    lastAndFirst     SEQUENCE {
      lastSegmentShort LastSegmentShort,
      firstSegment      FirstSegmentShort
    },
    lastAndComplete SEQUENCE {
      lastSegmentShort LastSegmentShort,
      completeSIB-List CompleteSIB-List
    },
    lastAndCompleteAndFirst SEQUENCE {
      lastSegmentShort LastSegmentShort,
      completeSIB-List CompleteSIB-List,
      firstSegment      FirstSegmentShort
    },
    completeSIB-List CompleteSIB-List,
    completeAndFirst SEQUENCE {
      completeSIB-List CompleteSIB-List,
      firstSegment      FirstSegmentShort
    },
    completeSIB      CompleteSIB,
    lastSegment      LastSegment
  }
}

```

```

-- *****
--
-- First segment
--
-- *****

```

```

FirstSegment ::= SEQUENCE {
  -- Other information elements

```

```

        sib-Type                SIB-Type,
        seg-Count                SegCount,
        sib-Data-fixed           SIB-Data-fixed
    }
-- *****
--
-- First segment (short)
-- *****

FirstSegmentShort ::=          SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        seg-Count                SegCount,
        sib-Data-variable       SIB-Data-variable
    }
-- *****
--
-- Subsequent segment
-- *****

SubsequentSegment ::=         SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        segmentIndex            SegmentIndex,
        sib-Data-fixed          SIB-Data-fixed
    }
-- *****
--
-- Last segment
-- *****

LastSegment ::=               SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        segmentIndex            SegmentIndex,
        sib-Data-fixed          SIB-Data-fixed
    -- In case the SIB data is less than 222 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
    }
-- *****
--
LastSegmentShort ::=          SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        segmentIndex            SegmentIndex,
        sib-Data-variable       SIB-Data-variable
    }
-- *****
--
-- Complete SIB
-- *****

CompleteSIB-List ::=          SEQUENCE (SIZE (1..maxSIBperMsg)) OF
                                CompleteSIBshort

CompleteSIB ::=               SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        sib-Data-fixed          BIT STRING (SIZE (226))
    -- In case the SIB data is less than 226 bits, padding shall be used
    -- The same padding bits shall be used as defined in clause 12.1
    }
-- *****
--
CompleteSIBshort ::=          SEQUENCE {
    -- Other information elements
        sib-Type                SIB-Type,
        sib-Data-variable       SIB-Data-variable
    }
-- *****
--

```

```

-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****
SystemInformationChangeIndication ::= SEQUENCE {
    -- Other IEs
    bcch-ModificationInfo          BCCH-ModificationInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} OPTIONAL
}
-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION
--
-- *****

TransportChannelReconfiguration-r3 ::= CHOICE {
    r3                             SEQUENCE {
        transportChannelReconfiguration-r3
        nonCriticalExtensions      SEQUENCE {} OPTIONAL
    },
    criticalExtensions            SEQUENCE {}
}

TransportChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                OPTIONAL,
    activationTime                  ActivationTime                    OPTIONAL,
    new-U-RNTI                      U-RNTI                        OPTIONAL,
    new-C-RNTI                      C-RNTI                        OPTIONAL,
    rrc-StateIndicator              RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    -- Core network IEs
    cn-InformationInfo              CN-InformationInfo          OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList            RB-WithPDCP-InfoList        OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo        OPTIONAL,
    ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList  OPTIONAL,
    modeSpecificTransChInfo         CHOICE {
        fdd                          SEQUENCE {
            cpch-SetID                CPCH-SetID                OPTIONAL,
            addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
        },
        tdd                            NULL
    } OPTIONAL,
    dl-CommonTransChInfo            DL-CommonTransChInfo        OPTIONAL,
    dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList  OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                   FrequencyInfo                OPTIONAL,
    maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power        OPTIONAL,
    ul-ChannelRequirement            UL-ChannelRequirement        OPTIONAL,
    modeSpecificPhysChInfo          CHOICE {
        fdd                          SEQUENCE {
            dl-PDSCH-Information       DL-PDSCH-Information      OPTIONAL
        },
        tdd                            NULL
    },
    dl-CommonInformation            DL-CommonInformation        OPTIONAL,
    dl-InformationPerRL-List        DL-InformationPerRL-List    OPTIONAL
}
-- *****
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
--
-- *****

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo      IntegrityProtActivationInfo    OPTIONAL,

```



```

        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance          UL-TimingAdvance          OPTIONAL,
-- Radio bearer IEs
    count-C-ActivationTime      ActivationTime            OPTIONAL,
    rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList  OPTIONAL,
    rb-WithPDCP-InfoList         RB-WithPDCP-InfoList      OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}             OPTIONAL
}

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

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

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

TransportFormatCombinationControl ::= SEQUENCE {
-- TABULAR: Integrity protection shall not be performed on this message when transmitting this
message
-- on the transparent mode signalling DCCH.
    rrc-TransactionIdentifier    RRC-TransactionIdentifier    OPTIONAL,
-- The information element is not included when transmitting the message
-- on the transparent mode signalling DCCH
modeSpecificInfo               CHOICE {
    fdd                          NULL,
    tdd                          SEQUENCE {
        tfcs-ID                  TFCS-Identity    OPTIONAL
    }
},
dpch-TFCS-InUplink             TFC-Subset,
tfc-ControlDuration             TFC-ControlDuration    OPTIONAL,
-- The information element is not included when transmitting the message
-- on the transparent mode signalling DCCH and is optional otherwise
-- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {}             OPTIONAL
}

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

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

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

UECapabilityEnquiry-r3 ::= CHOICE {
    r3                           SEQUENCE {
        ueCapabilityEnquiry-r3  UECapabilityEnquiry-r3-IEs,
        nonCriticalExtensions    SEQUENCE {}             OPTIONAL
    },
    criticalExtensions           SEQUENCE {}
}

```

```

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

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

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier      OPTIONAL,
    ue-RadioAccessCapability       UE-RadioAccessCapability      OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability       InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}          OPTIONAL
}

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

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

UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier
}

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

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

-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl-r3 ::= CHOICE {
    r3                             SEQUENCE {
        uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
        nonCriticalExtensions         SEQUENCE {}          OPTIONAL
    },
    criticalExtensions             SEQUENCE {}
}

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

```

```

-- Physical channel IEs
ccTrCH-PowerControlInfo      CcTrCH-PowerControlInfo      OPTIONAL,
timingAdvance                 UL-TimingAdvanceControl      OPTIONAL,
alpha                         Alpha                            OPTIONAL,
prach-ConstantValue          ConstantValue                   OPTIONAL,
pusch-ConstantValue          ConstantValue                   OPTIONAL
}

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

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

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

URAUUpdateConfirm-r3 ::= CHOICE {
r3                             SEQUENCE {
uraUpdateConfirm-r3          URAUpdateConfirm-r3-IEs,
nonCriticalExtensions        SEQUENCE {}          OPTIONAL
},
criticalExtensions           SEQUENCE {}
}

URAUUpdateConfirm-r3-IEs ::= SEQUENCE {
-- User equipment IEs
rrc-TransactionIdentifier     RRC-TransactionIdentifier,
integrityProtectionModeInfo   IntegrityProtectionModeInfo   OPTIONAL,
cipheringModeInfo             CipheringModeInfo             OPTIONAL,
new-U-RNTI                    U-RNTI                       OPTIONAL,
new-C-RNTI                    C-RNTI                       OPTIONAL,
rrc-StateIndicator            RRC-StateIndicator,
utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
-- CN information elements
cn-InformationInfo            CN-InformationInfo           OPTIONAL,
-- UTRAN mobility IEs
ura-Identity                   URA-Identity                 OPTIONAL,
-- Radio bearer IEs
rb-WithPDCP-InfoList          RB-WithPDCP-InfoList         OPTIONAL
}

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

URAUUpdateConfirm-CCCH-r3 ::= CHOICE {
r3                             SEQUENCE {
uraUpdateConfirm-CCCH-r3     URAUpdateConfirm-CCCH-r3-IEs,
nonCriticalExtensions        SEQUENCE {}          OPTIONAL
},
criticalExtensions           SEQUENCE {}
}

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

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

```

```

--
-- *****
UTRANMobilityInformation ::= SEQUENCE {
  -- User equipment IEs
  rrc-TransactionIdentifier      RRC-TransactionIdentifier,
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                  OPTIONAL,
  new-U-RNTI                     U-RNTI                      OPTIONAL,
  new-C-RNTI                     C-RNTI                      OPTIONAL,
  ue-ConnTimersAndConstants      UE-ConnTimersAndConstants    OPTIONAL,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo          OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                   URA-Identity                OPTIONAL,
  -- Radio bearer IEs
  count-C-ActivationTime         ActivationTime                OPTIONAL,
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList        OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                 OPTIONAL
}

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

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

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

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

END

```

11.3 Information element definitions

```

InformationElements DEFINITIONS AUTOMATIC TAGS ::=
-- *****
--
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)
--
-- *****

BEGIN

IMPORTS

  hiPDSCHidentities,
  hiPUSCHidentities,
  hiRM,
  maxAC,
  maxAdditionalMeas,
  maxASC,
  maxASCmap,
  maxASCPersist,

```

```

maxCCTrCH,
maxCellMeas,
maxCellMeas-1,
maxCNdomains,
maxCPCHsets,
maxDPCH-DLchan,
maxDPCHcodesPerTS,
maxDPDCH-UL,
maxDRACclasses,
maxFACH,
maxFreq,
maxFrequencybands,
maxInterSysMessages,
maxLoCHperRLC,
maxMeasEvent,
maxMeasIntervals,
maxMeasParEvent,
maxNumCDMA2000Freqs,
maxNumFDDFreqs,
maxNumGSMFreqRanges,
maxNumTDDFreqs,
maxOtherRAT,
maxPagel,
maxPCPCH-APsig,
maxPCPCH-APsubCh,
maxPCPCH-CDsig,
maxPCPCH-CDsubCh,
maxPCPCH-SF,
maxPCPCHs,
maxPDCPAlgoType,
maxPDSCH,
maxPDSCH-TFCIgroups,
maxPRACH,
maxPUSCH,
maxRABsetup,
maxRAT,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxReportedGSMCells,
maxSRBsetup,
maxRL,
maxRL-1,
maxSCCPCH,
maxSat,
maxSIB,
maxSIB-FACH,
maxSig,
maxSubCh,
maxSystemCapability,
maxTF,
maxTF-CPCH,
maxTFC,
maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
maxTS,
maxTS-1,
maxURA

```

FROM Constant-definitions;

```

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

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

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

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

```

```

    },
    cn-DRX-CycleLengthCoeff          CN-DRX-CycleLengthCoefficient
}

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

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

Digit ::=
INTEGER (0..9)

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

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

IMSI-GSM-MAP ::=
SEQUENCE (SIZE (6..15)) OF
Digit

IntraDomainNasNodeSelector ::=
BIT STRING (SIZE (16))

LAI ::=
SEQUENCE {
    plmn-Identity                    PLMN-Identity,
    lac                              BIT STRING (SIZE (16))
}

MCC ::=
SEQUENCE (SIZE (3)) OF
Digit

MNC ::=
SEQUENCE (SIZE (2..3)) OF
Digit

NAS-Message ::=
OCTET STRING (SIZE (1..4095))

NAS-Synchronisation-Indicator ::=
BIT STRING(SIZE(4))

NAS-SystemInformationGSM-MAP ::=
OCTET STRING (SIZE (1..8))

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

PagingRecordTypeID ::=
ENUMERATED {
    imsi-GSM-MAP,
    tmsi-GSM-MAP-P-TMSI,
    imsi-DS-41,
    tmsi-DS-41 }

PLMN-Identity ::=
SEQUENCE {
    mcc                              MCC,
    mnc                              MNC
}

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

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

```



```

}

MappingFunctionParameter ::=      SEQUENCE {
    functionType                  MappingFunctionType,
    mapParameter1                  MapParameter                OPTIONAL,
    mapParameter2                  MapParameter,
    upperLimit                      UpperLimit                OPTIONAL
    -- The parameter is conditional on the number of repetition
}

MappingFunctionParameterList ::=  SEQUENCE (SIZE (1..maxMeasIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::=          ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::=                  SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

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

RAT ::=                           ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::=                 SEQUENCE {
    rat-Identifier                  RAT-Identifier,
    s-SearchRAT                     S-SearchQual,
    s-HCS-RAT                       S-SearchRXLEV                OPTIONAL,
    s-Limit-SearchRAT               S-SearchQual
}

RAT-FDD-InfoList ::=             SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-FDD-Info

RAT-Identifier ::=               ENUMERATED {
    gsm, cdma2000 }

RAT-TDD-Info ::=                 SEQUENCE {
    rat-Identifier                  RAT-Identifier,
    s-SearchRAT                     S-SearchRXLEV,
    s-HCS-RAT                       S-SearchRXLEV                OPTIONAL,
    s-Limit-SearchRAT               S-SearchRXLEV
}

RAT-TDD-InfoList ::=             SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-TDD-Info

ReservedIndicator ::=            ENUMERATED {
    reserved,
    notReserved }

-- Actual value = IE value * 2
S-SearchQual ::=                 INTEGER (-16..10)

-- Actual value = (IE value * 2) + 1
S-SearchRXLEV ::=                INTEGER (-53..45)

T-Barred ::=                     ENUMERATED {
    s10, s20, s40, s80,
    s160, s320, s640, s1280 }

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

-- The used range depends on the RAT used.
UpperLimit ::=                    INTEGER (1..91)

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

URA-IdentityList ::=             SEQUENCE (SIZE (1..maxURA)) OF
    URA-Identity

```



```

-- *****
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- *****

ActivationTime ::=                INTEGER (0..255)
-- TABULAR : value 'now' always appear as default, and is encoded by absence of the field

BackoffControlParams ::=          SEQUENCE {
    n-AP-RetransMax                N-AP-RetransMax,
    n-AccessFails                  N-AccessFails,
    nf-BO-NoAICH                   NF-BO-NoAICH,
    ns-BO-Busy                     NS-BO-Busy,
    nf-BO-AllBusy                  NF-BO-AllBusy,
    nf-BO-Mismatch                 NF-BO-Mismatch,
    t-CPCH                         T-CPCH
}

C-RNTI ::=                        BIT STRING (SIZE (16))

CapabilityUpdateRequirement ::=   SEQUENCE {
    ue-RadioFDDCapabilityUpdateRequirement  BOOLEAN,
    ue-RadioTDDCapabilityUpdateRequirement  BOOLEAN,
    systemSpecificCapUpdateReqList         SystemSpecificCapUpdateReqList  OPTIONAL
}

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

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

CipheringAlgorithm ::=            ENUMERATED {
    uea0, uea1 }

CipheringModeCommand ::=         CHOICE {
    startRestart                   CipheringAlgorithm,
    stopCiphering                  NULL
}

CipheringModeInfo ::=            SEQUENCE {
    cipheringModeCommand           CipheringModeCommand,
    -- TABULAR: The ciphering algorithm is included in
    -- the CipheringModeCommand.
    activationTimeForDPCH          ActivationTime  OPTIONAL,
    rb-DL-CiphActivationTimeInfo   RB-ActivationTimeInfoList  OPTIONAL
}

CN-DRX-CycleLengthCoefficient ::= INTEGER (6..9)

CN-PagedUE-Identity ::=          CHOICE {
    imsi-GSM-MAP                  IMSI-GSM-MAP,
    tmsi-GSM-MAP                  TMSI-GSM-MAP,
    p-TMSI-GSM-MAP                P-TMSI-GSM-MAP,
    imsi-DS-41                    IMSI-DS-41,
    tmsi-DS-41                    TMSI-DS-41
}

CompressedModeMeasCapability ::= SEQUENCE {
    fdd-Measurements               BOOLEAN,
    -- TABULAR: The IEs below are made optional since they are conditional based
    -- on another information element. Their absence corresponds to the case where
    -- the condition is not true.
    tdd-Measurements              BOOLEAN  OPTIONAL,
    gsm-Measurements              GSM-Measurements  OPTIONAL,
    multiCarrierMeasurements      BOOLEAN  OPTIONAL
}

CPCH-Parameters ::=              SEQUENCE {

```

```

    initialPriorityDelayList      InitialPriorityDelayList      OPTIONAL,
    backoffControlParams         BackoffControlParams,
    powerControlAlgorithm        PowerControlAlgorithm,
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    dl-DPCCH-BER                 DL-DPCCH-BER
}

DL-DPCCH-BER ::=                INTEGER (0..63)

DL-PhysChCapabilityFDD ::=      SEQUENCE {
    maxNoDPCH-PDSCH-Codes        INTEGER (1..8),
    maxNoPhysChBitsReceived      MaxNoPhysChBitsReceived,
    supportForSF-512             BOOLEAN,
    supportOfPDSCH               BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception SimultaneousSCCPCH-DPCH-Reception
}

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

DL-TransChCapability ::=       SEQUENCE {
    maxNoBitsReceived            MaxNoBits,
    maxConvCodeBitsReceived      MaxNoBits,
    turboDecodingSupport         TurboSupport,
    maxSimultaneousTransChs      MaxSimultaneousTransChsDL,
    maxSimultaneousCCTrCH-Count  MaxSimultaneousCCTrCH-Count,
    maxReceivedTransportBlocks   MaxTransportBlocksDL,
    maxNumberOfTFC-InTFCS        MaxNumberOfTFC-InTFCS-DL,
    maxNumberOfTF                 MaxNumberOfTF
}

DRAC-SysInfo ::=               SEQUENCE {
    transmissionProbability       TransmissionProbability,
    maximumBitRate                MaximumBitRate
}

DRAC-SysInfoList ::=           SEQUENCE (SIZE (1..maxDRACclasses)) OF
    DRAC-SysInfo

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

EstablishmentCause ::=         ENUMERATED {
    originatingConversationalCall,
    originatingStreamingCall,
    originatingInteractiveCall,
    originatingBackgroundCall,
    originatingSubscribedTrafficCall,
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    emergencyCall,
    interRAT-CellReselection,
    interRAT-CellChangeOrder,
    registration,
    detach,
    highPrioritySignalling,
    lowPrioritySignalling,
    callRe-establishment,
    spare1 }

FailureCauseWithProtErr ::=    CHOICE {
    configurationUnsupported      NULL,
    physicalChannelFailure        NULL,
    incompatibleSimultaneousReconfiguration
                                NULL,
    compressedModeRuntimeError    TGPSI,
    protocolError                 ProtocolErrorInformation,
    cellReselection                NULL,
    invalidConfiguration          NULL,
    configurationIncomplete        NULL,
    unsupportedMeasurement         NULL,
    spare1                         NULL,
}

```

```

    spare2          NULL,
    spare3          NULL,
    spare4          NULL,
    spare5          NULL,
    spare6          NULL,
    spare7          NULL
}

FailureCauseWithProtErrTrId ::= SEQUENCE {
    rrc-TransactionIdentifier  RRC-TransactionIdentifier,
    failureCause               FailureCauseWithProtErr
}

GSM-Measurements ::= SEQUENCE {
    gsm900                    BOOLEAN,
    dcs1800                   BOOLEAN,
    gsm1900                   BOOLEAN
}

ICS-Version ::= ENUMERATED {
    r99 }

IMSI-and-ESN-DS-41 ::= SEQUENCE {
    imsi-DS-41               IMSI-DS-41,
    esn-DS-41                ESN-DS-41
}

IMSI-DS-41 ::= OCTET STRING (SIZE (5..7))

InitialPriorityDelayList ::= SEQUENCE (SIZE (maxASC)) OF
    NS-IP

InitialUE-Identity ::= CHOICE {
    imsi                    IMSI-GSM-MAP,
    tmsi-and-LAI           TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI        P-TMSI-and-RAI-GSM-MAP,
    imei                   IMEI,
    esn-DS-41             ESN-DS-41,
    imsi-DS-41           IMSI-DS-41,
    imsi-and-ESN-DS-41   IMSI-and-ESN-DS-41,
    tmsi-DS-41           TMSI-DS-41
}

IntegrityCheckInfo ::= SEQUENCE {
    messageAuthenticationCode  MessageAuthenticationCode,
    rrc-MessageSequenceNumber  RRC-MessageSequenceNumber
}

IntegrityProtActivationInfo ::= SEQUENCE {
    rrc-MessageSequenceNumberList  RRC-MessageSequenceNumberList
}

IntegrityProtectionAlgorithm ::= ENUMERATED {
    uial }

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection SEQUENCE {
        integrityProtInitNumber  IntegrityProtInitNumber
    },
    modify dl-IntegrityProtActivationInfo SEQUENCE {
        IntegrityProtActivationInfo
    }
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    integrityProtectionModeCommand  IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm  IntegrityProtectionAlgorithm OPTIONAL
}

IntegrityProtInitNumber ::= BIT STRING (SIZE (32))

MaxHcContextSpace ::= ENUMERATED {
    by512, by1024, by2048, by4096,

```

```

        by8192 }

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am3, am4, am5, am6,
    am8, am16, am32 }

-- Actual value = IE value * 16
MaximumBitRate ::= INTEGER (0..32)

MaximumRLC-WindowSize ::= ENUMERATED { mws2047, mws4095 }

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600 }

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

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

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11 }

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

MaxNumberOfTFC-InTFCS-DL ::= ENUMERATED {
    tfc16, tfc32, tfc48, tfc64, tfc96,
    tfc128, tfc256, tfc512, tfc1024 }

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

MaxPhysChPerFrame ::= INTEGER (1..224)

MaxPhysChPerTimeslot ::= ENUMERATED {
    ts1, ts2 }

MaxPhysChPerTS ::= INTEGER (1..16)

MaxSimultaneousCCTrCH-Count ::= INTEGER (1..8)

MaxSimultaneousTransChsDL ::= ENUMERATED {
    e4, e8, e16, e32 }

MaxSimultaneousTransChsUL ::= ENUMERATED {
    e2, e4, e8, e16, e32 }

MaxTransportBlocksDL ::= ENUMERATED {
    tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTransportBlocksUL ::= ENUMERATED {
    tb2, tb4, tb8, tb16, tb32, tb48,
    tb64, tb96, tb128, tb256, tb512 }

MaxTS-PerFrame ::= INTEGER (1..14)

-- TABULAR: This IE contains dependencies to UE-MultiModeRAT-Capability,
-- the conditional fields have been left mandatory for now.
MeasurementCapability ::= SEQUENCE {
    downlinkCompressedMode          CompressedModeMeasCapability,
    uplinkCompressedMode            CompressedModeMeasCapability
}

MessageAuthenticationCode ::= BIT STRING (SIZE (32))

MinimumSF-DL ::= ENUMERATED {

```

```

        sf1, sf16 }
MinimumSF-UL ::=
    ENUMERATED {
        sf1, sf2, sf4, sf8, sf16 }
MultiModeCapability ::=
    ENUMERATED {
        tdd, fdd, fdd-tdd }
MultiRAT-Capability ::=
    supportOfGSM
    supportOfMulticarrier
    SEQUENCE {
        BOOLEAN,
        BOOLEAN
    }
N-300 ::=
    INTEGER (0..7)
N-301 ::=
    INTEGER (0..7)
N-302 ::=
    INTEGER (0..7)
N-304 ::=
    INTEGER (0..7)
N-308 ::=
    INTEGER (1..8)
N-310 ::=
    INTEGER (0..7)
N-312 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }
N-313 ::=
    ENUMERATED {
        s1, s2, s4, s10, s20,
        s50, s100, s200 }
N-315 ::=
    ENUMERATED {
        s1, s50, s100, s200, s400,
        s600, s800, s1000 }
N-AccessFails ::=
    INTEGER (1..64)
N-AP-RetransMax ::=
    INTEGER (1..64)
NetworkAssistedGPS-Supported ::=
    ENUMERATED {
        networkBased,
        ue-Based,
        bothNetworkAndUE-Based,
        noNetworkAssistedGPS }
NF-BO-AllBusy ::=
    INTEGER (0..31)
NF-BO-NoAICH ::=
    INTEGER (0..31)
NF-BO-Mismatch ::=
    INTEGER (0..127)
NS-BO-Busy ::=
    INTEGER (0..63)
NS-IP ::=
    INTEGER (0..28)
P-TMSI-and-RAI-GSM-MAP ::=
    p-TMSI
    rai
    SEQUENCE {
        P-TMSI-GSM-MAP,
        RAI
    }
PagingCause ::=
    ENUMERATED {
        terminatingConversationalCall,
        terminatingStreamingCall,
        terminatingInteractiveCall,
        terminatingBackgroundCall,
        highPrioritySignalling,
        lowPrioritySignalling
    }
PagingRecord ::=
    cn-Identity
    pagingCause
    cn-DomainIdentity
    cn-pagedUE-Identity
    },
    utran-Identity
    CHOICE {
        SEQUENCE {
            PagingCause,
            CN-DomainIdentity,
            CN-PagedUE-Identity
        },
        SEQUENCE {

```

```

        u-RNTI                U-RNTI,
        cn-OriginatedPage-connectedMode-UE SEQUENCE {
            pagingCause        PagingCause,
            cn-DomainIdentity   CN-DomainIdentity,
            pagingRecordTypeID  PagingRecordTypeID
        }
    }
}

PagingRecordList ::=          SEQUENCE (SIZE (1..maxPage1)) OF
                               PagingRecord

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

PhysicalChannelCapability ::= SEQUENCE {
    fddPhysChCapability             SEQUENCE {
        downlinkPhysChCapability     DL-PhysChCapabilityFDD,
        uplinkPhysChCapability       UL-PhysChCapabilityFDD
    } OPTIONAL,
    tddPhysChCapability             SEQUENCE {
        downlinkPhysChCapability     DL-PhysChCapabilityTDD,
        uplinkPhysChCapability       UL-PhysChCapabilityTDD
    } OPTIONAL
}

ProtocolErrorCause ::=        ENUMERATED {
    asnl-ViolationOrEncodingError,
    messageTypeNonexistent,
    messageNotCompatibleWithReceiverState,
    ie-ValueNotComprehended,
    conditionalInformationElementError,
    messageExtensionNotComprehended,
    spare1, spare2
}

ProtocolErrorIndicator ::=    ENUMERATED {
    noError, errorOccurred
}

ProtocolErrorIndicatorWithMoreInfo ::=
    CHOICE {
        noError                NULL,
        errorOccurred          SEQUENCE {
            rrc-TransactionIdentifier    RRC-TransactionIdentifier,
            protocolErrorInformation     ProtocolErrorInformation
        }
    }

ProtocolErrorMoreInformation ::= SEQUENCE {
    diagnosticsType            CHOICE {
        type1                   CHOICE {
            asnl-ViolationOrEncodingError    NULL,
            messageTypeNonexistent           NULL,
            messageNotCompatibleWithReceiverState
                IdentificationOfReveivedMessage,
            ie-ValueNotComprehended          IdentificationOfReveivedMessage,
            conditionalInformationElementError IdentificationOfReveivedMessage,
            messageExtensionNotComprehended  IdentificationOfReveivedMessage,
            spare1                          NULL,
            spare2                          NULL
        },
        spare                      NULL
    }
}

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

Rb-timer-indicator ::=        SEQUENCE {
    t314-expired                BOOLEAN,
    t315-expired                BOOLEAN
}

Re-EstablishmentTimer ::=     ENUMERATED {
    useT314, useT315
}

```

```

}

RedirectionInfo ::=
    frequencyInfo
    interRATInfo
}

RejectionCause ::=
    ENUMERATED {
        congestion,
        unspecified }

ReleaseCause ::=
    ENUMERATED {
        normalEvent,
        unspecified,
        pre-emptiveRelease,
        congestion,
        re-establishmentReject,
        directedsignallingconnectionre-establishment,
        userInactivity }

RF-Capability ::=
    fddRF-Capability
    ue-PowerClass
    txRxFrequencySeparation
}
    tddRF-Capability
    ue-PowerClass
    radioFrequencyBandList
    chipRateCapability
}

}

RLC-Capability ::=
    totalRLC-AM-BufferSize
    maximumRLC-WindowSize
    maximumAM-EntityNumber
}

RRC-MessageSequenceNumber ::=
    INTEGER (0..15)

RRC-MessageSequenceNumberList ::=
    SEQUENCE (SIZE (4..5)) OF
        RRC-MessageSequenceNumber

RRC-StateIndicator ::=
    ENUMERATED {
        cell-DCH, cell-FACH, cell-PCH, ura-PCH }

RRC-TransactionIdentifier ::=
    INTEGER (0..3)

S-RNTI ::=
    BIT STRING (SIZE (20))

S-RNTI-2 ::=
    BIT STRING (SIZE (10))

SecurityCapability ::=
    cipheringAlgorithmCap
    integrityProtectionAlgorithmCap
}

SimultaneousSCCPCH-DPCH-Reception ::=
    CHOICE {
        notSupported
        supported
        maxNoSCCPCH-RL
        simultaneousSCCPCH-DPCH-DPDCH-Reception
        -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}

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

START-Value ::=
    BIT STRING (SIZE (20))

STARTList ::=
    SEQUENCE (SIZE (1..maxCNdomains)) OF
        STARTSingle

STARTSingle ::=
    SEQUENCE {

```

```

    cn-DomainIdentity          CN-DomainIdentity,
    start-Value                START-Value
}

SystemSpecificCapUpdateReq ::= ENUMERATED {
    gsm }

SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
    SystemSpecificCapUpdateReq

T-300 ::= ENUMERATED {
    ms100, ms200, ms400, ms600, ms800,
    ms1000, ms1200, ms1400, ms1600,
    ms1800, ms2000, ms3000, ms4000,
    ms6000, ms8000 }

T-301 ::= ENUMERATED {
    ms100, ms200, ms400, ms600, ms800,
    ms1000, ms1200, ms1400, ms1600,
    ms1800, ms2000, ms3000, ms4000,
    ms6000, ms8000 }

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

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

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

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

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

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

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

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

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

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

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

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

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

T-317 ::= ENUMERATED {
    s0, s10, s30, s60, s180,
    s600, s1200, s1800 }

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

TMSI-and-LAI-GSM-MAP ::= SEQUENCE {

```



```

    tmsi                TMSI-GSM-MAP,
    lai                LAI
}

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

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

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

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

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

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

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

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

UE-ConnTimersAndConstants ::= SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
    t-301                  T-301                DEFAULT ms2000,
    n-301                  N-301                DEFAULT 2,
    t-302                  T-302                DEFAULT ms4000,
    n-302                  N-302                DEFAULT 3,
    t-304                  T-304                OPTIONAL,
    n-304                  N-304                OPTIONAL,
    t-305                  T-305                DEFAULT m30,
    t-307                  T-307                DEFAULT s30,
    t-308                  T-308                OPTIONAL,
    t-309                  T-309                OPTIONAL,
    t-310                  T-310                DEFAULT ms160,
    n-310                  N-310                DEFAULT 4,
    t-311                  T-311                DEFAULT ms2000,
    t-312                  T-312                DEFAULT 1,
    n-312                  N-312                DEFAULT s1,
    t-313                  T-313                OPTIONAL,
    n-313                  N-313                OPTIONAL,
    t-314                  T-314                OPTIONAL,
    t-315                  T-315                OPTIONAL,
    n-315                  N-315                OPTIONAL,
    t-316                  T-316                OPTIONAL,
    t-317                  T-317                OPTIONAL
}

UE-IdleTimersAndConstants ::= SEQUENCE {
    t-300                  T-300,
    n-300                  N-300,
    t-312                  T-312,
    n-312                  N-312
}

UE-MultiModeRAT-Capability ::= SEQUENCE {
    multiRAT-CapabilityList MultiRAT-Capability,
    multiModeCapability      MultiModeCapability
}

UE-PowerClass ::=        INTEGER (1..4)

UE-RadioAccessCapability ::= SEQUENCE {

```

```

ics-Version                ICS-Version,
pdcp-Capability            PDCP-Capability,
rlc-Capability             RLC-Capability,
transportChannelCapability TransportChannelCapability,
rf-Capability             RF-Capability,
physicalChannelCapability PhysicalChannelCapability,
ue-MultiModeRAT-Capability UE-MultiModeRAT-Capability,
securityCapability         SecurityCapability,
up-Capability             UP-Capability,
measurementCapability      MeasurementCapability        OPTIONAL
}

UL-PhysChCapabilityFDD ::= SEQUENCE {
    maxNoDPDCH-BitsTransmitted MaxNoDPDCH-BitsTransmitted,
    supportOfPCPCH            BOOLEAN
}

UL-PhysChCapabilityTDD ::= SEQUENCE {
    maxTS-PerFrame           MaxTS-PerFrame,
    maxPhysChPerTimeslot    MaxPhysChPerTimeslot,
    minimumSF                MinimumSF-UL,
    supportOfPUSCH          BOOLEAN
}

UL-TransChCapability ::= SEQUENCE {
    maxNoBitsTransmitted    MaxNoBits,
    maxConvCodeBitsTransmitted MaxNoBits,
    turboDecodingSupport    TurboSupport,
    maxSimultaneousTransChs MaxSimultaneousTransChsUL,
    modeSpecificInfo        CHOICE {
        fdd                 NULL,
        tdd                 SEQUENCE {
            maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count
        }
    },
    maxTransmittedBlocks    MaxTransportBlocksUL,
    maxNumberOfTFC-InTFCS  MaxNumberOfTFC-InTFCS-UL,
    maxNumberOfTF          MaxNumberOfTF
}

UP-Capability ::= SEQUENCE {
    standaloneLocMethodsSupported BOOLEAN,
    ue-BasedOTDOA-Supported     BOOLEAN,
    networkAssistedGPS-Supported NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable    BOOLEAN,
    supportForIDL               BOOLEAN
}

URA-UpdateCause ::= ENUMERATED {
    changeOfURA,
    periodicURAUpdate,
    re-enteredServiceArea,
    spare1 }

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

WaitTime ::= INTEGER (0..15)

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

AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info          RFC2507-Info
}

-- Upper limit is 2^32 - 1
COUNT-C ::= INTEGER (0..4294967295)

-- Upper limit is 2^25 - 1
COUNT-C-MSB ::= INTEGER (0..33554431)

DL-AM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN,
    receivingWindowSize    ReceivingWindowSize,
    dl-RLC-StatusInfo     DL-RLC-StatusInfo
}

```

```

}

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

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

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

DL-RLC-StatusInfo ::=                SEQUENCE {
    timerStatusProhibit               TimerStatusProhibit           OPTIONAL,
    timerEPC                          TimerEPC                       OPTIONAL,
    missingPU-Indicator                BOOLEAN,
    timerStatusPeriodic               TimerStatusPeriodic          OPTIONAL
}

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

DL-TransportChannelType ::=           CHOICE {
    dch                               TransportChannelIdentity,
    fach                              NULL,
    dsch                              TransportChannelIdentity
}

ExpectReordering ::=                 ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

ExplicitDiscard ::=                  SEQUENCE {
    timerMRW                          TimerMRW,
    timerDiscard                      TimerDiscard,
    maxMRW                            MaxMRW
}

HeaderCompressionInfo ::=            SEQUENCE {
    algorithmSpecificInfo             AlgorithmSpecificInfo
}

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

LogicalChannelIdentity ::=            INTEGER (1..15)

LosslessSRNS-RelocSupport ::=        CHOICE {
    supported                          MaxPDCP-SN-WindowSize,
    notSupported                       NULL
}

MAC-LogicalChannelPriority ::=         INTEGER (1..8)

MaxDAT ::=                           ENUMERATED {
    dat1, dat2, dat3, dat4, dat5, dat6,
    dat7, dat8, dat9, dat10, dat15, dat20,
    dat25, dat30, dat35, dat40 }

MaxDAT-Retransmissions ::=            SEQUENCE {
    maxDAT                            MaxDAT,
    timerMRW                          TimerMRW,
    maxMRW                            MaxMRW
}

MaxMRW ::=                            ENUMERATED {
    mm1, mm4, mm6, mm8, mm12, mm16,
    mm24, mm32 }

MaxPDCP-SN-WindowSize ::=             ENUMERATED {
    sn255, sn65535 }

```

```

MaxRST ::=
    ENUMERATED {
        rst1, rst4, rst6, rst8, rst12,
        rst16, rst24, rst32 }

NoExplicitDiscard ::=
    ENUMERATED {
        dt10, dt20, dt30, dt40, dt50,
        dt60, dt70, dt80, dt90, dt100 }

PDCP-Info ::=
    SEQUENCE {
        losslessSRNS-RelocSupport    LosslessSRNS-RelocSupport    OPTIONAL,
        pdcp-PDU-Header              PDCP-PDU-Header,
        -- TABULAR: The IE above is MD in the tabular format and it can be encoded
        -- in one bit, so the OPTIONAL is removed for compactness.
        headerCompressionInfoList    HeaderCompressionInfoList    OPTIONAL
    }

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

Poll-SDU ::=
    ENUMERATED {
        sdu1, sdu4, sdu16, sdu64 }

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

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

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

PredefinedRB-Configuration ::=
    SEQUENCE {
        srb-InformationList          SRB-InformationSetupList,
        rb-InformationList           RB-InformationSetupList
    }

PreDefRadioConfiguration ::=
    SEQUENCE {
        -- User equipment IEs
        re-EstablishmentTimer       Re-EstablishmentTimer,
        -- Radio bearer IEs
        predefinedRB-Configuration   PredefinedRB-Configuration,
        -- Transport channel IEs
        preDefTransChConfiguration   PreDefTransChConfiguration,
        -- Physical channel IEs
        preDefPhyChConfiguration     PreDefPhyChConfiguration
    }

RAB-Info ::=
    SEQUENCE {
        rab-Identity                 RAB-Identity,
        cn-DomainIdentity            CN-DomainIdentity,
        nas-Synchronisation-Indicator NAS-Synchronisation-Indicator    OPTIONAL,
        re-EstablishmentTimer       Re-EstablishmentTimer
    }

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

```

```

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

RAB-InformationReconfig ::= SEQUENCE {
    rab-Identity                RAB-Identity,
    cn-DomainIdentity           CN-DomainIdentity,
    nas-Synchronisation-Indicator NAS-Synchronisation-Indicator
}

RAB-Info-Post ::= SEQUENCE {
    rab-Identity                RAB-Identity,
    cn-DomainIdentity           CN-DomainIdentity,
    nas-Synchronisation-Indicator NAS-Synchronisation-Indicator OPTIONAL
}

RAB-InformationSetup ::= SEQUENCE {
    rab-Info                    RAB-Info,
    rb-InformationSetupList     RB-InformationSetupList
}

RAB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRABsetup)) OF
                                RAB-InformationSetup

RB-ActivationTimeInfo ::= SEQUENCE {
    rb-Identity                 RB-Identity,
    rlc-SequenceNumber          RLC-SequenceNumber
}

RB-ActivationTimeInfoList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                RB-ActivationTimeInfo

RB-COUNT-C-Information ::= SEQUENCE {
    rb-Identity                 RB-Identity,
    count-C-UL                  COUNT-C,
    count-C-DL                  COUNT-C
}

RB-COUNT-C-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                RB-COUNT-C-Information

RB-COUNT-C-MSB-Information ::= SEQUENCE {
    rb-Identity                 RB-Identity,
    count-C-MSB-UL              COUNT-C-MSB,
    count-C-MSB-DL              COUNT-C-MSB
}

RB-COUNT-C-MSB-InformationList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                RB-COUNT-C-MSB-Information

RB-Identity ::= INTEGER (1..32)

RB-IdentityList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                RB-Identity

RB-InformationAffected ::= SEQUENCE {
    rb-Identity                 RB-Identity,
    rb-MappingInfo              RB-MappingInfo
}

RB-InformationAffectedList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                RB-InformationAffected

RAB-InformationReconfig ::= SEQUENCE {
    rab-Identity                RB-Identity,
    pdcp-Info                   PDCP-InfoReconfig OPTIONAL,
    pdcp-SN-Info                 PDCP-SN-Info OPTIONAL,
    rlc-Info                     RLC-Info OPTIONAL,
    rb-MappingInfo               RB-MappingInfo OPTIONAL,
    rb-StopContinue              RB-StopContinue OPTIONAL
}

RB-InformationReconfigList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                RB-InformationReconfig

RB-InformationReleaseList ::= SEQUENCE (SIZE (1..maxRB)) OF
                                RB-Identity

RB-InformationSetup ::= SEQUENCE {

```

```

    rb-Identity          RB-Identity,
    pdcp-Info           PDCP-Info          OPTIONAL,
    rlc-Info            RLC-Info,
    rb-MappingInfo     RB-MappingInfo
}

RB-InformationSetupList ::= SEQUENCE (SIZE (1..maxRBperRAB)) OF
    RB-InformationSetup

RB-MappingInfo ::= SEQUENCE (SIZE (1..maxRBMuxOptions)) OF
    RB-MappingOption

RB-MappingOption ::= SEQUENCE {
    ul-LogicalChannelMappings UL-LogicalChannelMappings OPTIONAL,
    dl-LogicalChannelMappingList DL-LogicalChannelMappingList OPTIONAL
}

RB-StopContinue ::= ENUMERATED {
    stopRB, continueRB }

RB-WithPDCP-Info ::= SEQUENCE {
    rb-Identity          RB-Identity,
    pdcp-SN-Info        PDCP-SN-Info
}

RB-WithPDCP-InfoList ::= SEQUENCE (SIZE (1..maxRBallRABs)) OF
    RB-WithPDCP-Info

ReceivingWindowSize ::= ENUMERATED {
    rw1, rw8, rw16, rw32, rw64, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2047,
    rw2560, rw3072, rw3584, rw4095 }

RFC2507-Info ::= SEQUENCE {
    f-MAX-PERIOD          INTEGER (1..65535)          DEFAULT 256,
    f-MAX-TIME            INTEGER (1..255)            DEFAULT 5,
    max-HEADER            INTEGER (60..65535)         DEFAULT 168,
    tcp-SPACE             INTEGER (3..255)            DEFAULT 15,
    non-TCP-SPACE         INTEGER (3..65535)          DEFAULT 15,
    expectReordering      ExpectReordering
    -- TABULAR: The IE above has only two possible values, so using Optional or Default
    -- would be wasteful
}

RLC-Info ::= SEQUENCE {
    ul-RLC-Mode          UL-RLC-Mode          OPTIONAL,
    dl-RLC-Mode          DL-RLC-Mode          OPTIONAL
}

RLC-SequenceNumber ::= INTEGER (0..4095)

RLC-SizeInfo ::= SEQUENCE {
    rlc-SizeIndex        INTEGER (1..maxTF)
}

RLC-SizeExplicitList ::= SEQUENCE (SIZE (1..maxTF)) OF
    RLC-SizeInfo

SRB-InformationSetup ::= SEQUENCE {
    rb-Identity          RB-Identity          OPTIONAL,
    -- The default value for the IE above is the smallest value not used yet.
    rlc-Info            RLC-Info,
    rb-MappingInfo     RB-MappingInfo
}

SRB-InformationSetupList ::= SEQUENCE (SIZE (1..maxSRBsetup)) OF
    SRB-InformationSetup

SRB-InformationSetupList2 ::= SEQUENCE (SIZE (3..4)) OF
    SRB-InformationSetup

TimerDiscard ::= ENUMERATED {
    td0-1, td0-25, td0-5, td0-75,
    td1, td1-25, td1-5, td1-75,
    td2, td2-5, td3, td3-5, td4,
    td4-5, td5, td7-5 }

TimerEPC ::= ENUMERATED {

```

```

        te50, te60, te70, te80, te90,
        te100, te120, te140, te160, te180,
        te200, te300, te400, te500, te700,
        te900 }

TimerMRW ::=
    ENUMERATED {
        te50, te60, te70, te80, te90, te100,
        te120, te140, te160, te180, te200,
        te300, te400, te500, te700, te900 }

TimerPoll ::=
    ENUMERATED {
        tp10, tp20, tp30, tp40, tp50,
        tp60, tp70, tp80, tp90, tp100,
        tp110, tp120, tp130, tp140, tp150,
        tp160, tp170, tp180, tp190, tp200,
        tp210, tp220, tp230, tp240, tp250,
        tp260, tp270, tp280, tp290, tp300,
        tp310, tp320, tp330, tp340, tp350,
        tp360, tp370, tp380, tp390, tp400,
        tp410, tp420, tp430, tp440, tp450,
        tp460, tp470, tp480, tp490, tp500,
        tp510, tp520, tp530, tp540, tp550,
        tp600, tp650, tp700, tp750, tp800,
        tp850, tp900, tp950, tp1000 }

TimerPollPeriodic ::=
    ENUMERATED {
        tper100, tper200, tper300, tper400,
        tper500, tper750, tper1000, tper2000 }

TimerPollProhibit ::=
    ENUMERATED {
        tpp10, tpp20, tpp30, tpp40, tpp50,
        tpp60, tpp70, tpp80, tpp90, tpp100,
        tpp110, tpp120, tpp130, tpp140, tpp150,
        tpp160, tpp170, tpp180, tpp190, tpp200,
        tpp210, tpp220, tpp230, tpp240, tpp250,
        tpp260, tpp270, tpp280, tpp290, tpp300,
        tpp310, tpp320, tpp330, tpp340, tpp350,
        tpp360, tpp370, tpp380, tpp390, tpp400,
        tpp410, tpp420, tpp430, tpp440, tpp450,
        tpp460, tpp470, tpp480, tpp490, tpp500,
        tpp510, tpp520, tpp530, tpp540, tpp550,
        tpp600, tpp650, tpp700, tpp750, tpp800,
        tpp850, tpp900, tpp950, tpp1000 }

TimerRST ::=
    ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000 }

TimerStatusPeriodic ::=
    ENUMERATED {
        tsp100, tsp200, tsp300, tsp400, tsp500,
        tsp750, tsp1000, tsp2000 }

TimerStatusProhibit ::=
    ENUMERATED {
        tsp10, tsp20, tsp30, tsp40, tsp50,
        tsp60, tsp70, tsp80, tsp90, tsp100,
        tsp110, tsp120, tsp130, tsp140, tsp150,
        tsp160, tsp170, tsp180, tsp190, tsp200,
        tsp210, tsp220, tsp230, tsp240, tsp250,
        tsp260, tsp270, tsp280, tsp290, tsp300,
        tsp310, tsp320, tsp330, tsp340, tsp350,
        tsp360, tsp370, tsp380, tsp390, tsp400,
        tsp410, tsp420, tsp430, tsp440, tsp450,
        tsp460, tsp470, tsp480, tsp490, tsp500,
        tsp510, tsp520, tsp530, tsp540, tsp550,
        tsp600, tsp650, tsp700, tsp750, tsp800,
        tsp850, tsp900, tsp950, tsp1000 }

TransmissionRLC-Discard ::=
    timerBasedExplicit
    timerBasedNoExplicit
    maxDAT-Retransmissions
    noDiscard
}

TransmissionWindowSize ::=
    ENUMERATED {
        tw1, tw8, tw16, tw32, tw64, tw128, tw256,
        tw512, tw768, tw1024, tw1536, tw2047,

```

```

tw2560, tw3072, tw3584, tw4095 }

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

UL-LogicalChannelMapping ::=                     SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType                       UL-TransportChannelType,
    logicalChannelIdentity                         LogicalChannelIdentity OPTIONAL,
    rlc-SizeList                                  CHOICE {
        allSizes                                  NULL,
        configured                               NULL,
        explicitList                              RLC-SizeExplicitList
    },
    mac-LogicalChannelPriority                     MAC-LogicalChannelPriority
}

UL-LogicalChannelMappingList ::=                SEQUENCE {
    rlc-LogicalChannelMappingIndicator            BOOLEAN,
    ul-LogicalChannelMapping                     SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                                UL-LogicalChannelMapping
}

UL-LogicalChannelMappings ::=                   CHOICE {
    oneLogicalChannel                            UL-LogicalChannelMapping,
    twoLogicalChannels                           UL-LogicalChannelMappingList
}

UL-RLC-Mode ::=                                 CHOICE {
    ul-AM-RLC-Mode                               UL-AM-RLC-Mode,
    ul-UM-RLC-Mode                               UL-UM-RLC-Mode,
    ul-TM-RLC-Mode                               UL-TM-RLC-Mode,
    spare                                         NULL
}

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

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

UL-TransportChannelType ::=                     CHOICE {
    dch                                           TransportChannelIdentity,
    rach                                          NULL,
    cpch                                          NULL,
    usch                                          NULL
}

-- *****
--
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
--
-- *****

AllowedTFC-List ::=                             SEQUENCE (SIZE (1..maxTFC)) OF
                                                TFC-Value

AllowedTFI-List ::=                             SEQUENCE (SIZE (1..maxTF)) OF
                                                INTEGER (0..31)

BitModeRLC-SizeInfo ::=                         CHOICE {
    sizeType1                                    INTEGER (1..127),
    sizeType2                                    SEQUENCE {
        part1                                    INTEGER (0..15),
        part2                                    INTEGER (1..7) OPTIONAL
    },
    sizeType3                                    SEQUENCE {
        part1                                    INTEGER (0..47),

```



```

        part2                                INTEGER (1..15)                                OPTIONAL
        -- Actual size = (part1 * 16) + 256 + part2
    },
    sizeType4                                SEQUENCE {
        part1                                INTEGER (0..62),
        part2                                INTEGER (1..63)                                OPTIONAL
        -- Actual size = (part1 * 64) + 1024 + part2
    }
}
-- Actual value = IE value * 0.1
BLER-QualityValue ::=                       INTEGER (-63..0)

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

CodingRate ::=                              ENUMERATED {
    half,
    third }

CommonDynamicTF-Info ::=                   SEQUENCE {
    rlc-Size                                CHOICE {
        fdd                                 SEQUENCE {
            octetModeRLC-SizeInfoType2     OctetModeRLC-SizeInfoType2
        },
        tdd                                 SEQUENCE {
            commonTDD-Choice                CHOICE {
                bitModeRLC-SizeInfo         BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1  OctetModeRLC-SizeInfoType1
            }
        }
    },
    numberOfTbSizeList                      SEQUENCE (SIZE (1..maxTF)) OF
        NumberOfTransportBlocks,
    logicalChannelList                      LogicalChannelList
}

CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    commonTDD-Choice                        CHOICE {
        bitModeRLC-SizeInfo                BitModeRLC-SizeInfo,
        octetModeRLC-SizeInfoType1         OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeAndTTIList                NumberOfTbSizeAndTTIList,
    logicalChannelList                      LogicalChannelList
}

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

CommonDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
    CommonDynamicTF-Info-DynamicTTI

CommonTransChTFS ::=                       SEQUENCE {
    tti                                      CHOICE {
        tti10                              CommonDynamicTF-InfoList,
        tti20                              CommonDynamicTF-InfoList,
        tti40                              CommonDynamicTF-InfoList,
        tti80                              CommonDynamicTF-InfoList,
        dynamic                             CommonDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information                SemistaticTF-Information
}

CPCH-SetID ::=                             INTEGER (1..maxCPCHsets)

CRC-Size ::=                               ENUMERATED {
    crc0, crc8, crc12, crc16, crc24 }

DedicatedDynamicTF-Info ::=               SEQUENCE {
    rlc-Size                                CHOICE {
        bitMode                             BitModeRLC-SizeInfo,
        octetModeType1                      OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeList                      SEQUENCE (SIZE (1..maxTF)) OF
        NumberOfTransportBlocks,
    logicalChannelList                      LogicalChannelList
}

```

```

}

DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
    rlc-Size                CHOICE {
        bitMode                BitModeRLC-SizeInfo,
        octetModeType1         OctetModeRLC-SizeInfoType1
    },
    numberOfTbSizeAndTTIList    NumberOfTbSizeAndTTIList,
    logicalChannelList          LogicalChannelList
}

DedicatedDynamicTF-InfoList ::= SEQUENCE (SIZE (1..maxTF)) OF
    DedicatedDynamicTF-Info

DedicatedDynamicTF-InfoList-DynamicTTI ::= SEQUENCE (SIZE (1..maxTF)) OF
    DedicatedDynamicTF-Info-DynamicTTI

DedicatedTransChTFS ::= SEQUENCE {
    tti                CHOICE {
        tti10            DedicatedDynamicTF-InfoList,
        tti20            DedicatedDynamicTF-InfoList,
        tti40            DedicatedDynamicTF-InfoList,
        tti80            DedicatedDynamicTF-InfoList,
        dynamic          DedicatedDynamicTF-InfoList-DynamicTTI
    },
    semistaticTF-Information    SemistaticTF-Information
}

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

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

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::= SEQUENCE {
    dl-transportChannelIdentity    TransportChannelIdentity,
    tfs-SignallingMode            CHOICE {
        explicit                    TransportFormatSet,
        sameAsULTrCH                TransportChannelIdentity
    },
    dch-QualityTarget              QualityTarget                OPTIONAL,
    tm-SignallingInfo              TM-SignallingInfo            OPTIONAL
}

-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity        TransportChannelIdentity,
    tfs-SignallingMode            CHOICE {
        explicit                    TransportFormatSet,
        sameAsULTrCH                TransportChannelIdentity
    },
    qualityTarget                  QualityTarget                OPTIONAL
}

DL-CommonTransChInfo ::= SEQUENCE {
    sccpch-TFCS                    TFCS                OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            tfs-SignallingMode    CHOICE {
                explicit          TFCS,
                sameAsUL          NULL
            }
        },
        tdd                        SEQUENCE {
            individualDL-CCTrCH-InfoList    IndividualDL-CCTrCH-InfoList    OPTIONAL
        }
    }
}

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

```

```

DRAC-ClassIdentity ::= INTEGER (1..maxDRACclasses)

DRAC-StaticInformation ::= SEQUENCE {
    transmissionTimeValidity
    timeDurationBeforeRetry
    drac-ClassIdentity
}

DRAC-StaticInformationList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    DRAC-StaticInformation

ExplicitTFCS-Configuration ::= CHOICE {
    complete
    addition
    removal
    replacement
        tfcsRemoval
        tfcsAdd
    }
}

GainFactor ::= INTEGER (0..15)

GainFactorInformation ::= CHOICE {
    signalledGainFactors
    computedGainFactors
}

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

IndividualDL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualDL-CCTrCH-Info

IndividualUL-CCTrCH-Info ::= SEQUENCE {
    ul-TFCS-Identity
    ul-TFCS
}

IndividualUL-CCTrCH-InfoList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    IndividualUL-CCTrCH-Info

LogicalChannelByRB ::= SEQUENCE {
    rb-Identity
    logChOfRb
}
OPTIONAL

LogicalChannelList ::= CHOICE {
    allSizes
    configured
    explicitList
}

NumberOfTbSizeAndTTIList ::= SEQUENCE (SIZE (1..maxTF)) OF SEQUENCE {
    numberOfTransportBlocks
    transmissionTimeInterval
}

MessType ::= ENUMERATED {
    transportFormatCombinationControl }

Non-allowedTFC-List ::= SEQUENCE (SIZE (1..maxTFC)) OF
    TFC-Value

NumberOfTransportBlocks ::= CHOICE {
    zero
    one
    small
    large
}

OctetModeRLC-SizeInfoType1 ::= CHOICE {

```

```

sizeType1                INTEGER (0..31),
-- Actual size = (8 * sizeType1) + 16
sizeType2                SEQUENCE {
    part1                INTEGER (0..23),
    part2                INTEGER (1..3)
-- Actual size = (32 * part1) + 272 + (part2 * 8)
},
sizeType3                SEQUENCE {
    part1                INTEGER (0..61),
    part2                INTEGER (1..7)
-- Actual size = (64 * part1) + 1040 + (part2 * 8)
}
}

OctetModeRLC-SizeInfoType2 ::= CHOICE {
    sizeType1            INTEGER (0..31),
-- Actual size = (sizeType1 * 8) + 48
    sizeType2            INTEGER (0..63),
-- Actual size = (sizeType2 * 16) + 312
    sizeType3            INTEGER (0..56)
-- Actual size = (sizeType3 *64) + 1384
}

PowerOffsetInformation ::= SEQUENCE {
    gainFactorInformation GainFactorInformation,
-- PowerOffsetPp-m is always absent in TDD
    powerOffsetPp-m      PowerOffsetPp-m
}

PowerOffsetPp-m ::= INTEGER (-5..10)

PreDefTransChConfiguration ::= SEQUENCE {
    ul-CommonTransChInfo    UL-CommonTransChInfo,
    ul-AddReconfTrChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo    DL-CommonTransChInfo,
    dl-TrChInfoList         DL-AddReconfTransChInfoList
}

QualityTarget ::= SEQUENCE {
    bler-QualityValue      BLER-QualityValue
}

RateMatchingAttribute ::= INTEGER (1..hIRM)

ReferenceTFC-ID ::= INTEGER (0..3)

RestrictedTrChInfo ::= SEQUENCE {
    restrictedTrChIdentity  TransportChannelIdentity,
    allowedTFI-List        AllowedTFI-List
}

RestrictedTrChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    RestrictedTrChInfo

SemistaticTF-Information ::= SEQUENCE {
-- TABULAR: Transmission time interval has been included in the IE CommonTransChTFS.
    channelCodingType      ChannelCodingType,
    rateMatchingAttribute  RateMatchingAttribute,
    crc-Size               CRC-Size
}

SignalledGainFactors ::= SEQUENCE {
    modeSpecificInfo       CHOICE {
        fdd                SEQUENCE {
            gainFactorBetaC GainFactor
        },
        tdd                NULL
    },
    gainFactorBetaD        GainFactor,
    referenceTFC-ID        ReferenceTFC-ID
}

SplitTFCI-Signalling ::= SEQUENCE {
    splitType              SplitType
    tfci-Field2-Length     INTEGER (1..10)
    tfci-Field1-Information ExplicitTFCS-Configuration
    tfci-Field2-Information TFCSI-Field2-Information
}

```

```

}

SplitType ::=
    ENUMERATED {
        hardSplit, logicalSplit }

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

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

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

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

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

TFCS ::=
    normalTFCS-Signalling
    splitTFCS-Signalling
    CHOICE {
        ExplicitTFCS-Configuration,
        SplitTFCS-Signalling
    }

TFCS-Identity ::=
    tfcs-ID
    sharedChannelIndicator
    SEQUENCE {
        INTEGER (1..8)
        BOOLEAN
        DEFAULT 1,
    }

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

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

TFCS-ReconfAdd ::=
    ctfcSize
    ctfc2Bit
    ctfc2
    gainFactorInformation
    },
    ctfc4Bit
    ctfc4
    gainFactorInformation
    },
    ctfc6Bit
    ctfc6
    gainFactorInformation
    },
    ctfc8Bit
    ctfc8
    gainFactorInformation
    },
    ctfc12Bit
    ctfc12
    gainFactorInformation
    },
    ctfc16Bit
    ctfc16
    gainFactorInformation
    },
    ctfc24Bit
    ctfc24
    SEQUENCE{
        CHOICE{
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER (0..3),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER (0..15),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER (0..63),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER (0..255),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
                INTEGER (0..4095),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER(0..65535),
                PowerOffsetInformation
                OPTIONAL
            },
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER(0..16777215),
            }
        }
    }

```

```

        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    }
}
TFCS-Removal ::= SEQUENCE {
    tfci          INTEGER (0..1023)
}
TFCS-RemovalList ::= SEQUENCE (SIZE (1..maxTFC)) OF
    TFCS-Removal
TimeDurationBeforeRetry ::= INTEGER (1..256)
TM-SignallingInfo ::= SEQUENCE {
    messType      MessType,
    tm-SignallingMode CHOICE {
        mode1      NULL,
        mode2      SEQUENCE {
            ul-controlledTrChList    UL-ControlledTrChList
        }
    }
}
TransmissionTimeInterval ::= ENUMERATED {
    tti10, tti20, tti40, tti80 }
TransmissionTimeValidity ::= INTEGER (1..256)
TransportChannelIdentity ::= INTEGER (1..32)
TransportFormatSet ::= CHOICE {
    dedicatedTransChTFS    DedicatedTransChTFS,
    commonTransChTFS      CommonTransChTFS
}
UL-AddReconfTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    UL-AddReconfTransChInformation
UL-AddReconfTransChInformation ::= SEQUENCE {
    transportChannelIdentity    TransportChannelIdentity,
    transportFormatSet          TransportFormatSet
}
UL-CommonTransChInfo ::= SEQUENCE {
    tfc-Subset          TFC-Subset          OPTIONAL,
    prach-TFCS          TFCS                OPTIONAL,
    modeSpecificInfo    CHOICE {
        fdd              SEQUENCE {
            ul-TFCS      TFCS
        },
        tdd              SEQUENCE {
            individualUL-CCTrCH-InfoList    IndividualUL-CCTrCH-InfoList    OPTIONAL,
            ul-TFCS          TFCS
        }
    }
}
UL-ControlledTrChList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity
UL-DeletedTransChInfoList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity
-- *****
--
--     PHYSICAL CHANNEL INFORMATION ELEMENTS (10.3.6)
--
-- *****
AC-To-ASC-Mapping ::= INTEGER (0..7)
AC-To-ASC-MappingTable ::= SEQUENCE (SIZE (maxASCmap)) OF
    AC-To-ASC-Mapping
AccessServiceClass ::= SEQUENCE {

```

```

    availableSignatureStartIndex      INTEGER (0..15),
    availableSignatureEndIndex        INTEGER (0..15),

    assignedSubChannelNumber          BIT STRING (SIZE(4))
}

AccessServiceClassIndex ::=          INTEGER (1..8)

AICH-Info ::=                        SEQUENCE {
    channelisationCode256             ChannelisationCode256,
    sttd-Indicator                    BOOLEAN,
    aich-TransmissionTiming           AICH-TransmissionTiming
}

AICH-PowerOffset ::=                INTEGER (-22..5)

AICH-TransmissionTiming ::=         ENUMERATED {
    e0, e1 }

AllocationPeriodInfo ::=            SEQUENCE {
    allocationActivationTime           INTEGER (1..256),
    allocationDuration                INTEGER (1..256)
}

Alpha ::=                            INTEGER (0..8)

AP-AICH-ChannelisationCode ::=      INTEGER (0..255)

AP-PreambleScramblingCode ::=       INTEGER (0..79)

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

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

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

ASC ::=                              SEQUENCE {
    accessServiceClass                AccessServiceClassIndex,
    repetitionPeriodAndOffset         ASC-RepetitionPeriodAndOffset    OPTIONAL
    -- TABULAR: The offset is nested in the repetition period
}

ASC-RepetitionPeriodAndOffset ::=    CHOICE {
    rp1                               NULL,
    rp2                               INTEGER (0..1),
    rp4                               INTEGER (0..3),
    rp8                               INTEGER (0..7)
}

ASCSetting ::=                       SEQUENCE {
    -- TABULAR: This is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available signature and sub-channels
    accessServiceClass                AccessServiceClass            OPTIONAL
}

AvailableAP-Signature-VCAMList ::=    SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature-VCAM

AvailableAP-SignatureList ::=         SEQUENCE (SIZE (1..maxPCPCH-APsig)) OF
    AP-Signature

AvailableAP-SubchannelList ::=        SEQUENCE (SIZE (1..maxPCPCH-APsubCh)) OF
    AP-Subchannel

AvailableMinimumSF-ListVCAM ::=       SEQUENCE (SIZE (1..maxPCPCH-SF)) OF
    AvailableMinimumSF-VCAM

AvailableMinimumSF-VCAM ::=           SEQUENCE {
    minimumSpreadingFactor            MinimumSpreadingFactor,
    nf-Max                            NF-Max,
    maxAvailablePCPCH-Number          MaxAvailablePCPCH-Number,
    availableAP-Signature-VCAMList    AvailableAP-Signature-VCAMList
}

AvailableSignatures ::=               BIT STRING(SIZE(16))

```

```

AvailableSubChannelNumbers ::=      BIT STRING(SIZE(12))

BurstType ::=                       ENUMERATED {
                                     short1, long2 }

BurstType1 ::=                      ENUMERATED { ms4, ms8, ms16 }

BurstType2 ::=                      ENUMERATED { ms3, ms6 }

CCTrCH-PowerControlInfo ::=        SEQUENCE {
    tfcs-Identity                    TFCS-Identity                    OPTIONAL,
    ul-DPCH-PowerControlInfo        UL-DPCH-PowerControlInfo
}

CD-AccessSlotSubchannel ::=         INTEGER (0..11)

CD-AccessSlotSubchannelList ::=     SEQUENCE (SIZE (1..maxPCPCH-CDsubCh)) OF
    CD-AccessSlotSubchannel

CD-CA-ICH-ChannelisationCode ::=    INTEGER (0..255)

CD-PreambleScramblingCode ::=       INTEGER (0..79)

CD-SignatureCode ::=               INTEGER (0..15)

CD-SignatureCodeList ::=            SEQUENCE (SIZE (1..maxPCPCH-CDsig)) OF
    CD-SignatureCode

CellParametersID ::=               INTEGER (0..127)

Cfntargetsfnframeoffset ::=         INTEGER(0..255)

ChannelAssignmentActive ::=         CHOICE {
    notActive                        NULL,
    isActive                         AvailableMinimumSF-ListVCAM
}

ChannelisationCode256 ::=           INTEGER (0..255)

ChannelReqParamsForUCSM ::=         SEQUENCE {
    availableAP-SignatureList        AvailableAP-SignatureList,
    availableAP-SubchannelList      AvailableAP-SubchannelList      OPTIONAL
}

ClosedLoopTimingAdjMode ::=         ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::=                 INTEGER (0..255)

CodeRange ::=                       SEQUENCE {
    pdsch-CodeMapList               PDSCH-CodeMapList,
    codeNumberStart                 CodeNumberDSCH,
    codeNumberStop                  CodeNumberDSCH
}

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

CommonTimeslotInfo ::=              SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode          SecondInterleavingMode,
    tfci-Coding                     TFCI-Coding                    OPTIONAL,
    puncturingLimit                 PuncturingLimit,
    repetitionPeriodAndLength        RepetitionPeriodAndLength        OPTIONAL
}

CommonTimeslotInfoSCCPCH ::=        SEQUENCE {
    -- TABULAR: The IE below is MD, but since it can be encoded in a single
    -- bit it is not defined as OPTIONAL.
    secondInterleavingMode          SecondInterleavingMode,
    tfci-Coding                     TFCI-Coding                    OPTIONAL,
    puncturingLimit                 PuncturingLimit,
    repetitionPeriodLengthAndOffset  RepetitionPeriodLengthAndOffset  OPTIONAL
}

```



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}

ConstantValue ::=                               INTEGER (-35..10)

CPCH-PersistenceLevels ::=                      SEQUENCE {
    cpch-SetID                                  CPCH-SetID,
    dynamicPersistenceLevelTF-List             DynamicPersistenceLevelTF-List
}

CPCH-PersistenceLevelsList ::=                 SEQUENCE (SIZE (1..maxCPCHsets)) OF
    CPCH-PersistenceLevels

CPCH-SetInfo ::=                               SEQUENCE {
    cpch-SetID                                  CPCH-SetID,
    transportFormatSet                          TransportFormatSet,
    tfcs                                         TFCS,
    ap-PreambleScramblingCode                  AP-PreambleScramblingCode,
    ap-AICH-ChannelisationCode                 AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode                  CD-PreambleScramblingCode,
    cd-CA-ICH-ChannelisationCode               CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList                CD-AccessSlotSubchannelList           OPTIONAL,
    cd-SignatureCodeList                       CD-SignatureCodeList                   OPTIONAL,
    deltaPp-m                                  DeltaPp-m,
    ul-DPCCH-SlotFormat                        UL-DPCCH-SlotFormat,
    n-StartMessage                             N-StartMessage,
    n-EOT                                       N-EOT,
    channelAssignmentActive                     ChannelAssignmentActive,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode                  CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList                      PCPCH-ChannelInfoList
}

CPCH-SetInfoList ::=                           SEQUENCE (SIZE (1..maxCPCHsets)) OF
    CPCH-SetInfo

CPCH-StatusIndicationMode ::=                 ENUMERATED {
    pa-mode,
    pamsf-mode }

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

-- DefaultDPCH-OffsetValueFDD and DefaultDPCH-OffsetValueTDD corresponds to
-- IE "Default DPCH Offset Value" depending on the mode.
-- Actual value = IE value * 512
DefaultDPCH-OffsetValueFDD ::=                 INTEGER (0..599)

DefaultDPCH-OffsetValueTDD ::=                 INTEGER (0..7)

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

-- Actual value = IE value * 0.1
DeltaSIR ::=                                  INTEGER (0..30)

DL-CCTrCh ::=                                 SEQUENCE {
    tfcs-Identity                              TFCS-IdentityPlain                     OPTIONAL,
    timeInfo                                    TimeInfo,
    dl-CCTrCH-TimeslotsCodes                   DownlinkTimeslotsCodes                 OPTIONAL,
    ul-CCTrChTPCList                           UL-CCTrChTPCList                       OPTIONAL
}

DL-CCTrChList ::=                             SEQUENCE (SIZE (1..maxCCTrCH)) OF
    DL-CCTrCh

DL-ChannelisationCode ::=                     SEQUENCE {
    secondaryScramblingCode                    SecondaryScramblingCode                 OPTIONAL,
    sf-AndCodeNumber                           SF512-AndCodeNumber,
    scramblingCodeChange                       ScramblingCodeChange                   OPTIONAL
}

DL-ChannelisationCodeList ::=                 SEQUENCE (SIZE (1..maxDPCH-DLchan)) OF
    DL-ChannelisationCode

DL-CommonInformation ::=                      SEQUENCE {
    dl-DPCH-InfoCommon                          DL-DPCH-InfoCommon                     OPTIONAL,
    modeSpecificInfo                             CHOICE {
        fdd                                       SEQUENCE {
            defaultDPCH-OffsetValue                DefaultDPCH-OffsetValueFDD             OPTIONAL,

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        dpch-CompressedModeInfo          DPCCH-CompressedModeInfo          OPTIONAL,
        tx-DiversityMode                  TX-DiversityMode                    OPTIONAL,
        ssdt-Information                   SSDT-Information                     OPTIONAL
    },
    tdd                                     SEQUENCE {
        defaultDPCH-OffsetValue           DefaultDPCH-OffsetValueTDD          OPTIONAL
    }
}

DL-CommonInformationPost ::=             SEQUENCE {
    dl-DPCH-InfoCommon                   DL-DPCH-InfoCommonPost
}

DL-CommonInformationPredef ::=          SEQUENCE {
    dl-DPCH-InfoCommon                   DL-DPCH-InfoCommonPredef           OPTIONAL,
    modeSpecificInfo                     CHOICE {
        fdd                               SEQUENCE {
            defaultDPCH-OffsetValue       DefaultDPCH-OffsetValueFDD
        },
        tdd                               SEQUENCE {
            defaultDPCH-OffsetValue       DefaultDPCH-OffsetValueTDD
        }
    }
}

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

DL-DPCH-InfoCommon ::=                 SEQUENCE {
    cfnHandling                           CHOICE {
        maintain                           NULL,
        initialise                          SEQUENCE {
            cfnTargetsfnframeoffset       CfnTargetsfnframeoffset           OPTIONAL
        }
    },
    modeSpecificInfo                       CHOICE {
        fdd                                 SEQUENCE {
            dl-DPCH-PowerControlInfo       DL-DPCH-PowerControlInfo           OPTIONAL,
            dl-rate-matching-restriction   Dl-rate-matching-restriction       OPTIONAL,
            spreadingFactorAndPilot        SF512-AndPilot,
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            positionFixedOrFlexible        PositionFixedOrFlexible,
            tfci-Existence                  BOOLEAN
        },
        tdd                                 SEQUENCE {
            commonTimeslotInfo             CommonTimeslotInfo                 OPTIONAL
        }
    }
}

DL-DPCH-InfoCommonPost ::=             SEQUENCE {
    dl-DPCH-PowerControlInfo              DL-DPCH-PowerControlInfo           OPTIONAL
}

DL-DPCH-InfoCommonPredef ::=          SEQUENCE {
    modeSpecificInfo                       CHOICE {
        fdd                               SEQUENCE {
            spreadingFactorAndPilot        SF512-AndPilot,
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            positionFixedOrFlexible        PositionFixedOrFlexible,
            tfci-Existence                  BOOLEAN
        },
        tdd                                 SEQUENCE {
            commonTimeslotInfo             CommonTimeslotInfo
        }
    }
}

DL-DPCH-InfoPerRL ::=                 CHOICE {
    fdd                                    SEQUENCE {
        pCPICH-UsageForChannelEst         PCPICH-UsageForChannelEst,
        dcph-FrameOffset                  DPCCH-FrameOffset,
        secondaryCPICH-Info                SecondaryCPICH-Info                 OPTIONAL,
        dl-ChannelisationCodeList         DL-ChannelisationCodeList,
        tpc-CombinationIndex               TPC-CombinationIndex,
        ssdt-CellIdentity                  SSDT-CellIdentity                  OPTIONAL,
    }
}

```

<pre> closedLoopTimingAdjMode }, tdd } </pre>	<pre> ClosedLoopTimingAdjMode DL-CCTrChList </pre>	<pre> OPTIONAL </pre>
<pre> DL-DPCH-InfoPerRL-PostFDD ::= pCPICH-UsageForChannelEst dl-ChannelisationCode tpc-CombinationIndex } </pre>	<pre> SEQUENCE { PCPICH-UsageForChannelEst, DL-ChannelisationCode, TPC-CombinationIndex } </pre>	
<pre> DL-DPCH-InfoPerRL-PostTDD ::= dl-CCTrCH-TimeslotsCodes } </pre>	<pre> SEQUENCE { DownlinkTimeslotsCodes } </pre>	
<pre> DL-DPCH-PowerControlInfo ::= modeSpecificInfo fdd dpc-Mode }, tdd tpc-StepSizeTDD } } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { DPC-Mode } SEQUENCE { TPC-StepSizeTDD } } } </pre>	<pre> OPTIONAL </pre>
<pre> DL-FrameType ::= </pre>	<pre> ENUMERATED { dl-FrameTypeA, dl-FrameTypeB } </pre>	
<pre> DL-InformationPerRL ::= modeSpecificInfo fdd primaryCPICH-Info pdsch-SHO-DCH-Info pdsch-CodeMapping }, tdd PrimaryCCPCH-Info }, dl-DPCH-InfoPerRL secondaryCCPCH-Info } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { PrimaryCPICH-Info, PDSCH-SHO-DCH-Info } PrimaryCCPCH-Info } DL-DPCH-InfoPerRL SecondaryCCPCH-Info } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> DL-InformationPerRL-List ::= </pre>	<pre> SEQUENCE (SIZE (1..maxRL)) OF DL-InformationPerRL </pre>	
<pre> DL-InformationPerRL-ListPostFDD ::= </pre>	<pre> SEQUENCE (SIZE (1..maxRL)) OF DL-InformationPerRL-PostFDD </pre>	
<pre> DL-InformationPerRL-PostFDD ::= primaryCPICH-Info dl-DPCH-InfoPerRL } </pre>	<pre> SEQUENCE { PrimaryCPICH-Info, DL-DPCH-InfoPerRL-PostFDD } </pre>	
<pre> DL-InformationPerRL-PostTDD ::= primaryCCPCH-Info dl-DPCH-InfoPerRL } </pre>	<pre> SEQUENCE { PrimaryCCPCH-InfoPost, DL-DPCH-InfoPerRL-PostTDD } </pre>	
<pre> DL-PDSCH-Information ::= pdsch-SHO-DCH-Info pdsch-CodeMapping } </pre>	<pre> SEQUENCE { PDSCH-SHO-DCH-Info PDSCH-CodeMapping } </pre>	<pre> OPTIONAL, OPTIONAL </pre>
<pre> DL-rate-matching-restriction ::= restrictedTrCH-InfoList } </pre>	<pre> SEQUENCE { RestrictedTrCH-InfoList } </pre>	<pre> OPTIONAL </pre>
<pre> DL-TS-ChannelisationCode ::= </pre>	<pre> 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 } </pre>	
<pre> DL-TS-ChannelisationCodesShort ::= codesRepresentation consecutive firstChannelisationCode lastChannelisationCode } </pre>	<pre> SEQUENCE { CHOICE { SEQUENCE { DL-TS-ChannelisationCode, DL-TS-ChannelisationCode } } } </pre>	

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    },
    bitmap BIT STRING (SIZE (16))
  }
}

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

DownlinkTimeslotsCodes ::= SEQUENCE {
  firstIndividualTimeslotInfo IndividualTimeslotInfo,
  dl-TS-ChannelisationCodesShort DL-TS-ChannelisationCodesShort,
  moreTimeslots CHOICE {
    noMore NULL,
    additionalTimeslots CHOICE {
      consecutive INTEGER (1..maxTS-1),
      timeslotList SEQUENCE (SIZE (1..maxTS-1)) OF
        DownlinkAdditionalTimeslots
    }
  }
}

DPC-Mode ::= ENUMERATED {
  singleTPC,
  tpcTripletInSoft }

-- The actual value of DPCCH power offset is the value of this IE * 2.
DPCCH-PowerOffset ::= INTEGER (-82..-3)

DPCH-CompressedModeInfo ::= SEQUENCE {
  tgp-SequenceList TGP-SequenceList
}

DPCH-CompressedModeStatusInfo ::= SEQUENCE (SIZE (1..maxTGPS)) OF
  TGP-SequenceShort

-- TABULAR: Actual value = IE value * 256
DPCH-FrameOffset ::= INTEGER (0..149)

DSCH-Mapping ::= SEQUENCE {
  maxTFCI-Field2Value MaxTFCI-Field2Value,
  spreadingFactor SF-PDSCH,
  codeNumber CodeNumberDSCH,
  multiCodeInfo MultiCodeInfo
}

DSCH-MappingList ::= SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
  DSCH-Mapping

DSCH-RadioLinkIdentifier ::= INTEGER (0..511)

DurationTimeInfo ::= INTEGER (1..4096)

-- TABULAR : value [Duration = infinite] is the value by default,
-- and is encoded by absence of the full sequence. If the sequence is present,
-- thefield is absent, the default is respectivelyinfinite. Presence of the
-- field absent should not be used, but shall be understood as if the
-- sequence was absent.

DynamicPersistenceLevel ::= INTEGER (1..8)

DynamicPersistenceLevelList ::= SEQUENCE (SIZE (1..maxPRACH)) OF
  DynamicPersistenceLevel

DynamicPersistenceLevelTF-List ::= SEQUENCE (SIZE (1..maxTF-CPCH)) OF
  DynamicPersistenceLevel

FACH-PCH-Information ::= SEQUENCE {
  transportFormatSet TransportFormatSet,

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transportChannelIdentity      TransportChannelIdentity,
ctch-Indicator                BOOLEAN
}

FACH-PCH-InformationList ::= SEQUENCE (SIZE (1..maxFACH)) OF
                              FACH-PCH-Information

FrequencyInfo ::= SEQUENCE {
  modeSpecificInfo           CHOICE {
    fdd                      FrequencyInfoFDD,
    tdd                      FrequencyInfoTDD  }
}

FrequencyInfoFDD ::= SEQUENCE {
  uarfcn-UL                  UARFCN           OPTIONAL,
  uarfcn-DL                  UARFCN
}

FrequencyInfoTDD ::= SEQUENCE {
  uarfcn-Nt                  UARFCN
}

IndividualTimeslotInfo ::= SEQUENCE {
  timeslotNumber             TimeslotNumber,
  tfci-Existence             BOOLEAN,
  midambleShiftAndBurstType MidambleShiftAndBurstType
}

IndividualTS-Interference ::= SEQUENCE {
  timeslot                   TimeslotNumber,
  ul-TimeslotInterference    UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
  IndividualTS-Interference

ITP ::= ENUMERATED {
  mode0, mode1 }

MaxAllowedUL-TX-Power ::= INTEGER (-50..33)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
  burstType1                 BurstType1           DEFAULT ms8,
  -- TABULAR: The default value for BurstType2 has not been specified due to
  -- compactness reasons.
  burstType2                 BurstType2
}

MidambleShiftAndBurstType ::= SEQUENCE {
  burstType                  CHOICE {
    type1                    SEQUENCE {
      midambleAllocationMode CHOICE {
        defaultMidamble     NULL,
        commonMidamble      NULL,
        ueSpecificMidamble  SEQUENCE {
          midambleShift      MidambleShiftLong
        }
      }
    },
    type2                    SEQUENCE {
      midambleAllocationMode CHOICE {
        defaultMidamble     NULL,
        commonMidamble      NULL,
        ueSpecificMidamble  SEQUENCE {
          midambleShift      MidambleShiftShort
        }
      }
    },
    type3                    SEQUENCE {
      midambleAllocationMode CHOICE {
        defaultMidamble     NULL,
        ueSpecificMidamble  SEQUENCE {
          midambleShift      MidambleShiftLong
        }
      }
    }
  }
}

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    }
  }
}

MidambleShiftLong ::=          INTEGER (0..15)

MidambleShiftShort ::=        INTEGER (0..5)

MinimumSpreadingFactor ::=    ENUMERATED {
                                sf4, sf8, sf16, sf32,
                                sf64, sf128, sf256 }

MultiCodeInfo ::=            INTEGER (1..16)

N-EOT ::=                     INTEGER (0..7)

N-GAP ::=                     ENUMERATED {
                                f2, f4, f8 }

N-PCH ::=                     INTEGER (1..8)

N-StartMessage ::=           INTEGER (1..8)

NB01 ::=                      INTEGER (0..50)

NF-Max ::=                   INTEGER (1..64)

NumberOfDPDCH ::=            INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=         INTEGER (1..2)

OpenLoopPowerControl-TDD ::= SEQUENCE {
    primaryCCPCH-TX-Power      PrimaryCCPCH-TX-Power,
    alpha                      Alpha                               OPTIONAL,
    prach-ConstantValue        ConstantValue,
    dpch-ConstantValue         ConstantValue,
    pusch-ConstantValue        ConstantValue                       OPTIONAL
}

PagingIndicatorLength ::=    ENUMERATED {
                                pi4, pi8, pi16 }

PC-Preamble ::=              ENUMERATED {
                                pcp0, pcp15 }

PCP-Length ::=               ENUMERATED {
                                as0, as8 }

PCPCH-ChannelInfo ::=       SEQUENCE {
    pcpch-UL-ScramblingCode     INTEGER (0..79),
    pcpch-DL-ChannelisationCode INTEGER (0..511),
    pcpch-DL-ScramblingCode     SecondaryScramblingCode   OPTIONAL,
    pcp-Length                  PCP-Length,
    ucsM-Info                   UCSM-Info                         OPTIONAL
}

PCPCH-ChannelInfoList ::=   SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::= ENUMERATED {
                                mayBeUsed,
                                shallNotBeUsed }

PDSCH-CapacityAllocationInfo ::= SEQUENCE {
    pdsch-PowerControlInfo      PDSCH-PowerControlInfo   OPTIONAL,
    pdsch-AllocationPeriodInfo  AllocationPeriodInfo,
    tfcs-Identity                TFCS-IdentityPlain              OPTIONAL,
    configuration                CHOICE {
        old-Configuration       SEQUENCE {
            pdsch-Identity      PDSCH-Identity
        },
        new-Configuration       SEQUENCE {
            pdsch-Info          PDSCH-Info,
            pdsch-Identity      PDSCH-Identity                   OPTIONAL
        }
    }
}

```

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}

PDSCH-CodeInfo ::=
    spreadingFactor
    codeNumber
    multiCodeInfo
}

PDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
        PDSCH-CodeInfo

PDSCH-CodeMap ::=
    SEQUENCE {
        spreadingFactor
        multiCodeInfo
    }

PDSCH-CodeMapList ::=
    SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
        PDSCH-CodeMap

PDSCH-CodeMapping ::=
    dl-ScramblingCode
    signallingMethod
    codeRange
    tfci-Range
    explicit
    replace
}

PDSCH-Identity ::=
    INTEGER (1..hiPDSCHidentities)

PDSCH-Info ::=
    tfcs-Identity
    commonTimeslotInfo
    pdsch-TimeslotsCodes
}

PDSCH-PowerControlInfo ::=
    tpc-StepSizeTDD
    ul-CCTrChTPCList
}

PDSCH-SHO-DCH-Info ::=
    dsch-RadioLinkIdentifier
    tfci-CombiningSet
    rl-IdentifierList
}

PDSCH-SysInfo ::=
    pdsch-Identity
    pdsch-Info
    dsch-TFS
    dsch-TFCS
}

PDSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPDSCH)) OF
        PDSCH-SysInfo

PDSCH-SysInfoList-SFN ::=
    pdsch-SysInfo
    sfn-TimeInfo
}

PersistenceScalingFactor ::=
    ENUMERATED {
        psf0-9, psf0-8, psf0-7, psf0-6,
        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=
    SEQUENCE (SIZE (1..maxASCpersist)) OF
        PersistenceScalingFactor

PI-CountPerFrame ::=
    ENUMERATED {
        e18, e36, e72, e144 }

PICH-Info ::=
    fdd
    channelisationCode256
}

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        pi-CountPerFrame          PI-CountPerFrame,
        sttd-Indicator            BOOLEAN
    },
    tdd                           SEQUENCE {
        channelisationCode        TDD-PICH-CCode          OPTIONAL,
        timeslot                  TimeslotNumber          OPTIONAL,
        burstType                  CHOICE {
            type-1                 MidambleShiftLong,
            type-2                 MidambleShiftShort
        }
        repetitionPeriodLengthOffset RepPerLengthOffset-PICH  OPTIONAL,
        pagingIndicatorLength      PagingIndicatorLength    DEFAULT pi4,
        n-GAP                       N-GAP                    DEFAULT f4,
        n-PCH                       N-PCH                    DEFAULT 2
    }
}

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

PilotBits128 ::=                  ENUMERATED {
    pb4, pb8 }

PilotBits256 ::=                  ENUMERATED {
    pb2, pb4, pb8 }

PositionFixedOrFlexible ::=       ENUMERATED {
    fixed,
    flexible }

PowerControlAlgorithm ::=         CHOICE {
    algorithm1                     TPC-StepSizeFDD,
    algorithm2                     NULL
}

PowerRampStep ::=                 INTEGER (1..8)

PRACH-Midamble ::=                ENUMERATED {
    direct,
    direct-Inverted }

PRACH-Partitioning ::=            CHOICE {
    fdd                             SEQUENCE (SIZE (1..maxASC)) OF
        ASCSetting,
    tdd                             SEQUENCE (SIZE (1..maxASC)) OF
        ASC
}

PRACH-PowerOffset ::=             SEQUENCE {
    powerRampStep                  PowerRampStep,
    preambleRetransMax             PreambleRetransMax
}

PRACH-RACH-Info ::=              SEQUENCE {
    modeSpecificInfo               CHOICE {
        fdd                         SEQUENCE {
            availableSignatures      AvailableSignatures,
            availableSF               SF-PRACH,
            preambleScramblingCodeWordNumber PreambleScramblingCodeWordNumber,
            puncturingLimit           PuncturingLimit,
            availableSubChannelNumbers AvailableSubChannelNumbers
        },
        tdd                         SEQUENCE {
            timeslot                  TimeslotNumber,
            channelisationCode        TDD-PRACH-CCodeList,
            prach-Midamble             PRACH-Midamble          OPTIONAL
        }
    }
}

PRACH-SystemInformation ::=       SEQUENCE {
    prach-RACH-Info                PRACH-RACH-Info,
    transportChannelIdentity        TransportChannelIdentity,
    rach-TransportFormatSet         TransportFormatSet          OPTIONAL,
    rach-TFCS                       TFCS                        OPTIONAL,
    prach-Partitioning              PRACH-Partitioning          OPTIONAL,
    persistenceScalingFactorList    PersistenceScalingFactorList OPTIONAL,
    ac-To-ASC-MappingTable          AC-To-ASC-MappingTable     OPTIONAL,
    modeSpecificInfo                CHOICE {

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        fdd
            primaryCPICH-TX-Power      SEQUENCE {
            constantValue                PrimaryCPICH-TX-Power      OPTIONAL,
            prach-PowerOffset            ConstantValue            OPTIONAL,
            rach-TransmissionParameters PRACH-PowerOffset        OPTIONAL,
            aich-Info                    RACH-TransmissionParameters OPTIONAL,
        },
        tdd                               AICH-Info                OPTIONAL
    }
}

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

PreambleRetransMax ::= INTEGER (1..64)

PreambleScramblingCodeWordNumber ::= INTEGER (0..15)

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

PrimaryCCPCH-Info ::= CHOICE {
    fdd
        tx-DiversityIndicator      SEQUENCE {
        },
        tdd
            syncCase                SEQUENCE {
            syncCase1                CHOICE {
            timeslot                    SEQUENCE {
            },
            syncCase2                SEQUENCE {
            timeslotSync2              TimeslotNumber
            }
            }
        },
        cellParametersID            CellParametersID          OPTIONAL,
        blockSTTD-Indicator         BOOLEAN                       OPTIONAL
    }
}

PrimaryCCPCH-InfoPost ::= SEQUENCE {
    syncCase                CHOICE {
    syncCase1                SEQUENCE {
    timeslot                    TimeslotNumber
    },
    syncCase2                SEQUENCE {
    timeslotSync2              TimeslotSync2
    }
    },
    cellParametersID        CellParametersID,
    blockSTTD-Indicator     BOOLEAN
}

PrimaryCCPCH-TX-Power ::= INTEGER (6..43)

PrimaryCPICH-Info ::= SEQUENCE {
    primaryScramblingCode    PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::= INTEGER (-10..50)

PrimaryScramblingCode ::= INTEGER (0..511)

PuncturingLimit ::= ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-CapacityAllocationInfo ::= SEQUENCE {
    pusch-Allocation          CHOICE {
    pusch-AllocationPending    NULL,
    pusch-AllocationAssignment SEQUENCE {
    pdsch-AllocationPeriodInfo AllocationPeriodInfo,
    pusch-PowerControlInfo      UL-TargetSIR            OPTIONAL,
    tfcs-Identity                TFCS-IdentityPlain      OPTIONAL,
    configuration                 CHOICE {
    old-Configuration           SEQUENCE {

```



```

        offset                                INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::=
    tfci-Field2
    spreadingFactor
    codeNumber
    multiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::=
    SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
        ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::=
    rpp4-2
    rpp8-2
    rpp8-4
    rpp16-2
    rpp16-4
    rpp32-2
    rpp32-4
    rpp64-2
    rpp64-4
}

RestrictedTrCH ::=
    restrictedDL-TrCH-Identity
    allowedTFIList
}

RestrictedTrCH-InfoList ::=
    SEQUENCE (SIZE(1..maxTrCH)) OF
        RestrictedTrCH

RL-AdditionInformation ::=
    primaryCPICH-Info
    dl-DPCH-InfoPerRL
    tfci-CombiningIndicator
    sccpch-InfoForFACH
}

RL-AdditionInformationList ::=
    SEQUENCE (SIZE (1..maxRL)) OF
        RL-AdditionInformation

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

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

RPP ::=
    ENUMERATED {
        mode0, mode1
    }

S-Field ::=
    ENUMERATED {
        e1bit, e2bits
    }

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

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

SCCPCH-InfoForFACH ::=
    secondaryCCPCH-Info
    tfcs
    fach-PCH-InformationList
    sib-ReferenceListFACH
}

SCCPCH-SystemInformation ::=
    secondaryCCPCH-Info
    tfcs
    fach-PCH-InformationList
    pich-Info
}
OPTIONAL,
OPTIONAL,
OPTIONAL

```

```

SCCPCH-SystemInformationList ::= SEQUENCE (SIZE (1..maxSCCPCH)) OF
    SCCPCH-SystemInformation

ScramblingCodeChange ::= ENUMERATED {
    codeChange, noCodeChange }

ScramblingCodeType ::= ENUMERATED {
    shortSC,
    longSC }

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

SecondaryCPICH-Info ::= SEQUENCE {
    secondaryDL-ScramblingCode SecondaryScramblingCode OPTIONAL,
    channelisationCode ChannelisationCode256
}

SecondaryScramblingCode ::= INTEGER (1..15)

SecondInterleavingMode ::= ENUMERATED {
    frameRelated, timeslotRelated }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::= CHOICE {
    sf4 INTEGER (0..3),
    sf8 INTEGER (0..7),
    sf16 INTEGER (0..15),
    sf32 INTEGER (0..31),
    sf64 INTEGER (0..63),
    sf128 INTEGER (0..127),
    sf256 INTEGER (0..255)
}

-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::= CHOICE {
    sf4 INTEGER (0..3),
    sf8 INTEGER (0..7),
    sf16 INTEGER (0..15),
    sf32 INTEGER (0..31),
    sf64 INTEGER (0..63),
    sf128 INTEGER (0..127),
    sf256 INTEGER (0..255),
    sf512 INTEGER (0..511)
}

-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::= CHOICE {
    sfd4 NULL,
    sfd8 NULL,
    sfd16 NULL,
    sfd32 NULL,
    sfd64 NULL,
    sfd128 PilotBits128,
    sfd256 PilotBits256,
    sfd512 NULL
}

SF-PDSCH ::= ENUMERATED {

```

```

        sfp4, sfp8, sfp16, sfp32,
        sfp64, sfp128, sfp256 }

SF-PRACH ::= ENUMERATED {
        sfpr32, sfpr64, sfpr128, sfpr256 }

SFN-TimeInfo ::= SEQUENCE {
        activationTimeSFN
        physChDuration
        DurationTimeInfo
}

SpreadingFactor ::= ENUMERATED {
        sf4, sf8, sf16, sf32,
        sf64, sf128, sf256 }

SSDT-CellIdentity ::= ENUMERATED {
        ssdt-id-a, ssdt-id-b, ssdt-id-c,
        ssdt-id-d, ssdt-id-e, ssdt-id-f,
        ssdt-id-g, ssdt-id-h }

SSDT-Information ::= SEQUENCE {
        s-Field
        codeWordSet
        CodeWordSet
}

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

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

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

TDD-PRACH-CCodeList ::= CHOICE {
        sf8
        SEQUENCE (SIZE (1..8)) OF
            TDD-PRACH-CCode8,
        sf16
        SEQUENCE (SIZE (1..8)) OF
            TDD-PRACH-CCode16
}

TFC-ControlDuration ::= ENUMERATED {
        tfc-cd1, tfc-cd2, tfc-cd4, tfc-cd8,
        tfc-cd16, tfc-cd24, tfc-cd32,
        tfc-cd48, tfc-cd64, tfc-cd128,
        tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::= ENUMERATED {
        tfci-bits-4, tfci-bits-8,
        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::= SEQUENCE {
}

TGCFN ::= INTEGER (0..255)

-- The value 270 represents "undefined" in the tabular description.
TGD ::= INTEGER (15..270)

TGL ::= INTEGER (1..14)

TGMP ::= ENUMERATED {
        tdd-Measurement, fdd-Measurement,
        gsm-CarrierRSSIMeasurement,
        gsm-initialBSICIdentification, gsmBSICReconfirmation }

TGP-Sequence ::= SEQUENCE {
        tgpsi
        TGPSI,
        tgps-StatusFlag,
        TGPS-StatusFlag,
        tgcfm
        TGCFN,
}

```

```

    tgps-ConfigurationParams          TGPS-ConfigurationParams          OPTIONAL
}

TGP-SequenceList ::=                 SEQUENCE (SIZE (1..maxTGPS)) OF
                                     TGP-Sequence

TGP-SequenceShort ::=                SEQUENCE {
    tgpsi                             TGPSI,
    tgps-StatusFlag                   TGPS-StatusFlag,
    tgcfn                              TGCFN
}

TGPL ::=                             INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=                             INTEGER (0..63)

TGPS-ConfigurationParams ::=         SEQUENCE {
    tgmpp                             TGMP,
    tgprc                             TGPRC,
    tgsn                               TGSN,
    tgl1                               TGL,
    tgl2                               TGL,
    tgd                                TGD,
    tgpl1                              TGPL,
    tgpl2                              TGPL,
    rpp                                RPP,
    itp                                ITP,
    ul-DL-Mode                         UL-DL-Mode,
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
    dl-FrameType                       DL-FrameType,
    deltaSIR1                          DeltaSIR,
    deltaSIRAfter1                     DeltaSIR,
    deltaSIR2                          DeltaSIR,
    deltaSIRAfter2                     DeltaSIR
}

TGPS-StatusFlag ::=                 ENUMERATED {
    tgpsActive, tgpsInactive }

TGPSI ::=                           INTEGER (1..maxTGPS)

TGSN ::=                             INTEGER (0..14)

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

TimeslotList ::=                    SEQUENCE (SIZE (1..maxTS)) OF
                                     TimeslotNumber

TimeslotNumber ::=                  INTEGER (0..14)

TimeslotSync2 ::=                   INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=                    INTEGER (0..149)

TPC-CombinationIndex ::=            INTEGER (0..5)

TPC-StepSizeFDD ::=                 INTEGER (0..1)

TPC-StepSizeTDD ::=                 INTEGER (1..3)

TX-DiversityMode ::=                ENUMERATED {
    noDiversity,
    sttd,
    closedLoopMode1,
    closedLoopMode2 }

UARFCN ::=                           INTEGER (0..16383)

UCSM-Info ::=                       SEQUENCE {
    minimumSpreadingFactor             MinimumSpreadingFactor,
    nf-Max                             NF-Max,
    channelReqParamsForUCSM           ChannelReqParamsForUCSM
}

```

```

UL-CCTrCH ::=
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    ul-CCTrCH-TimeslotsCodes
}
SEQUENCE {
    TFCS-IdentityPlain
    TimeInfo,
    CommonTimeslotInfo
    UplinkTimeslotsCodes
}
OPTIONAL,
OPTIONAL,
OPTIONAL

UL-CCTrCHList ::=
SEQUENCE (SIZE (1..maxCCTrCH)) OF
    UL-CCTrCH

UL-CCTrChTPCList ::=
SEQUENCE (SIZE (0..maxCCTrCH)) OF
    TFCS-Identity

UL-ChannelRequirement ::=
    ul-DPCH-Info
    cpch-SetInfo
}
CHOICE {
    UL-DPCH-Info,
    CPCH-SetInfo
}

UL-ChannelRequirementWithCPCH-SetID ::=
    ul-DPCH-Info
    cpch-SetInfo
    cpch-SetID
}
CHOICE {
    UL-DPCH-Info,
    CPCH-SetInfo,
    CPCH-SetID
}

UL-CompressedModeMethod ::=
    sf-2,
    higherLayerScheduling
}
ENUMERATED {

UL-DL-Mode ::=
    ul
    dl
}
CHOICE {
    UL-CompressedModeMethod,
    DL-CompressedModeMethod
}

UL-DPCCH-SlotFormat ::=
    slf0, slf1, slf2
}
ENUMERATED {

UL-DPCH-Info ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
        scramblingCodeType
        scramblingCode
        numberOfDPDCH
        spreadingFactor
        tfci-Existence
        numberOfFBI-Bits
        -- The IE above is conditional based on history
        puncturingLimit
    },
    tdd
        ul-TimingAdvance
        ul-CCTrCHList
}
SEQUENCE {
    UL-DPCH-PowerControlInfo
    CHOICE {
        SEQUENCE {
            ScramblingCodeType,
            UL-ScramblingCode,
            NumberOfDPDCH
            SpreadingFactor,
            BOOLEAN,
            NumberOfFBI-Bits
            PuncturingLimit
        }
        SEQUENCE {
            UL-TimingAdvanceControl
            UL-CCTrCHList
        }
    }
}
OPTIONAL,
DEFAULT 1,
OPTIONAL,
OPTIONAL,

UL-DPCH-InfoPostFDD ::=
    ul-DPCH-PowerControlInfo
    scramblingCodeType
    reducedScramblingCodeNumber
    spreadingFactor
}
SEQUENCE {
    UL-DPCH-PowerControlInfoPostFDD,
    ScramblingCodeType,
    ReducedScramblingCodeNumber,
    SpreadingFactor
}

UL-DPCH-InfoPostTDD ::=
    ul-DPCH-PowerControlInfo
    ul-TimingAdvance
    ul-CCTrCH-TimeslotsCodes
}
SEQUENCE {
    UL-DPCH-PowerControlInfoPostTDD,
    UL-TimingAdvanceControl
    UplinkTimeslotsCodes
}
OPTIONAL,

UL-DPCH-InfoPredef ::=
    ul-DPCH-PowerControlInfo
    modeSpecificInfo
    fdd
        tfci-Existence
        puncturingLimit
    },
}
SEQUENCE {
    UL-DPCH-PowerControlInfoPredef,
    CHOICE {
        SEQUENCE {
            BOOLEAN,
            PuncturingLimit
        }
    }
}

```

```

        tdd                SEQUENCE {
            commonTimeslotInfo    CommonTimeslotInfo
        }
    }
}

UL-DPCH-PowerControlInfo ::= CHOICE {
    fdd                SEQUENCE {
        dpcch-PowerOffset        DPCCH-PowerOffset,
        pc-Preamble              PC-Preamble,
        powerControlAlgorithm    PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                SEQUENCE {
        ul-TargetSIR            UL-TargetSIR,
        ul-OL-PC-Signalling      CHOICE {
            broadcast-UL-OL-PC-info    NULL,
            handoverGroup              SEQUENCE {
                individualTS-InterferenceList    IndividualTS-InterferenceList,
                dpch-ConstantValue              ConstantValue,
                primaryCCPCH-TX-Power          PrimaryCCPCH-TX-Power
            }
        }
    }
}
OPTIONAL

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    powerControlAlgorithm    PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
}

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR            UL-TargetSIR,
    ul-TimeslotInterference    UL-Interference
}

UL-DPCH-PowerControlInfoPredef ::= CHOICE {
    fdd                SEQUENCE {
        dpcch-PowerOffset        DPCCH-PowerOffset,
        pc-Preamble              PC-Preamble
    },
    tdd                SEQUENCE {
        dpch-ConstantValue        ConstantValue
    }
}

UL-Interference ::= INTEGER (-110..-70)

UL-ScramblingCode ::= INTEGER (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TimingAdvanceControl ::= CHOICE {
    disabled            NULL,
    enabled            SEQUENCE {
        ul-TimingAdvance    UL-TimingAdvance    OPTIONAL,
        activationTime        ActivationTime        OPTIONAL
    }
}

UL-TS-ChannelisationCode ::= ENUMERATED {
    cc1-1, cc2-1, cc2-2,
    cc4-1, cc4-2, cc4-3, cc4-4,
    cc8-1, cc8-2, cc8-3, cc8-4,
    cc8-5, cc8-6, cc8-7, cc8-8,
    cc16-1, cc16-2, cc16-3, cc16-4,
    cc16-5, cc16-6, cc16-7, cc16-8,
    cc16-9, cc16-10, cc16-11, cc16-12,
    cc16-13, cc16-14, cc16-15, cc16-16 }

UL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..2)) OF
    UL-TS-ChannelisationCode

UplinkAdditionalTimeslots ::= SEQUENCE {
    parameters            CHOICE {

```



```

        sameAsLast                SEQUENCE {
            timeslotNumber        TimeslotNumber
        },
        newParameters              SEQUENCE {
            individualTimeslotInfo IndividualTimeslotInfo,
            ul-TS-ChannelisationCodeList UL-TS-ChannelisationCodeList
        }
    }
}

```

```

UplinkTimeslotsCodes ::=          SEQUENCE {
    dynamicSFusage                BOOLEAN,
    firstIndividualTimeslotInfo   IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList  UL-TS-ChannelisationCodeList,
    moreTimeslots                 CHOICE {
        noMore                    NULL,
        additionalTimeslots       CHOICE {
            consecutive            SEQUENCE {
                numAdditionalTimeslots INTEGER (1..maxTS-1)
            },
            timeslotList          SEQUENCE (SIZE (1..maxTS-1)) OF
                UplinkAdditionalTimeslots
        }
    }
}

```

```

-- *****
--
-- MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

```

```

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

```

```

AcquisitionSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
    AcquisitionSatInfo

```

```

AdditionalAssistanceData ::=    OCTET STRING (SIZE (1..38))

```

```

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

```

```

AlmanacSatInfo ::=             SEQUENCE {
    satID                        SatID,
    e                            BIT STRING (SIZE (16)),
    t-oa                         BIT STRING (SIZE (8)),
    deltaI                       BIT STRING (SIZE (16)),
    omegaDot                     BIT STRING (SIZE (16)),
    satHealth                    BIT STRING (SIZE (8)),
    a-Sqrt                       BIT STRING (SIZE (24)),
    omega0                       BIT STRING (SIZE (24)),
    m0                           BIT STRING (SIZE (24)),
    omega                        BIT STRING (SIZE (24)),
    af0                          BIT STRING (SIZE (11)),
    af1                          BIT STRING (SIZE (11))
}

```

```

AlmanacSatInfoList ::=         SEQUENCE (SIZE (1..maxSat)) OF
    AlmanacSatInfo

```

```

AverageRLC-BufferPayload ::=    ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k,
    pla32k, pla64k, pla128k, pla256k,
    pla512k, pla1024k }

```

```

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

```

```

    elevation                                INTEGER (0..7)
}
BadSatList ::=                             SEQUENCE (SIZE (1..maxSat)) OF
                                           INTEGER (0..63)
BCCH-ARFCN ::=                             INTEGER (0..1023)
BLER-MeasurementResults ::=                SEQUENCE {
    transportChannelIdentity                TransportChannelIdentity,
    dl-TransportChannelBLER                 DL-TransportChannelBLER           OPTIONAL
}
BLER-MeasurementResultsList ::=            SEQUENCE (SIZE (1..maxTrCH)) OF
                                           BLER-MeasurementResults
BLER-TransChIdList ::=                    SEQUENCE (SIZE (1..maxTrCH)) OF
                                           TransportChannelIdentity
BSIC-VerificationRequired ::=              ENUMERATED {
    required, notRequired }
BSICReported ::=                          CHOICE {
    verifiedBSIC                            INTEGER (0..maxCellMeas),
    nonVerifiedBSIC                         BCCH-ARFCN
}
BurstModeParameters ::=                   SEQUENCE {
    burstStart                              INTEGER (0..15),
    burstLength                             INTEGER (10..25),
    burstFreq                               INTEGER (1..16)
}
CellDCH-ReportCriteria ::=                CHOICE {
    intraFreqReportingCriteria              IntraFreqReportingCriteria,
    periodicalReportingCriteria             PeriodicalReportingCriteria
}
-- Actual value = IE value * 0.5
CellIndividualOffset ::=                  INTEGER (-20..20)
CellInfo ::=                              SEQUENCE {
    cellIndividualOffset                    CellIndividualOffset              DEFAULT 0,
    referenceTimeDifferenceToCell           ReferenceTimeDifferenceToCell      OPTIONAL,
    modeSpecificInfo                       CHOICE {
        fdd                                SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info                OPTIONAL,
            primaryCPICH-TX-Power           PrimaryCPICH-TX-Power            OPTIONAL,
            readSFN-Indicator               BOOLEAN,
            tx-DiversityIndicator           BOOLEAN
        },
        tdd                                SEQUENCE {
            primaryCCPCH-Info               PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power            OPTIONAL,
            timeslotInfoList                TimeslotInfoList                 OPTIONAL
        }
    }
}
CellInfoSI-RSCP ::=                       SEQUENCE {
    cellIndividualOffset                    CellIndividualOffset              DEFAULT 0,
    referenceTimeDifferenceToCell           ReferenceTimeDifferenceToCell      OPTIONAL,
    modeSpecificInfo                       CHOICE {
        fdd                                SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info                OPTIONAL,
            primaryCPICH-TX-Power           PrimaryCPICH-TX-Power            OPTIONAL,
            readSFN-Indicator               BOOLEAN,
            tx-DiversityIndicator           BOOLEAN
        },
        tdd                                SEQUENCE {
            primaryCCPCH-Info               PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power            OPTIONAL,
            timeslotInfoList                TimeslotInfoList                 OPTIONAL
        }
    },
    cellSelectionReselectionInfo           CellSelectReselectInfoSIB-11-12-RSCP  OPTIONAL
}

```

```

CellInfoSI-ECN0 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
  },
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info         OPTIONAL,
      PrimaryCPICH-TX-Power     OPTIONAL,
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power     OPTIONAL,
      TimeslotInfoList         OPTIONAL
    }
  }
  CellSelectReselectInfoSIB-11-12-ECN0 OPTIONAL
}

CellInfoSI-HCS-RSCP ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
  },
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info         OPTIONAL,
      PrimaryCPICH-TX-Power     OPTIONAL,
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power     OPTIONAL,
      TimeslotInfoList         OPTIONAL
    }
  }
  CellSelectReselectInfoSIB-11-12-HCS-RSCP OPTIONAL
}

CellInfoSI-HCS-ECN0 ::=
  cellIndividualOffset
  referenceTimeDifferenceToCell
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      primaryCPICH-TX-Power
      readSFN-Indicator
      tx-DiversityIndicator
    },
    tdd
      primaryCCPCH-Info
      primaryCCPCH-TX-Power
      timeslotInfoList
  },
  cellSelectionReselectionInfo
}

SEQUENCE {
  CellIndividualOffset           DEFAULT 0,
  ReferenceTimeDifferenceToCell OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info         OPTIONAL,
      PrimaryCPICH-TX-Power     OPTIONAL,
      BOOLEAN,
      BOOLEAN
    }
    SEQUENCE {
      PrimaryCCPCH-Info,
      PrimaryCCPCH-TX-Power     OPTIONAL,
      TimeslotInfoList         OPTIONAL
    }
  }
  CellSelectReselectInfoSIB-11-12-HCS-ECN0 OPTIONAL
}

CellMeasuredResults ::=
  cellIdentity
  sfn-SFN-ObsTimeDifference
  cellSynchronisationInfo
  modeSpecificInfo
    fdd
      primaryCPICH-Info
      cpich-Ec-N0
      cpich-RSCP
      pathloss
    },
    tdd
      cellParametersID
      proposedTGSN
      primaryCCPCH-RSCP
      timeslotISCP-List
  },
}

SEQUENCE {
  CellIdentity           OPTIONAL,
  SFN-SFN-ObsTimeDifference OPTIONAL,
  CellSynchronisationInfo OPTIONAL,
  CHOICE {
    SEQUENCE {
      PrimaryCPICH-Info,
      CPICH-Ec-N0           OPTIONAL,
      CPICH-RSCP           OPTIONAL,
      Pathloss             OPTIONAL
    }
    SEQUENCE {
      CellParametersID,
      TGSN           OPTIONAL,
      PrimaryCCPCH-RSCP OPTIONAL,
      TimeslotISCP-List OPTIONAL
    }
  }
}

```

```

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

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

CellReportingQuantities ::= SEQUENCE {
  sfn-SFN-OTD-Type SFN-SFN-OTD-Type,
  cellIdentity-reportingIndicator BOOLEAN,
  cellSynchronisationInfoReportingIndicator BOOLEAN,
  modeSpecificInfo CHOICE {
    fdd SEQUENCE {
      cpich-Ec-N0-reportingIndicator BOOLEAN,
      cpich-RSCP-reportingIndicator BOOLEAN,
      pathloss-reportingIndicator BOOLEAN
    },
    tdd SEQUENCE {
      timeslotISCP-reportingIndicator BOOLEAN,
      proposedTGSN-ReportingRequired BOOLEAN,
      primaryCCPCH-RSCP-reportingIndicator BOOLEAN,
      pathloss-reportingIndicator BOOLEAN
    }
  }
}

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

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

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

```

```

        tdd                SEQUENCE {
            q-RxlevMin      Q-RxlevMin                OPTIONAL
        },
        gsm                SEQUENCE {
            q-RxlevMin      Q-RxlevMin                OPTIONAL
        }
    }
}

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

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

CellSynchronisationInfo ::= SEQUENCE {
    modeSpecificInfo      CHOICE {
        fdd                SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference OPTIONAL,
            tm              INTEGER(0..38399)
        },
        tdd                SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference
        }
    }
}

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

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

CellToReport ::= SEQUENCE {
    bsicReported         BSICReported
}

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

```

```

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

CountC-SFN-Frame-difference ::= SEQUENCE {
    countC-SFN-High          INTEGER(0..15),          -- Actual value = IE value * 256
    off                      INTEGER(0..255)
}

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

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

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

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

DeltaRRC ::=                     INTEGER (-7..7)

DGPS-CorrectionSatInfo ::=      SEQUENCE {
    satID                    SatID,
    iode                     BIT STRING (SIZE (8)),
    udre                     UDRE,
    prc                      PRC,
    rrc                      RRC,
    deltaPRC2                DeltaPRC,
    deltaRRC2                DeltaRRC,
    deltaPRC3                DeltaPRC,
    deltaRRC3                DeltaRRC
}

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

DGPS-Information ::=            SEQUENCE {
    satID                    SatID,
    iode                     IODE,
    udre                     UDRE,
    prc                      PRC,
    rrc                      RRC,
    deltaPRC2                DeltaPRC,
    deltaRRC2                DeltaRRC
}

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

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

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

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

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

EllipsoidPoint ::=              OCTET STRING (SIZE (7))

EllipsoidPointAltitude ::=      OCTET STRING (SIZE (9))

EllipsoidPointAltitudeEllipse ::= OCTET STRING (SIZE (14))

EllipsoidPointUncertCircle ::=  OCTET STRING (SIZE (8))

EllipsoidPointUncertEllipse ::= OCTET STRING (SIZE (11))

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

```

```

Event1a ::=
    triggeringCondition
    reportingRange
    forbiddenAffectCellList
    w
    reportDeactivationThreshold
    reportingAmount
    reportingInterval
}
SEQUENCE {
    TriggeringCondition2,
    ReportingRange,
    ForbiddenAffectCellList
    OPTIONAL,
    W,
    ReportDeactivationThreshold,
    ReportingAmount,
    ReportingInterval
}

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

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

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

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

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

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

Event2c ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2d ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
    reportingCellStatus
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL
}

Event2e ::=
    hysteresis
    timeToTrigger
    reportingCellStatus
    nonUsedFreqParameterList
}
SEQUENCE {
    HysteresisInterFreq,
    TimeToTrigger,
    ReportingCellStatus
    OPTIONAL,
    NonUsedFreqParameterList
    OPTIONAL
}

Event2f ::=
    usedFreqThreshold
    usedFreqW
    hysteresis
    timeToTrigger
}
SEQUENCE {
    Threshold,
    W,
    HysteresisInterFreq,
    TimeToTrigger,
}

```

```

    reportingCellStatus          ReportingCellStatus          OPTIONAL
}

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

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

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

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

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

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

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

EventResults ::=
    intraFreqEventResults        IntraFreqEventResults,
    interFreqEventResults        InterFreqEventResults,
    interRATEEventResults        InterRATEEventResults,
    trafficVolumeEventResults    TrafficVolumeEventResults,
    qualityEventResults           QualityEventResults,
    ue-InternalEventResults       UE-InternalEventResults,
    up-MeasurementEventResults    UP-MeasurementEventResults
}

ExtraDopplerInfo ::=
    doppler1stOrder              INTEGER (-42..21),
    dopplerUncertainty            DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::=
    FACH-meas-occasion-coeff      INTEGER (1..12)          OPTIONAL,
    inter-freq-FDD-meas-ind        BOOLEAN,
    inter-freq-TDD-meas-ind        BOOLEAN,
    inter-RAT-meas-ind             SEQUENCE (SIZE (1..maxOtherRAT)) OF
        RAT-Type                  OPTIONAL
}

FilterCoefficient ::=
    ENUMERATED {
        fc0, fc1, fc2, fc3, fc4, fc5,
        fc6, fc7, fc8, fc9, fc11, fc13,
        fc15, fc17, fc19, spare1 }

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

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

```



```

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

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

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

GPS-MeasurementParam ::= SEQUENCE {
    satelliteID INTEGER (0..63),
    c-N0 INTEGER (0..63),
    doppler INTEGER (-32768..32768),
    wholeGPS-Chips INTEGER (0..1023),
    fractionalGPS-Chips INTEGER (0..1023),
    multipathIndicator MultipathIndicator,
    pseudorangeRMS-Error INTEGER (0..63)
}

GPS-MeasurementParamList ::= SEQUENCE (SIZE (1..maxSat)) OF
    GPS-MeasurementParam

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

GSM-MeasuredResults ::= SEQUENCE {
    gsm-CarrierRSSI GSM-CarrierRSSI OPTIONAL,
    pathloss Pathloss OPTIONAL,
    bsicReported BSICReported,
    observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
}

GSM-MeasuredResultsList ::= SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
    GSM-MeasuredResults

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

GPS-TOW-1msec ::= INTEGER (0..604799999)

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

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

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

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

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

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

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO HCS-PRIO DEFAULT 0,
    q-HCS Q-HCS DEFAULT 0,
    hcs-CellReselectInformation HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECNO ::= SEQUENCE {

```

```

    hcs-PRIO                HCS-PRIO                DEFAULT 0,
    q-HCS                   Q-HCS                   DEFAULT 0,
    hcs-CellReselectInformation HCS-CellReselectInformation-ECNO
}

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

HCS-ServingCellInformation ::= SEQUENCE {
    hcs-PRIO                HCS-PRIO                DEFAULT 0,
    q-HCS                   Q-HCS                   DEFAULT 0,
    t-CR-Max                T-CRMax                OPTIONAL
}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

InterFreqMeasQuantity ::=   SEQUENCE {
    reportingCriteria        CHOICE {
        intraFreqReportingCriteria SEQUENCE {

```

```

        intraFreqMeasQuantity          IntraFreqMeasQuantity
    },
    interFreqReportingCriteria          SEQUENCE {
        filterCoefficient               FilterCoefficient          DEFAULT fc0,
        modeSpecificInfo                CHOICE {
            fdd                          SEQUENCE {
                freqQualityEstimateQuantity-FDD  FreqQualityEstimateQuantity-FDD
            },
            tdd                          SEQUENCE {
                freqQualityEstimateQuantity-TDD  FreqQualityEstimateQuantity-TDD
            }
        }
    }
}

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

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

InterFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List      InterFreqCellInfoSI-List-RSCP      OPTIONAL
}

InterFreqMeasurementSysInfo-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List      InterFreqCellInfoSI-List-ECNO      OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List      InterFreqCellInfoSI-List-HCS-RSCP  OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List      InterFreqCellInfoSI-List-HCS-ECNO  OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria     IntraFreqReportingCriteria,
    interFreqReportingCriteria     InterFreqReportingCriteria,
    periodicalReportingCriteria    PeriodicalWithReportingCellStatus,
    noReporting                    ReportingCellStatusOpt
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList             InterFreqEventList             OPTIONAL
}

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

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList          InterFreqCellInfoList,
    interFreqMeasQuantity          InterFreqMeasQuantity          OPTIONAL,
    interFreqReportingQuantity     InterFreqReportingQuantity    OPTIONAL,
    measurementValidity            MeasurementValidity            OPTIONAL,
    interFreqSetUpdate             UE-AutonomousUpdateMode      OPTIONAL,
    reportCriteria                 InterFreqReportCriteria
}

InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo         CHOICE {
        gsm                         SEQUENCE {
            bsic                    BSIC,
            bcch-ARFCN              BCCH-ARFCN,
            ncMode                   NC-Mode                    OPTIONAL
        },
        is-2000                     NULL,
        spare                        NULL
    }
}

```

```

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

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

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

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

InterRATEventList ::=             SEQUENCE (SIZE (1..maxMeasEvent)) OF
    InterRATEvent

InterRATEventResults ::=          SEQUENCE {
    eventID                      EventIDInterRAT,
    cellToReportList             CellToReportList
}

InterRATInfo ::=                  ENUMERATED {
    gsm
}

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

InterRATMeasuredResults ::=       CHOICE {
    gsm                            GSM-MeasuredResultsList,
    spare                          NULL
}

InterRATMeasuredResultsList ::=   SEQUENCE (SIZE (1..maxOtherRAT)) OF
    InterRATMeasuredResults

InterRATMeasurement ::=          SEQUENCE {
    interRATCellInfoList          InterRATCellInfoList          OPTIONAL,
    interRATMeasQuantity          InterRATMeasQuantity          OPTIONAL,
    interRATReportingQuantity     InterRATReportingQuantity    OPTIONAL,
    reportCriteria                InterRATReportCriteria
}

InterRATMeasurementSysInfo ::=   SEQUENCE {
    interRATCellInfoList          InterRATCellInfoList          OPTIONAL
}

InterRATMeasurementSysInfo-HCS ::= SEQUENCE {
    interRATCellInfoList          InterRATCellInfoList-HCS      OPTIONAL
}

InterRATReportCriteria ::=       CHOICE {
    interRATReportingCriteria     InterRATReportingCriteria,
    periodicalReportingCriteria   PeriodicalWithReportingCellStatus,
    noReporting                   ReportingCellStatusOpt
}

InterRATReportingCriteria ::=    SEQUENCE {

```

```

    interRATEventList          InterRATEventList          OPTIONAL
}

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

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

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

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

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

IntraFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-HCS-RSCP
}

IntraFreqCellInfoSI-List-HCS-ECNO ::= SEQUENCE {
    removedIntraFreqCellList    RemovedIntraFreqCellList    OPTIONAL,
    newIntraFreqCellList        NewIntraFreqCellSI-List-HCS-ECNO
}

IntraFreqEvent ::= CHOICE {
    ela      Event1a,
    e1b     Event1b,
    e1c     Event1c,
    e1d     NULL,
    e1e     Event1e,
    e1f     Event1f,
    e1g     NULL,
    e1h     ThresholdUsedFrequency,
    e1i     ThresholdUsedFrequency
}

IntraFreqEventCriteria ::= SEQUENCE {
    event          IntraFreqEvent,
    hysteresis     Hysteresis,
    timeToTrigger TimeToTrigger,
    reportingCellStatus ReportingCellStatus    OPTIONAL
}

IntraFreqEventCriteriaList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::= SEQUENCE {
    eventID        EventIDIntraFreq,
    cellMeasurementEventResults CellMeasurementEventResults
}

IntraFreqMeasQuantity ::= SEQUENCE {
    filterCoefficient FilterCoefficient    DEFAULT fcl,
    modeSpecificInfo  CHOICE {
        fdd           SEQUENCE {
            intraFreqMeasQuantity-FDD IntraFreqMeasQuantity-FDD
        },
        tdd           SEQUENCE {
            intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
        }
    }
}

```

```

}

IntraFreqMeasQuantity-FDD ::=      ENUMERATED {
    cpich-Ec-NO,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDD ::=      ENUMERATED {
    primaryCCPCH-RSCP,
    pathloss,
    timeslotISCP,
    ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDDList ::=  SEQUENCE (SIZE (1..4)) OF
    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=   SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-RSCP OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH        OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH        OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-ECN0 OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH        OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH        OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-RSCP OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH        OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH        OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-ECN0 OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity        OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH        OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH        OPTIONAL
}

IntraFreqReportCriteria ::=        CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
    noReporting                      ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::=      SEQUENCE {
    eventCriteriaList              IntraFreqEventCriteriaList    OPTIONAL
}

IntraFreqReportingQuantity ::=      SEQUENCE {
    activeSetReportingQuantities    CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    detectedSetReportingQuantities  CellReportingQuantities        OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-OTD-Type              SFN-SFN-OTD-Type,
    modeSpecificInfo               CHOICE {
        fdd                        SEQUENCE {
            intraFreqRepQuantityRACH-FDD IntraFreqRepQuantityRACH-FDD
        },

```

```

        tdd
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
    pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
    IntraFreqRepQuantityRACH-TDD

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList          IntraFreqCellInfoList          OPTIONAL,
    intraFreqMeasQuantity          IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantity    IntraFreqReportingQuantity    OPTIONAL,
    measurementValidity           MeasurementValidity          OPTIONAL,
    reportCriteria                 IntraFreqReportCriteria      OPTIONAL
}

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

MaxNumberOfReportingCellsType1 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}

MaxNumberOfReportingCellsType3 ::= ENUMERATED {
    viactCellsPlus1,
    viactCellsPlus2,
    viactCellsPlus3,
    viactCellsPlus4,
    viactCellsPlus5,
    viactCellsPlus6 }

MaxReportedCellsOnRACH ::= ENUMERATED {
    noReport,
    currentCell,
    currentAnd-1-BestNeighbour,
    currentAnd-2-BestNeighbour,
    currentAnd-3-BestNeighbour,
    currentAnd-4-BestNeighbour,
    currentAnd-5-BestNeighbour,
    currentAnd-6-BestNeighbour }

MeasuredResults ::= CHOICE {
    intraFreqMeasuredResultsList    IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList    InterFreqMeasuredResultsList,
    interRATMeasuredResultsList     InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults           QualityMeasuredResults,
    ue-InternalMeasuredResults       UE-InternalMeasuredResults,
    up-MeasuredResults               UP-MeasuredResults
}

MeasuredResultsList ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasuredResults

MeasuredResultsOnRACH ::= SEQUENCE {
    currentCell
    SEQUENCE {

```

```

modeSpecificInfo
  fdd
    measurementQuantity
      cpich-Ec-NO
      cpich-RSCP
      pathloss
    },
  tdd
    timeslotISCP
    primaryCCPCH-RSCP
  }
},
monitoredCells
  MonitoredCellRACH-List
  OPTIONAL
}

MeasurementCommand ::=
  setup
  modify
    measurementType
  },
  release
  NULL
}

MeasurementControlSysInfo ::=
  use-of-HCS
    hcs-not-used
      cellSelectQualityMeasure
        cpich-RSCP
        intraFreqMeasurementSysInfo
      OPTIONAL,
      interFreqMeasurementSysInfo
      InterFreqMeasurementSysInfo-RSCP
      OPTIONAL
    },
    cpich-Ec-No
      intraFreqMeasurementSysInfo
      IntraFreqMeasurementSysInfo-ECN0
      OPTIONAL,
      interFreqMeasurementSysInfo
      InterFreqMeasurementSysInfo-ECN0
      OPTIONAL
    },
    interRATMeasurementSysInfo
    InterRATMeasurementSysInfo-HCS
    OPTIONAL
  },
  hcs-used
    cellSelectQualityMeasure
      cpich-RSCP
      intraFreqMeasurementSysInfo
      IntraFreqMeasurementSysInfo-HCS-RSCP
      OPTIONAL,
      interFreqMeasurementSysInfo
      InterFreqMeasurementSysInfo-HCS-RSCP
      OPTIONAL
    },
    cpich-Ec-No
      intraFreqMeasurementSysInfo
      IntraFreqMeasurementSysInfo-HCS-ECN0
      OPTIONAL,
      interFreqMeasurementSysInfo
      InterFreqMeasurementSysInfo-HCS-ECN0
      OPTIONAL
    },
    interRATMeasurementSysInfo
    InterRATMeasurementSysInfo
    OPTIONAL
  },
  trafficVolumeMeasSysInfo
  TrafficVolumeMeasSysInfo
  OPTIONAL,
  ue-InternalMeasurementSysInfo
  UE-InternalMeasurementSysInfo
  OPTIONAL
}

MeasurementIdentity ::= INTEGER (1..16)

MeasurementQuantityGSM ::= ENUMERATED {
  gsm-CarrierRSSI,
  pathloss }

MeasurementReportingMode ::= SEQUENCE {
  measurementReportTransferMode
  TransferMode,
  periodicalOrEventTrigger
  PeriodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
  intraFrequencyMeasurement
  IntraFrequencyMeasurement,
  interFrequencyMeasurement
  InterFrequencyMeasurement,
}

```



```

interRATMeasurement      InterRATMeasurement,
up-Measurement           UP-Measurement,
trafficVolumeMeasurement TrafficVolumeMeasurement,
qualityMeasurement       QualityMeasurement,
ue-InternalMeasurement  UE-InternalMeasurement
}

MeasurementValidity ::=
  ue-State
}

MonitoredCellRACH-List ::=
  SEQUENCE (SIZE (1..7)) OF
    MonitoredCellRACH-Result

MonitoredCellRACH-Result ::=
  sfn-SFN-ObsTimeDifference      OPTIONAL,
  modeSpecificInfo              CHOICE {
    fdd                          SEQUENCE {
      primaryCPICH-Info          PrimaryCPICH-Info,
      measurementQuantity        CHOICE {
        cpich-Ec-N0              CPICH-Ec-N0,
        cpich-RSCP                CPICH-RSCP,
        pathloss                  Pathloss
      }
    },
    tdd                          SEQUENCE {
      cellParametersID           CellParametersID,
      primaryCCPCH-RSCP          PrimaryCCPCH-RSCP
    }
  }
}

MultipathIndicator ::=
  ENUMERATED {
    nm,
    low,
    medium,
    high
  }

N-CR-T-CRMaxHyst ::=
  n-CR                          SEQUENCE {
    t-CRMaxHyst                  INTEGER (1..16)
  }
}

NavigationModelSatInfo ::=
  satID                          SEQUENCE {
    satelliteStatus              SatelliteStatus,
    navModel                     NavModel
  }

NavigationModelSatInfoList ::=
  SEQUENCE (SIZE (1..maxSat)) OF
    NavigationModelSatInfo

NavModel ::=
  codeOnL2                       BIT STRING (SIZE (2)),
  uraIndex                       BIT STRING (SIZE (4)),
  satHealth                      BIT STRING (SIZE (6)),
  iodc                          BIT STRING (SIZE (10)),
  l2Pflag                       BIT STRING (SIZE (1)),
  sflRevId                      SubFrame1Reserved,
  t-GD                          BIT STRING (SIZE (8)),
  t-oc                          BIT STRING (SIZE (16)),
  af2                           BIT STRING (SIZE (8)),
  af1                           BIT STRING (SIZE (16)),
  af0                           BIT STRING (SIZE (22)),
  c-rs                          BIT STRING (SIZE (16)),
  delta-n                       BIT STRING (SIZE (16)),
  m0                            BIT STRING (SIZE (32)),
  c-uc                          BIT STRING (SIZE (16)),
  e                             BIT STRING (SIZE (32)),
  c-us                          BIT STRING (SIZE (16)),
  a-Sqrt                       BIT STRING (SIZE (32)),
  t-oe                          BIT STRING (SIZE (16)),
  fitInterval                   BIT STRING (SIZE (1)),
  aodo                          BIT STRING (SIZE (5)),
  c-ic                          BIT STRING (SIZE (16)),
  omega0                        BIT STRING (SIZE (32)),
  c-is                          BIT STRING (SIZE (16)),

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```

    i0                BIT STRING (SIZE (32)),
    c-rc              BIT STRING (SIZE (16)),
    omega             BIT STRING (SIZE (32)),
    omegaDot         BIT STRING (SIZE (24)),
    iDot              BIT STRING (SIZE (14))
}
NC-Mode ::=          BIT STRING (SIZE (3))

Neighbour ::=       SEQUENCE {
    neighbourIdentity PrimaryCPICH-Info           OPTIONAL,
    neighbourQuantity NeighbourQuantity,
    sfn-SFN-ObsTimeDifference2 SFN-SFN-ObsTimeDifference2
}

NeighbourList ::=   SEQUENCE (SIZE (1..maxCellMeas)) OF
    Neighbour

-- **TODO**, to be defined fully
NeighbourQuantity ::= SEQUENCE {
}

NewInterFreqCell ::= SEQUENCE {
    interFreqCellID InterFreqCellID           OPTIONAL,
    frequencyInfo FrequencyInfo               OPTIONAL,
    cellInfo CellInfo
}

NewInterFreqCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCell

NewInterFreqCellSI-RSCP ::= SEQUENCE {
    interFreqCellID InterFreqCellID           OPTIONAL,
    frequencyInfo FrequencyInfo               OPTIONAL,
    cellInfo CellInfoSI-RSCP
}

NewInterFreqCellSI-ECN0 ::= SEQUENCE {
    interFreqCellID InterFreqCellID           OPTIONAL,
    frequencyInfo FrequencyInfo               OPTIONAL,
    cellInfo CellInfoSI-ECN0
}

NewInterFreqCellSI-HCS-RSCP ::= SEQUENCE {
    interFreqCellID InterFreqCellID           OPTIONAL,
    frequencyInfo FrequencyInfo               OPTIONAL,
    cellInfo CellInfoSI-HCS-RSCP
}

NewInterFreqCellSI-HCS-ECN0 ::= SEQUENCE {
    interFreqCellID InterFreqCellID           OPTIONAL,
    frequencyInfo FrequencyInfo               OPTIONAL,
    cellInfo CellInfoSI-HCS-ECN0
}

NewInterFreqCellSI-List-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-ECN0

NewInterFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-HCS-ECN0

NewInterFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterFreqCellSI-RSCP

NewInterRATCell ::= SEQUENCE {
    interRATCellID InterRATCellID           OPTIONAL,
    technologySpecificInfo CHOICE {
        gsm SEQUENCE {
            cellSelectionReselectionInfo CellSelectReselectInfosIB-11-12 OPTIONAL,
            bsic BSIC,
            bcch-ARFCN BCCH-ARFCN,
            gsm-OutputPower GSM-OutputPower OPTIONAL
        },
        is-2000 SEQUENCE {
            is-2000SpecificMeasInfo IS-2000SpecificMeasInfo
        },
    },
}

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```

        spare1                NULL,
        spare2                NULL
    }
}

NewInterRATCell-HCS ::=          SEQUENCE {
    interRATCellID            InterRATCellID                OPTIONAL,
    technologySpecificInfo    CHOICE {
        gsm                   SEQUENCE {
            cellSelectionReselectionInfo    CellSelectReselectInfoSIB-11-12    OPTIONAL,
            bsic                BSIC,
            bcch-ARFCN          BCCH-ARFCN,
            gsm-OutputPower     GSM-OutputPower                OPTIONAL
        },
        is-2000                SEQUENCE {
            is-2000SpecificMeasInfo        IS-2000SpecificMeasInfo
        },
        spare1                  NULL,
        spare2                  NULL
    }
}

NewInterRATCellList ::=          SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterRATCell

NewInterRATCellList-HCS ::=      SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewInterRATCell-HCS

NewIntraFreqCell ::=            SEQUENCE {
    intraFreqCellID            IntraFreqCellID                OPTIONAL,
    cellInfo                    CellInfo
}

NewIntraFreqCellList ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCell

NewIntraFreqCellSI-RSCP ::=      SEQUENCE {
    intraFreqCellID            IntraFreqCellID                OPTIONAL,
    cellInfo                    CellInfoSI-RSCP
}

NewIntraFreqCellSI-ECN0 ::=      SEQUENCE {
    intraFreqCellID            IntraFreqCellID                OPTIONAL,
    cellInfo                    CellInfoSI-ECN0
}

NewIntraFreqCellSI-HCS-RSCP ::=  SEQUENCE {
    intraFreqCellID            IntraFreqCellID                OPTIONAL,
    cellInfo                    CellInfoSI-HCS-RSCP
}

NewIntraFreqCellSI-HCS-ECN0 ::=  SEQUENCE {
    intraFreqCellID            IntraFreqCellID                OPTIONAL,
    cellInfo                    CellInfoSI-HCS-ECN0
}

NewIntraFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-RSCP

NewIntraFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    NewIntraFreqCellSI-HCS-ECN0

NodeB-ClockDrift ::=            INTEGER (0..15)

NonUsedFreqParameter ::=        SEQUENCE {
    nonUsedFreqThreshold        Threshold,
    nonUsedFreqW                W
}

NonUsedFreqParameterList ::=    SEQUENCE (SIZE (1..maxFreq)) OF
    NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::=  INTEGER (0..4095)

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OTDOA-SearchWindowSize ::=          ENUMERATED {
                                       c10, c20, c30, c40, c50,
                                       c60, c70, moreThan70 }

Pathloss ::=                          INTEGER (46..158)

PenaltyTime-RSCP ::=                 CHOICE {
    notUsed                            NULL,
    pt10                               TemporaryOffset,
    pt20                               TemporaryOffset,
    pt30                               TemporaryOffset,
    pt40                               TemporaryOffset,
    pt50                               TemporaryOffset,
    pt60                               TemporaryOffset
}

PenaltyTime-ECNO ::=                 CHOICE {
    notUsed                            NULL,
    pt10                               TemporaryOffsetList,
    pt20                               TemporaryOffsetList,
    pt30                               TemporaryOffsetList,
    pt40                               TemporaryOffsetList,
    pt50                               TemporaryOffsetList,
    pt60                               TemporaryOffsetList
}

PendingTimeAfterTrigger ::=          ENUMERATED {
    ptat0-25, ptat0-5, ptat1,
    ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=         ENUMERATED {
    periodical,
    eventTrigger }

PeriodicalReportingCriteria ::=      SEQUENCE {
    reportingAmount                    ReportingAmount           DEFAULT ra-Infinity,
    reportingInterval                  ReportingIntervalLong
}

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    reportingCellStatus                ReportingCellStatus       OPTIONAL
}

PositionEstimate ::=                 CHOICE {
    ellipsoidPoint                    EllipsoidPoint,
    ellipsoidPointUncertCircle         EllipsoidPointUncertCircle,
    ellipsoidPointUncertEllipse        EllipsoidPointUncertEllipse,
    ellipsoidPointAltitude             EllipsoidPointAltitude,
    ellipsoidPointAltitudeEllipse      EllipsoidPointAltitudeEllipse
}

PositioningMethod ::=                ENUMERATED {
    otdoa,
    gps,
    otdoaOrGPS }

PRC ::=                              INTEGER (-2047..2047)

PrimaryCCPCH-RSCP ::=                INTEGER (-115..-25)

Q-HCS ::=                            INTEGER (0..99)

Q-OffsetS-N ::=                      INTEGER (-50..50)

Q-QualMin ::=                         INTEGER (-20..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=                       INTEGER (-58..-13)

QualityEventResults ::=              SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

QualityMeasuredResults ::=            SEQUENCE {
    blerMeasurementResultsList        BLER-MeasurementResultsList  OPTIONAL,
    modeSpecificInfo                  CHOICE {

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        fdd                NULL,
        tdd                SEQUENCE {
            sir-MeasurementResults    SIR-MeasurementList    OPTIONAL
        }
    }
}

QualityMeasurement ::=
    qualityReportingQuantity    SEQUENCE {
        qualityReportingQuantity    QualityReportingQuantity    OPTIONAL,
        reportCriteria              QualityReportCriteria
    }

QualityReportCriteria ::=
    qualityReportingCriteria     CHOICE {
        qualityReportingCriteria     QualityReportingCriteria,
        periodicalReportingCriteria  PeriodicalReportingCriteria,
        noReporting                  NULL
    }

QualityReportingCriteria ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF
        QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::=
    SEQUENCE {
        transportChannelIdentity     TransportChannelIdentity,
        totalCRC                      INTEGER (1..512),
        badCRC                        INTEGER (1..512),
        pendingAfterTrigger           INTEGER (1..512)
    }

QualityReportingQuantity ::=
    SEQUENCE {
        dl-TransChBLER                BOOLEAN,
        bler-dl-TransChIdList         BLER-TransChIdList    OPTIONAL,
        modeSpecificInfo              CHOICE {
            fdd                        NULL,
            tdd                        SEQUENCE {
                sir-TFCS-List          SIR-TFCS-List    OPTIONAL
            }
        }
    }
}

QualityType ::=
    ENUMERATED {
        std-10, std-50, cpich-Ec-N0 }

RAT-Type ::=
    ENUMERATED {
        gsm, is2000 }

ReferenceCellPosition ::=
    CHOICE {
        ellipsoidPoint                EllipsoidPoint,
        ellipsoidPointWithAltitude    EllipsoidPointAltitude
    }

ReferenceCellRelation ::=
    ENUMERATED {
        first-12-second-3,
        first-13-second-2,
        first-1-second-23 }

-- As defined in 23.032 (2D with 24bits for each coordinate)
ReferenceLocationforSIB ::=
    SEQUENCE {
        ellipsoidPoint                EllipsoidPoint
    }

ReferenceQuality ::=
    ENUMERATED {
        m0-19, m20-39, m40-79,
        m80-159, m160-319, m320-639,
        m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::=
    INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::=
    INTEGER (1..32)

ReferenceSFN ::=
    INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::=
    CHOICE {
        -- Actual value = IE value * 40
        accuracy40                    INTEGER (0..960),
        -- Actual value = IE value * 256
    }

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    accuracy256                INTEGER (0..150),
    -- Actual value = IE value * 2560
    accuracy2560              INTEGER (0..15)
}

RemovedInterFreqCellList ::= CHOICE {
    removeAllInterFreqCells    NULL,
    removeSomeInterFreqCells   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                InterFreqCellID,
    removeNoInterFreqCells     NULL
}

RemovedInterRATCellList ::= CHOICE {
    removeAllInterRATCells     NULL,
    removeSomeInterRATCells    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                InterRATCellID,
    removeNoInterRATCells     NULL
}

RemovedIntraFreqCellList ::= CHOICE {
    removeAllIntraFreqCells    NULL,
    removeSomeIntraFreqCells   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                IntraFreqCellID,
    removeNoIntraFreqCells     NULL
}

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportingAmount ::= ENUMERATED {
    ra1, ra2, ra4, ra8, ra16, ra32,
    ra64, ra-Infinity }

ReportingCellStatus ::= CHOICE{
    withinActiveSet              MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq   MaxNumberOfReportingCellsType1,
    withinActiveAndOrMonitoredUsedFreq MaxNumberOfReportingCellsType1,
    withinDetectedSetUsedFreq    MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrDetectedUsedFreq
                                MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet    MaxNumberOfReportingCellsType3,
    allActivePlusDetectedSet     MaxNumberOfReportingCellsType3,
    allActivePlusMonitoredAndOrDetectedSet
                                MaxNumberOfReportingCellsType3,
    withinVirtualActSet          MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrActiveSetNonUsedFreq
                                MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
                                MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet  MaxNumberOfReportingCellsType2,
    withinActSetAndOrMonitoredUsedFreqOrMonitoredNonUsedFreq
                                MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::= SEQUENCE {
    reportingCellStatus         ReportingCellStatus           OPTIONAL
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity  IntraFreqReportingQuantity,
    measurementReportingMode     MeasurementReportingMode,
    reportCriteria               CellDCH-ReportCriteria
}

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)

RL-AdditionInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RL-InformationLists ::= SEQUENCE {
    rl-AdditionInfoList          OPTIONAL,
    rl-RemovalInfoList          OPTIONAL
}

RL-RemovalInfoList ::= SEQUENCE (SIZE (1..maxRL)) OF
    PrimaryCPICH-Info

RLC-BuffersPayload ::= ENUMERATED {
    pl0, pl4, pl8, pl16, pl32, pl64, pl128,
    pl256, pl512, pl1024, pl2k, pl4k,
    pl8k, pl16k, pl32k, pl64k, pl128k,
    pl256k, pl512k, pl1024k }

RRC ::= INTEGER (-127..127)

SatelliteStatus ::= ENUMERATED {
    ns-NN-U,
    es-SN,
    es-NN-U,
    es-NN-C }

SatID ::= INTEGER (0..63)

SFN-SFN-ObsTimeDifference ::= CHOICE {
    type1          SFN-SFN-ObsTimeDifference1,
    -- Actual value for type2 = IE value * 0.0625 - 1280
    type2          SFN-SFN-ObsTimeDifference2
}

SFN-SFN-ObsTimeDifference1 ::= INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::= INTEGER (0..40961)

SFN-SFN-OTD-Type ::= ENUMERATED {
    noReport,
    type1,
    type2 }

SIR ::= INTEGER (-10..20)

SIR-MeasurementList ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    SIR-MeasurementResults

SIR-MeasurementResults ::= SEQUENCE {
    tfcs-ID          TFCS-IdentityPlain,
    sir-TimeslotList
}

SIR-TFCS ::= TFCS-IdentityPlain

SIR-TFCS-List ::= SEQUENCE (SIZE (1..maxCCTrCH)) OF
    SIR-TFCS

SIR-TimeslotList ::= SEQUENCE (SIZE (1..maxTS)) OF
    SIR

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::= SEQUENCE {
    reserved1        BIT STRING (SIZE (23)),
    reserved2        BIT STRING (SIZE (24)),
    reserved3        BIT STRING (SIZE (24)),
    reserved4        BIT STRING (SIZE (16))
}

T-CRMax ::= CHOICE {

```

```

    notUsed          NULL,
    t30              N-CR-T-CRMaxHyst,
    t60              N-CR-T-CRMaxHyst,
    t120             N-CR-T-CRMaxHyst,
    t180             N-CR-T-CRMaxHyst,
    t240             N-CR-T-CRMaxHyst
}

T-CRMaxHyst ::=      ENUMERATED {
                      notUsed, t10, t20, t30,
                      t40, t50, t60, t70 }

TemporaryOffset ::=  ENUMERATED {
                      to10, to20, to30, to40, to50,
                      to60, to70, infinite }

TemporaryOffsetList ::= SEQUENCE {
    temporaryOffset1  TemporaryOffset,
    temporaryOffset2  TemporaryOffset
}

Threshold ::=        INTEGER (-115..0)

ThresholdPositionChange ::= ENUMERATED {
    pc10, pc20, pc30, pc40, pc50,
    pc100, pc200, pc300, pc500,
    pc1000, pc2000, pc5000, pc10000,
    pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::= ENUMERATED {
    ms1, ms2, ms3, ms5, ms10,
    ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::= ENUMERATED {
    c0-25, c0-5, c1, c2, c3, c4, c5,
    c10, c20, c50, c100, c200, c500,
    c1000, c2000, c5000 }

ThresholdUsedFrequency ::= INTEGER (-115..165)

-- Actual value = IE value * 20.
TimeInterval ::=      INTEGER (1..13)

TimeslotInfo ::=      SEQUENCE {
    timeslotNumber    TimeslotNumber,
    burstType         BurstType
}

TimeslotInfoList ::=  SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotInfo

TimeslotISCP ::=      INTEGER (-115..-25)

TimeslotISCP-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotISCP

TimeslotListWithISCP ::= SEQUENCE (SIZE (1..maxTS)) OF
    TimeslotWithISCP

TimeslotWithISCP ::= SEQUENCE {
    timeslot          TimeslotNumber,
    timeslotISCP      TimeslotISCP
}

TimeToTrigger ::=     ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, ttt320, ttt640,
    ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::= SEQUENCE {
    eventID           TrafficVolumeEventType,
    reportingThreshold TrafficVolumeThreshold,
    timeToTrigger     TimeToTrigger,
    pendingTimeAfterTrigger PendingTimeAfterTrigger OPTIONAL,
}

```



```

    tx-InterruptionAfterTrigger          TX-InterruptionAfterTrigger          OPTIONAL
}

TrafficVolumeEventResults ::=          SEQUENCE {
    ul-transportChannelCausingEvent      TransportChannelIdentity,
    trafficVolumeEventIdentity          TrafficVolumeEventType
}

TrafficVolumeEventType ::=             ENUMERATED {
    e4a,
    e4b
}

TrafficVolumeMeasQuantity ::=          CHOICE {
    rlc-BufferPayload                   NULL,
    averageRLC-BufferPayload            TimeInterval,
    varianceOfRLC-BufferPayload         TimeInterval
}

TrafficVolumeMeasSysInfo ::=           SEQUENCE {
    trafficVolumeMeasurementID          MeasurementIdentity          DEFAULT 4,
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity   OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity OPTIONAL,
    trafficVolumeMeasRepCriteria        TrafficVolumeReportingCriteria OPTIONAL,
    measurementValidity                 MeasurementValidity         OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo
}

TrafficVolumeMeasuredResults ::=       SEQUENCE {
    rb-Identity                          RB-Identity,
    rlc-BuffersPayload                   RLC-BuffersPayload         OPTIONAL,
    averageRLC-BufferPayload             AverageRLC-BufferPayload    OPTIONAL,
    varianceOfRLC-BufferPayload          VarianceOfRLC-BufferPayload OPTIONAL
}

TrafficVolumeMeasuredResultsList ::=   SEQUENCE (SIZE (1..maxRB)) OF
    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::=           SEQUENCE {
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity   OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity OPTIONAL,
    measurementValidity                 MeasurementValidity         OPTIONAL,
    reportCriteria                      TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

TrafficVolumeReportCriteria ::=        CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    noReporting                         NULL
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria      TrafficVolumeReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria
}

TrafficVolumeReportingCriteria ::=     SEQUENCE {
    transChCriteriaList                 TransChCriteriaList          OPTIONAL
}

TrafficVolumeReportingQuantity ::=     SEQUENCE {
    rlc-RB-BufferPayload                 BOOLEAN,
    rlc-RB-BufferPayloadAverage          BOOLEAN,
    rlc-RB-BufferPayloadVariance        BOOLEAN
}

TrafficVolumeThreshold ::=             ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th2k, th3k,
    th4k, th6k, th8k, th12k, th16k,
    th24k, th32k, th48k, th64k, th96k,
    th128k, th192k, th256k, th384k,
}

```

```

th512k, th768k }

TransChCriteria ::=
  ul-transportChannelID
  eventSpecificParameters
}
SEQUENCE {
  TransportChannelIdentity OPTIONAL,
  SEQUENCE (SIZE (1..maxMeasParEvent)) OF
  TrafficVolumeEventParam OPTIONAL
}

TransChCriteriaList ::=
SEQUENCE (SIZE (1..maxTrCH)) OF
  TransChCriteria

TransferMode ::=
ENUMERATED {
  acknowledgedModeRLC,
  unacknowledgedModeRLC }

TransmittedPowerThreshold ::=
INTEGER (-50..33)

TriggeringCondition1 ::=
ENUMERATED {
  activeSetCellsOnly,
  monitoredSetCellsOnly,
  activeSetAndMonitoredSetCells }

TriggeringCondition2 ::=
ENUMERATED {
  activeSetCellsOnly,
  monitoredSetCellsOnly,
  activeSetAndMonitoredSetCells,
  detectedSetCellsOnly,
  detectedSetAndMonitoredSetCells }

TX-InterruptionAfterTrigger ::=
ENUMERATED {
  txiat0-25, txiat0-5, txiat1,
  txiat2, txiat4, txiat8, txiat16 }

UDRE ::=
ENUMERATED {
  lessThan1,
  between1-and-4,
  between4-and-8,
  over8 }

UE-6AB-Event ::=
timeToTrigger
transmittedPowerThreshold
}
SEQUENCE {
  TimeToTrigger,
  TransmittedPowerThreshold
}

UE-6FG-Event ::=
timeToTrigger
ue-RX-TX-TimeDifferenceThreshold
}
SEQUENCE {
  TimeToTrigger,
  UE-RX-TX-TimeDifferenceThreshold
}

UE-AutonomousUpdateMode ::=
on
onWithNoReporting
off
}
CHOICE {
  NULL,
  NULL,
  RL-InformationLists
}

UE-InternalEventParam ::=
event6a
event6b
event6c
event6d
event6e
event6f
event6g
}
CHOICE {
  UE-6AB-Event,
  UE-6AB-Event,
  TimeToTrigger,
  TimeToTrigger,
  TimeToTrigger,
  UE-6FG-Event,
  UE-6FG-Event
}

UE-InternalEventParamList ::=
SEQUENCE (SIZE (1..maxMeasEvent)) OF
  UE-InternalEventParam

UE-InternalEventResults ::=
event6a
event6b
event6c
event6d
event6e
event6f
event6g
}
CHOICE {
  NULL,
  NULL,
  NULL,
  NULL,
  NULL,
  PrimaryCPICH-Info,
  PrimaryCPICH-Info
}

```

```

UE-InternalMeasQuantity ::=          SEQUENCE {
    measurementQuantity              UE-MeasurementQuantity,
    filterCoefficient                 FilterCoefficient           DEFAULT fcl
}

UE-InternalMeasuredResults ::=        SEQUENCE {
    modeSpecificInfo                  CHOICE {
        fdd                           SEQUENCE {
            ue-TransmittedPowerFDD     UE-TransmittedPower         OPTIONAL,
            ue-RX-TX-ReportEntryList    UE-RX-TX-ReportEntryList    OPTIONAL
        },
        tdd                             SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL,
            appliedTA                    UL-TimingAdvance            OPTIONAL
        }
    }
}

UE-InternalMeasurement ::=           SEQUENCE {
    ue-InternalMeasQuantity           UE-InternalMeasQuantity     OPTIONAL,
    ue-InternalReportingQuantity      UE-InternalReportingQuantity OPTIONAL,
    reportCriteria                    UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::=    SEQUENCE {
    ue-InternalMeasurementID          MeasurementIdentity         DEFAULT 5,
    ue-InternalMeasQuantity           UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::=        CHOICE {
    ue-InternalReportingCriteria      UE-InternalReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                        NULL
}

UE-InternalReportingCriteria ::=     SEQUENCE {
    ue-InternalEventParamList         UE-InternalEventParamList   OPTIONAL
}

UE-InternalReportingQuantity ::=     SEQUENCE {
    ue-TransmittedPower               BOOLEAN,
    modeSpecificInfo                  CHOICE {
        fdd                             SEQUENCE {
            ue-RX-TX-TimeDifferece     BOOLEAN
        },
        tdd                             SEQUENCE {
            appliedTA                   BOOLEAN
        }
    }
}

-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::=           ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::=             SEQUENCE {
    primaryCPICH-Info                 PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1      UE-RX-TX-TimeDifferenceType1
}

UE-RX-TX-ReportEntryList ::=         SEQUENCE (SIZE (1..maxRL)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifferenceType1 ::=     INTEGER (768..1280)

-- Actual value = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::=     INTEGER (0..8191)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

UE-TransmittedPower ::=              INTEGER (-50..33)

UE-TransmittedPowerTDD-List ::=     SEQUENCE (SIZE (1..maxTS)) OF
    UE-TransmittedPower

UP-Accuracy ::=                      BIT STRING (SIZE (7))

```

```

-- For sfID=0 (sf4), pageNo=18, and sfID=0 & sfID=1 (sf4 & sf5), pageNo=25,
-- the IE fields for word3 - word110 are the same as UP-GPS-IonosphericModel
-- and UP-GPS-UTC-Model. For the rest of the pages, they are the same as
-- UP-GPS-Almanac.
UP-Alma-SIB-Data ::=
    sfID                SEQUENCE {
        dataID          INTEGER (0..1),
        pageNo          INTEGER (0..3),
        word3           INTEGER (0..63),
        word4           BIT STRING (SIZE (16)),
        word5           BIT STRING (SIZE (24)),
        word6           BIT STRING (SIZE (24)),
        word7           BIT STRING (SIZE (24)),
        word8           BIT STRING (SIZE (24)),
        word9           BIT STRING (SIZE (24)),
        word10          BIT STRING (SIZE (22))
    }

UP-Alma-SIB-DataList ::=
    SEQUENCE (SIZE (1..3)) OF
        UP-Alma-SIB-Data

UP-CipherParameters ::=
    SEQUENCE {
        cipheringKeyFlag BIT STRING (SIZE (1)),
        cipheringSerialNumber INTEGER (0..65535)
    }

UP-DGPS-SIB-Data ::=
    SEQUENCE {
        nodeBClockDrift NodeB-ClockDrift OPTIONAL,
        referenceLocationforSIB ReferenceLocationforSIB,
        referenceSFN ReferenceSFN OPTIONAL,
        referenceGPS-TOW GPS-TOW-lusec,
        statusHealth DiffCorrectionStatus,
        dgps-InformationList DGPS-InformationList
    }

UP-Ephe-SIB-Data ::=
    SEQUENCE {
        transmissionTOW INTEGER (0..1048575),
        satID SatID,
        tlmMessage BIT STRING (SIZE (14)),
        tlmRevd BIT STRING (SIZE (2)),
        how BIT STRING (SIZE (22)),
        wn BIT STRING (SIZE (10)),
        navModel NavModel
    }

UP-Error ::=
    SEQUENCE {
        errorReason UP-ErrorCause,
        additionalAssistanceData AdditionalAssistanceData
    }

UP-ErrorCause ::=
    ENUMERATED {
        notEnoughOTDOA-Cells,
        notEnoughGPS-Satellites,
        assistanceDataMissing,
        methodNotSupported,
        undefinedError,
        requestDeniedByUser,
        notProcessedAndTimeout }

UP-EventID ::=
    ENUMERATED {
        e7a, e7b, e7c }

UP-EventParam ::=
    SEQUENCE {
        reportingAmount ReportingAmount,
        reportFirstFix BOOLEAN,
        measurementInterval UP-MeasurementInterval,
        eventSpecificInfo UP-EventSpecificInfo
    }

UP-EventParamList ::=
    SEQUENCE (SIZE (1..maxMeasEvent)) OF
        UP-EventParam

UP-EventSpecificInfo ::=
    CHOICE {
        e7a ThresholdPositionChange,
        e7b ThresholdSFN-SFN-Change,
        e7c ThresholdSFN-GPS-TOW
    }

```

```

UP-GPS-AcquisitionAssistance ::= SEQUENCE {
    referenceTime CHOICE {
        utran-ReferenceTime UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly INTEGER (0..604799999)
    },
    satelliteInformationList AcquisitionSatInfoList
}

UP-GPS-Almanac ::= SEQUENCE {
    wn-a BIT STRING (SIZE (8)),
    almanacSatInfoList AlmanacSatInfoList
}

UP-GPS-AssistanceData ::= SEQUENCE {
    up-GPS-ReferenceTime UP-GPS-ReferenceTime OPTIONAL,
    up-GPS-ReferenceLocation EllipsoidPointAltitude OPTIONAL,
    up-GPS-DGPS-Corrections UP-GPS-DGPS-Corrections OPTIONAL,
    up-GPS-NavigationModel UP-GPS-NavigationModel OPTIONAL,
    up-GPS-IonosphericModel UP-GPS-IonosphericModel OPTIONAL,
    up-GPS-UTC-Model UP-GPS-UTC-Model OPTIONAL,
    up-GPS-Almanac UP-GPS-Almanac OPTIONAL,
    up-GPS-AcquisitionAssistance UP-GPS-AcquisitionAssistance OPTIONAL,
    up-GPS-Real-timeIntegrity BadSatList OPTIONAL
}

UP-Cipher-GPS-Data-Indicator ::= SEQUENCE {
    up-CipherParameters UP-CipherParameters OPTIONAL
}

UP-GPS-DGPS-Corrections ::= SEQUENCE {
    gps-TOW INTEGER (0..604799),
    statusHealth DiffCorrectionStatus,
    dgps-CorrectionSatInfoList DGPS-CorrectionSatInfoList
}

UP-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))
}

UP-GPS-Measurement ::= SEQUENCE {
    referenceSFN ReferenceSFN OPTIONAL,
    gps-TOW-1msec GPS-TOW-1msec,
    gps-TOW-rem-usec GPS-TOW-rem-usec OPTIONAL,
    gps-MeasurementParamList GPS-MeasurementParamList
}

UP-GPS-NavigationModel ::= SEQUENCE {
    n-SAT INTEGER (1..16),
    navigationModelSatInfoList NavigationModelSatInfoList
}

UP-GPS-ReferenceTime ::= SEQUENCE {
    gps-Week INTEGER (0..1023),
    gps-TOW GPS-TOW-lusec,
    sfn INTEGER (0..4095),
    gps-TOW-AssistList GPS-TOW-AssistList OPTIONAL
}

UP-GPS-UTC-Model ::= SEQUENCE {
    a1 BIT STRING (SIZE (24)),
    a0 BIT STRING (SIZE (32)),
    t-ot BIT STRING (SIZE (8)),
    wn-t BIT STRING (SIZE (8)),
    delta-t-LS BIT STRING (SIZE (8)),
    wn-lsf BIT STRING (SIZE (8)),
    dn BIT STRING (SIZE (8)),
    delta-t-LSF BIT STRING (SIZE (8))
}

UP-IPDL-Parameters ::= SEQUENCE {

```

```

    ip-Spacing                IP-Spacing,
    ip-Length                 IP-Length,
    ip-Offset                 INTEGER (0..9),
    seed                      INTEGER (0..63),
    burstModeParameters      BurstModeParameters
}

UP-MeasuredResults ::=      SEQUENCE {
    up-MultipleSets          UP-MultipleSets                OPTIONAL,
    up-ReferenceCellIdentity PrimaryCPICH-Info                OPTIONAL,
    up-OTDOA-Measurement    UP-OTDOA-Measurement          OPTIONAL,
    up-Position             UP-Position                    OPTIONAL,
    up-GPS-Measurement      UP-GPS-Measurement            OPTIONAL,
    up-Error                UP-Error                      OPTIONAL
}

UP-Measurement ::=         SEQUENCE {
    up-ReportingQuantity    UP-ReportingQuantity,
    reportCriteria          UP-ReportCriteria,
    up-OTDOA-AssistanceData UP-OTDOA-AssistanceData        OPTIONAL,
    up-GPS-AssistanceData  UP-GPS-AssistanceData          OPTIONAL
}

UP-MeasurementEventResults ::= CHOICE {
    event7a                 UP-Position,
    event7b                 UP-OTDOA-Measurement,
    event7c                 UP-GPS-Measurement
}

UP-MeasurementInterval ::= ENUMERATED {
    e5, e15, e60, e300,
    e900, e1800, e3600, e7200 }

UP-MethodType ::=         ENUMERATED {
    ue-Assisted,
    ue-Based,
    ue-BasedPreferred,
    ue-AssistedPreferred }

UP-MultipleSets ::=       SEQUENCE {
    numberOfOTDOA-IPDL-GPS-Sets INTEGER (2..3),
    numberOfReferenceCells    INTEGER (1..3),
    referenceCellRelation     ReferenceCellRelation
}

UP-OTDOA-AssistanceData ::= SEQUENCE {
    up-OTDOA-ReferenceCell   UP-OTDOA-ReferenceCell                OPTIONAL,
    up-OTDOA-MeasurementAssistDataList UP-OTDOA-MeasurementAssistDataList  OPTIONAL,
    up-IPDL-Parameters       UP-IPDL-Parameters                OPTIONAL
}

UP-OTDOA-AssistanceSIB ::= SEQUENCE {
    up-CipherParameters      UP-CipherParameters                OPTIONAL,
    searchWindowSize         OTDOA-SearchWindowSize,
    referenceCellPosition    ReferenceCellPosition,
    up-IPDL-Parameters       UP-IPDL-Parameters                OPTIONAL,
    cellToMeasureInfoList    CellToMeasureInfoList
}

UP-OTDOA-Measurement ::=  SEQUENCE {
    sfn                     INTEGER (0..4095),
    ue-RX-TX-TimeDifferenceType2 UE-RX-TX-TimeDifferenceType2,
    qualityChoice           CHOICE {
        std-10              ReferenceQuality10,
        std-50              ReferenceQuality50,
        cpich-EcN0          CPICH-Ec-N0-OTDOA,
        defaultQuality      ReferenceQuality
    },
    neighbourList           NeighbourList                OPTIONAL
}

UP-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,
}

UP-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                         UP-OTDOA-MeasurementAssistData

UP-OTDOA-ReferenceCell ::=          SEQUENCE {
    primaryCPICH-Info            PrimaryCPICH-Info,
    frequencyInfo                FrequencyInfo                        OPTIONAL,
    cellPosition                 ReferenceCellPosition                OPTIONAL,
}

UP-Position ::=                    SEQUENCE {
    referenceSFN                 ReferenceSFN,
    gps-TOW                      GPS-TOW-lusec,
    positionEstimate             PositionEstimate
}

UP-ReportCriteria ::=              CHOICE {
    up-ReportingCriteria         UP-EventParamList,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting                  NULL
}

UP-ReportingQuantity ::=           SEQUENCE {
    methodType                   UP-MethodType,
    positioningMethod            PositioningMethod,
    responseTime                 UP-ResponseTime,
    accuracy                     UP-Accuracy                        OPTIONAL,
    gps-TimingOfCellWanted       BOOLEAN,
    multipleSets                 BOOLEAN,
    environmentCharacterisation   EnvironmentCharacterisation        OPTIONAL,
}

UP-ResponseTime ::=               ENUMERATED {
    s1, s2, s4, s8, s16,
    s32, s64, s128 }

UTRA-CarrierRSSI ::=              INTEGER (-95..-30)

UTRAN-ReferenceTime ::=           SEQUENCE {
    gps-TOW                      GPS-TOW-lusec,
    sfn                          INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::=   ENUMERATED {
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k }

-- Actual value = IE value * 0.1
W ::=                              INTEGER (0..20)

-- *****
--
--   OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****

BCC ::=                            INTEGER (0..7)

BCCH-ModificationInfo ::=         SEQUENCE {
    mib-ValueTag                 MIB-ValueTag,
    bcch-ModificationTime        BCCH-ModificationTime                OPTIONAL,
}

-- Actual value = IE value * 8
BCCH-ModificationTime ::=         INTEGER (0..511)

BSIC ::=                           SEQUENCE {
    ncc                          NCC,
    bcc                          BCC
}

CBS-DRX-Level1Information ::=     SEQUENCE {
    ctch-AllocationPeriod        INTEGER (1..256),
}

```

```

    cbs-FrameOffset                INTEGER (0..255)
}

CDMA2000-Message ::= SEQUENCE {
    msg-Type                       BIT STRING (SIZE (8)),
    payload                         BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    CDMA2000-Message

CDMA2000-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
    FrequencyInfoCDMA2000

CellValueTag ::= INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimerFactor ::= INTEGER (1..8)

FDD-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
    FrequencyInfoFDD

FrequencyInfoCDMA2000 ::= SEQUENCE {
    band-Class                     BIT STRING (SIZE (5)),
    cdma-Freq                      BIT STRING (SIZE(11))
}

GSM-BA-Range ::= SEQUENCE {
    gsmLowRangeUARFCN             UARFCN,
    gsmUpRangeUARFCN             UARFCN
}

GSM-BA-Range-List ::= SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
    GSM-BA-Range

GSM-Classmark2 ::= OCTET STRING (SIZE (5))
GSM-Classmark3 ::= OCTET STRING (SIZE (1..32))

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
    BIT STRING (SIZE (1..512))

IdentificationOfReveivedMessage ::= SEQUENCE {
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    receivedMessageType           ReceivedMessageType
}

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable      NULL,
    physicalChannelFailure        NULL,
    protocolError                 ProtocolErrorInformation,
    unspecified                   NULL,
    spare1                        NULL,
    spare2                        NULL,
    spare3                        NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm                            SEQUENCE {
        gsm-Classmark2            GSM-Classmark2,
        gsm-Classmark3            GSM-Classmark3
    },
    cdma2000                       SEQUENCE {
        cdma2000-MessageList      CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
    InterRAT-UE-RadioAccessCapability

InterRAT-HO-Failure ::= SEQUENCE {
    interRAT-HO-FailureCause      InterRAT-HO-FailureCause OPTIONAL,
    interRATMessage               InterRATMessage OPTIONAL
}

InterRAT-HO-FailureCause ::= CHOICE {
    configurationUnacceptable      NULL,
    physicalChannelFailure        NULL,
}

```



```

    protocolError                ProtocolErrorInformation,
    interRAT-ProtocolError       NULL,
    unspecified                   NULL,
    spare1                       NULL,
    spare2                       NULL,
    spare3                       NULL,
    spare4                       NULL
}

InterRATMessage ::=             CHOICE {
    gsm                           SEQUENCE {
        gsm-MessageList          GSM-MessageList
    },
    cdma2000                      SEQUENCE {
        cdma2000-MessageList     CDMA2000-MessageList
    }
}

InterRATMessageList ::=        SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                InterRATMessage

MasterInformationBlock ::=     SEQUENCE {
    mib-ValueTag                 MIB-ValueTag,
    plmn-Type                    PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    sibSb-ReferenceList          SIBSb-ReferenceList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions        SEQUENCE {} OPTIONAL
}

MIB-ValueTag ::=              INTEGER (1..8)

NCC ::=                       INTEGER (0..7)

PLMN-ValueTag ::=             INTEGER (1..256)

PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity      PredefinedConfigIdentity,
    predefinedConfigValueTag      PredefinedConfigValueTag OPTIONAL
}

ProtocolErrorInformation ::=   SEQUENCE {
    diagnosticsType              CHOICE {
        type1                    SEQUENCE {
            protocolErrorCause    ProtocolErrorCause
        },
        spare                    NULL
    }
}

ReceivedMessageType ::=        ENUMERATED {
    activeSetUpdate,
    cellUpdateConfirm,
    counterCheck,
    downlinkDirectTransfer,
    interRATHandoverCommand,
    measurementControl,
    pagingType2,
    physicalChannelReconfiguration,
    physicalSharedChannelAllocation,
    radioBearerReconfiguration,
    radioBearerRelease,
    radioBearerSetup,
    rrcConnectionRelease,
    rrcConnectionReject,
    rrcConnectionSetup,
    securityModeCommand,
    signallingConnectionRelease,
    transportChannelReconfiguration,
    transportFormatCombinationControl,
    ueCapabilityEnquiry,
    ueCapabilityInformationConfirm,
    uplinkPhysicalChannelControl,
    uraUpdateConfirm,
    utranMobilityInformation,
    spare1, spare2, spare3, spare4,
}

```

```

        spare5, spare6, spare7
    }
Rplmn-Information ::= SEQUENCE {
    gsm-BA-Range-List GSM-BA-Range-List OPTIONAL,
    fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
    tdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
    cdma2000-UMTS-Frequency-List CDMA2000-UMTS-Frequency-
List OPTIONAL
}
SchedulingInformation ::= SEQUENCE {
    scheduling SEQUENCE {
        segCount SegCount DEFAULT 1,
        sib-Pos CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4 INTEGER (0..1),
            rep8 INTEGER (0..3),
            rep16 INTEGER (0..7),
            rep32 INTEGER (0..15),
            rep64 INTEGER (0..31),
            rep128 INTEGER (0..63),
            rep256 INTEGER (0..127),
            rep512 INTEGER (0..255),
            rep1024 INTEGER (0..511),
            rep2048 INTEGER (0..1023),
            rep4096 INTEGER (0..2047)
        },
        sib-PosOffsetInfo SibOFF-List OPTIONAL
    }
}
SchedulingInformationSIB ::= SEQUENCE {
    sib-Type SIB-TypeAndTag,
    scheduling SchedulingInformation
}
SchedulingInformationSIBSb ::= SEQUENCE {
    sibSb-Type SIBSb-TypeAndTag,
    scheduling SchedulingInformation
}
SegCount ::= INTEGER (1..16)
SegmentIndex ::= INTEGER (1..15)
-- Actual value = 2 * IE value
SFN-Prime ::= INTEGER (0..2047)
SIB-Data-fixed ::= BIT STRING (SIZE (222))
SIB-Data-variable ::= BIT STRING (SIZE (1..214))
SIB-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIB
SIBSb-ReferenceList ::= SEQUENCE (SIZE (1..maxSIB)) OF
    SchedulingInformationSIBSb
SIB-ReferenceListFACH ::= SEQUENCE (SIZE (1..maxSIB-FACH)) OF
    SchedulingInformationSIB
SIB-Type ::= ENUMERATED {
    masterInformationBlock,
    systemInformationBlockType1,
    systemInformationBlockType2,
    systemInformationBlockType3,
    systemInformationBlockType4,
    systemInformationBlockType5,
    systemInformationBlockType6,
    systemInformationBlockType7,
    systemInformationBlockType8,
    systemInformationBlockType9,
}

```

```

systemInformationBlockType10,
systemInformationBlockType11,
systemInformationBlockType12,
systemInformationBlockType13,
systemInformationBlockType13-1,
systemInformationBlockType13-2,
systemInformationBlockType13-3,
systemInformationBlockType13-4,
systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType15-1,
systemInformationBlockType15-2,
systemInformationBlockType15-3,
systemInformationBlockType16,
systemInformationBlockType17,
schedulingBlock1,
schedulingBlock2,
spare1, spare2, spare3, spare4,
spare5, spare6, spare7 }

SIB-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
    sysInfoType17
}

CHOICE {
    PLMN-ValueTag,
    CellValueTagPLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    PredefinedConfigIdentityAndValueTag,
    NULL
}

SIBSb-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
    sysInfoType17
    sysInfoTypeSB1
    sysInfoTypeSB2
}

CHOICE {
    PLMN-ValueTag,
    CellValueTagPLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    PredefinedConfigIdentityAndValueTag,
    NULL,
    CellValueTag,
    CellValueTag
}

SibOFF ::=
    ENUMERATED {
        so2, so4, so6, so8, so10,
        so12, so14, so16, so18,
        so20, so22, so24, so26,
        so28, so30, so32 }

SibOFF-List ::=
    SEQUENCE (SIZE (1..15)) OF
        SibOFF

```

```

SysInfoType1 ::=                               SEQUENCE {
  -- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo      NAS-SystemInformationGSM-MAP,
  cn-DomainSysInfoList              CN-DomainSysInfoList,
  -- User equipment IEs
  ue-ConnTimersAndConstants          UE-ConnTimersAndConstants,
  ue-IdleTimersAndConstants          UE-IdleTimersAndConstants,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {} _____ OPTIONAL
}

SysInfoType2 ::=                               SEQUENCE {
  -- UTRAN mobility IEs
  ura-IdentityList                  URA-IdentityList,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {} _____ OPTIONAL
}

SysInfoType3 ::=                               SEQUENCE {
  sib4indicator                      BOOLEAN,
  -- UTRAN mobility IEs
  cellIdentity                       CellIdentity,
  cellSelectReselectInfo             CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction              CellAccessRestriction,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {} _____ OPTIONAL
}

SysInfoType4 ::=                               SEQUENCE {
  -- UTRAN mobility IEs
  cellIdentity                       CellIdentity,
  cellSelectReselectInfo             CellSelectReselectInfoSIB-3-4,
  cellAccessRestriction              CellAccessRestriction,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {} _____ OPTIONAL
}

SysInfoType5 ::=                               SEQUENCE {
  sib6indicator                      BOOLEAN,
  -- Physical channel IEs
  pich-PowerOffset                  PICH-PowerOffset,
  modeSpecificInfo                  CHOICE {
    fdd                               SEQUENCE {
      aich-PowerOffset                AICH-PowerOffset
    },
    tdd                               SEQUENCE {
      pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN      OPTIONAL,
      pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN      OPTIONAL,
      midambleConfiguration           MidambleConfiguration     OPTIONAL,
      openLoopPowerControl-TDD         OpenLoopPowerControl-TDD
    }
  },
  primaryCCPCH-Info                 PrimaryCCPCH-Info           OPTIONAL,
  prach-SystemInformationList        PRACH-SystemInformationList,
  sccpch-SystemInformationList        SCCPCH-SystemInformationList,
  cbs-DRX-Level1Information           CBS-DRX-Level1Information     OPTIONAL,
  -- Conditional on any of the CTCH indicator IEs in
  -- sccpch-SystemInformationList
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {} _____ OPTIONAL
}

SysInfoType6 ::=                               SEQUENCE {
  -- Physical channel IEs
  pich-PowerOffset                  PICH-PowerOffset,
  modeSpecificInfo                  CHOICE {
    fdd                               SEQUENCE {
      aich-PowerOffset                AICH-PowerOffset,
      csich-PowerOffset                CSICH-PowerOffset          OPTIONAL
    },
    tdd                               SEQUENCE {
      pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN      OPTIONAL,
      pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN      OPTIONAL,
      midambleConfiguration           MidambleConfiguration     OPTIONAL,
      openLoopPowerControl-TDD         OpenLoopPowerControl-TDD
    }
  },
}

```

```

        primaryCCPCH-Info          PrimaryCCPCH-Info          OPTIONAL,
        prach-SystemInformationList PRACH-SystemInformationList  OPTIONAL,
        sCCPCH-SystemInformationList SCCPCH-SystemInformationList  OPTIONAL,
        cbs-DRX-Level1Information  CBS-DRX-Level1Information  OPTIONAL,
        -- Conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType7 ::=                  SEQUENCE {
    -- Physical channel IEs
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            ul-Interference        UL-Interference
        },
        tdd                        NULL
    },
    prach-Information-SIB5-List    DynamicPersistenceLevelList,
    prach-Information-SIB6-List    DynamicPersistenceLevelList  OPTIONAL,
    expirationTimeFactor          ExpirationTimerFactor          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType8 ::=                  SEQUENCE {
    -- User equipment IEs
    cpch-Parameters                CPCH-Parameters,
    -- Physical channel IEs
    cpch-SetInfoList              CPCH-SetInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType9 ::=                  SEQUENCE {
    -- Physical channel IEs
    cpch-PersistenceLevelsList    CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType10 ::=                 SEQUENCE {
    -- User equipment IEs
    drac-SysInfoList              DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType11 ::=                 SEQUENCE {
    sib12indicator                 BOOLEAN,
    -- Measurement IEs
    fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo  OPTIONAL,
    measurementControlSysInfo     MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType12 ::=                 SEQUENCE {
    -- Measurement IEs
    fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo  OPTIONAL,
    measurementControlSysInfo     MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType13 ::=                 SEQUENCE {
    -- Core network IEs
    cn-DomainSysInfoList          CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants     UE-IdleTimersAndConstants     OPTIONAL,
    capabilityUpdateRequirement    CapabilityUpdateRequirement    OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
}

SysInfoType13-1 ::=               SEQUENCE {
    -- ANSI-41 IEs
    ansi-41-RAND-Information       ANSI-41-RAND-Information,
}

```

```

-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType13-2 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-UserZoneID-Information  ANSI-41-UserZoneID-Information,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType13-3 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType13-4 ::=                SEQUENCE {
-- ANSI-41 IEs
  ansi-41-GlobalServiceRedirectInfo
                                ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType14 ::=                SEQUENCE {
-- Physical channel IEs
  individualTS-InterferenceList  IndividualTS-InterferenceList,
  expirationTimeFactor           ExpirationTimerFactor                OPTIONAL,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType15 ::=                SEQUENCE {
-- Measurement IEs
  up-GPS-Assistance              UP-Cipher-GPS-Data-Indicator        OPTIONAL,
  up-OTDOA-Assistance            UP-OTDOA-AssistanceSIB        OPTIONAL,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType15-1 ::=              SEQUENCE {
-- DGPS corrections
  up-DGPS-SIB-Data               UP-DGPS-SIB-Data
| }

SysInfoType15-2 ::=              SEQUENCE {
-- Ephemeris and clock corrections
  up-Ephe-SIB-Data              UP-Ephe-SIB-Data
| }

SysInfoType15-3 ::=              SEQUENCE {
-- Almanac and other data
  transmissionTOW                INTEGER (0..1048575),
  satMask                        BIT STRING (SIZE (1..32)),
  lsbTOW                          BIT STRING (SIZE (8)),
  up-Alma-SIB-DataList           UP-Alma-SIB-DataList
| }

SysInfoType16 ::=                SEQUENCE {
-- Radio bearer IEs
  preDefinedRadioConfiguration  PreDefRadioConfiguration,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoType17 ::=                SEQUENCE {
-- Physical channel IEs
  pusch-SysInfoList              PUSCH-SysInfoList            OPTIONAL,
  pdsch-SysInfoList              PDSCH-SysInfoList            OPTIONAL,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {} _____ OPTIONAL
| }

SysInfoTypeSB1 ::=              SEQUENCE {
-- Other IEs
  sib-ReferenceList              SIB-ReferenceList            OPTIONAL,

```

```

-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {}_____ OPTIONAL
| }

SysInfoTypeSB2 ::=                SEQUENCE {
-- Other IEs
  sib-ReferenceList                SIB-ReferenceList          OPTIONAL,
-- Extension mechanism for non- release99 information
|   nonCriticalExtensions          SEQUENCE {}_____ OPTIONAL
| }

TDD-UMTS-Frequency-List ::=      SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
                                   FrequencyInfoTDD

-- *****
--
--   ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- *****

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::=        ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::=  ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::=          BIT STRING (SIZE (1..2048))

Min-P-REV ::=                     BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::=   ANSI-41-NAS-Parameter
NID ::=                            BIT STRING (SIZE (16))

P-REV ::=                          BIT STRING (SIZE (8))

SID ::=                             BIT STRING (SIZE (15))

END

```

11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

hipDSCHidentities      INTEGER ::= 64
hiPUSCHidentities      INTEGER ::= 64
hiRM                   INTEGER ::= 256
maxAC                  INTEGER ::= 16
maxAdditionalMeas      INTEGER ::= 4
maxASC                 INTEGER ::= 8
maxASCmap              INTEGER ::= 7
maxASCpersist          INTEGER ::= 6
maxCCTrCH              INTEGER ::= 8
maxCellMeas            INTEGER ::= 32
maxCellMeas-1          INTEGER ::= 31
maxCNDomains           INTEGER ::= 4
maxCPCHsets            INTEGER ::= 16
maxDPCH-DLchan         INTEGER ::= 8
maxDPCHcodesPerTS     INTEGER ::= 16
-- **TODO**
maxDPDCH-UL            INTEGER ::= 6
maxDRACclasses         INTEGER ::= 8
-- **TODO**
maxFACH                INTEGER ::= 8
maxFreq                INTEGER ::= 8
maxFrequencybands      INTEGER ::= 4
maxInterSysMessages   INTEGER ::= 4
maxLoCHperRLC          INTEGER ::= 2
maxMeasEvent           INTEGER ::= 8
maxMeasIntervals       INTEGER ::= 3
maxMeasParEvent        INTEGER ::= 2
maxNumCDMA2000Freqs   INTEGER ::= 8
maxNumGSMFreqRanges    INTEGER ::= 32
maxNumFDDFreqs         INTEGER ::= 8
maxNumTDDFreqs         INTEGER ::= 8
maxNoOfMeas            INTEGER ::= 16
maxOtherRAT            INTEGER ::= 15
maxPage1               INTEGER ::= 8

```

```

maxPCPCH-APsig          INTEGER ::= 16
maxPCPCH-APsubCh       INTEGER ::= 12
maxPCPCH-CDsig         INTEGER ::= 16
maxPCPCH-CDsubCh      INTEGER ::= 12
maxPCPCH-SF           INTEGER ::= 7
maxPCPCHs              INTEGER ::= 64
maxPDCPAlgoType       INTEGER ::= 8
maxPDSCH               INTEGER ::= 8
maxPDSCH-TFCIgroups   INTEGER ::= 256
maxPRACH               INTEGER ::= 16
maxPredefConfig       INTEGER ::= 16
maxPUSCH               INTEGER ::= 8
maxRABsetup            INTEGER ::= 16
maxRAT                 INTEGER ::= 16
maxRB                  INTEGER ::= 32
maxRBallRABs          INTEGER ::= 27
maxRBMuxOptions        INTEGER ::= 8
maxRBperRAB           INTEGER ::= 8
maxReportedGSMCells   INTEGER ::= 6
maxRL                  INTEGER ::= 8
maxRL-1                INTEGER ::= 7
maxSat                 INTEGER ::= 16
maxSCCPCH              INTEGER ::= 16
maxSIB                 INTEGER ::= 32
-- **TODO**
maxSIB-FACH            INTEGER ::= 8
maxSIBperMsg           INTEGER ::= 16
maxSig                 INTEGER ::= 16
maxSRBsetup            INTEGER ::= 8
maxSubCh               INTEGER ::= 12
maxSystemCapability    INTEGER ::= 16
maxTF                  INTEGER ::= 32
maxTF-CPCH             INTEGER ::= 16
maxTFC                 INTEGER ::= 1024
maxTFCI-2-Combs        INTEGER ::= 512
maxTGPS                INTEGER ::= 6
maxTrCH                INTEGER ::= 32
maxTrCHpreconf         INTEGER ::= 16
maxTS                  INTEGER ::= 14
maxTS-1                INTEGER ::= 13
maxURA                 INTEGER ::= 8

END

```

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```
IMPORTS
```

```

    HandoverToUTRANCommand-r3,
    MeasurementReport,
    PhysicalChannelReconfiguration-r3,
    RadioBearerReconfiguration-r3,
    RadioBearerRelease-r3,
    RadioBearerSetup-r3,
    TransportChannelReconfiguration-r3,
    UECapabilityInformation
FROM PDU-definitions

```

```

-- Core Network IEs :
    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    RRC-MessageSequenceNumber,
    START-Value,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
-- Radio Bearer IEs :
    PDCP-InfoReconfig,

```



```

    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RB-Identity,
    RB-MappingInfo,
    RLC-Info,
    RLC-SequenceNumber,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    AdditionalMeasurementID-List,
-- Other IEs :
    InterRATMessage
FROM InformationElements

    maxNoOfMeas,
    maxPredefConfig,
    maxRABsetup,
    maxRB,
    maxSRBsetup,
    maxTrCH
FROM Constant-definitions;

-- RRC information transferred between network nodes,
-- per group of information transfers having same endpoint
-- Alike class definitions for RRC PDUs

-- *****
--
-- RRC information, to target RNC
--
-- *****

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

T-RNC-ToSRNC-Container ::= SEQUENCE {
    message          T-RNC-ToSRNC-ContainerType
}

T-RNC-ToSRNC-ContainerType ::= CHOICE {
    radioBearerSetup          RadioBearerSetup-r3,
    radioBearerReconfiguration RadioBearerReconfiguration-r3,
    radioBearerRelease        RadioBearerRelease-r3,
    transportChannelReconfiguration TransportChannelReconfiguration-r3,
    physicalChannelReconfiguration PhysicalChannelReconfiguration-r3,
    extension                  NULL
}

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

-- Container definitions, alike PDU definitions
-- RRC Container definition, to target RNC

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo ::= SEQUENCE {
    -- Non-RRC IEs

```

```

stateOfRRC                StateOfRRC,
stateOfRRC-Procedure      StateOfRRC-Procedure,
cipheringStatus           CipheringStatus,
calculationTimeForCiphering CalculationTimeForCiphering    OPTIONAL,
cipheringInfoPerRB-List   CipheringInfoPerRB-List    OPTIONAL,
integrityProtectionStatus IntegrityProtectionStatus,
srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
implementationSpecificParams ImplementationSpecificParams    OPTIONAL,
-- User equipment IEs
  u-RNTI                   U-RNTI,
  c-RNTI                   C-RNTI                                OPTIONAL,
  ue-RadioAccessCapability UE-RadioAccessCapability,
-- Other IEs
  interRATMessage          InterRATMessage                      OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity             URA-Identity                        OPTIONAL,
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList CN-DomainInformationList    OPTIONAL,
-- Measurement IEs
  ongoingMeasRepList       OngoingMeasRepList                OPTIONAL,
-- Radio bearer IEs
  preConfigStatusInfo     PreConfigStatusInfo,
  srb-InformationList     SRB-InformationSetupList,
  rab-InformationList     RAB-InformationSetupList    OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo    UL-CommonTransChInfo    OPTIONAL,
  ul-TransChInfoList     UL-AddReconfTransChInfoList    OPTIONAL,
  modeSpecificInfo        CHOICE {
    fdd                    SEQUENCE {
      cpch-SetID           CPCH-SetID                OPTIONAL,
      transChDRAC-Info    DRAC-StaticInformationList    OPTIONAL,
    },
    tdd                    NULL
  },
  dl-CommonTransChInfo    DL-CommonTransChInfo    OPTIONAL,
  dl-TransChInfoList     DL-AddReconfTransChInfoList    OPTIONAL,
-- Measurement report
  measurementReport       MeasurementReport                OPTIONAL
}

-- RRC Container definition, target RNC to source RNC
-- Nothing new, only re-using RRC PDUs
--
-- RRC Container definition, target RNC to source system
-- Nothing new, re-using RRC PDUs (HandoverToUTRANCommand)

-- IE definitions
CalculationTimeForCiphering ::= SEQUENCE {
  cell-Id          CellIdentity,
  sfn              INTEGER (0..4095)
}

CipheringInfoPerRB ::= SEQUENCE {
  dl-START        START-Value,
  ul-START        START-Value
}

-- TABULAR: Multiplicity value numberOfRadioBearers has been replaced
-- with maxRB.
CipheringInfoPerRB-List ::= SEQUENCE (SIZE (1..maxRB)) OF
  CipheringInfoPerRB

CipheringStatus ::= ENUMERATED {
  started, notStarted }

ImplementationSpecificParams ::= BIT STRING (SIZE (1..512))

IntegrityProtectionStatus ::= ENUMERATED {
  started, notStarted }

MeasurementCommandWithType ::= CHOICE {
  setup      MeasurementType,
  modify     NULL,
  release    NULL
}

```

```

OngoingMeasRep ::=
    SEQUENCE {
        measurementIdentity          MeasurementIdentity,
        measurementCommandWithType   MeasurementCommandWithType,
        -- TABULAR: The CHOICE Measurement in the tabular description is included
        -- in the IE above.
        measurementReportingMode     MeasurementReportingMode           OPTIONAL,
        additionalMeasurementID-List  AdditionalMeasurementID-List     OPTIONAL
    }

OngoingMeasRepList ::=
    SEQUENCE (SIZE (1..maxNoOfMeas)) OF
        OngoingMeasRep

PreConfigStatusInfo ::=
    SEQUENCE (SIZE (1..maxPredefConfig)) OF
        PredefinedConfigValueTag

SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
    rb-Identity          RB-Identity          OPTIONAL,
    ul-RRC-HFN          BIT STRING (SIZE (28)),
    dl-RRC-HFN          BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber RRC-MessageSequenceNumber
}

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
    SRB-SpecificIntegrityProtInfo

StateOfRRC ::=
    ENUMERATED {
        cell-DCH, cell-FACH,
        cell-PCH, ura-PCH }

StateOfRRC-Procedure ::=
    ENUMERATED {
        awaitNoRRC-Message,
        awaitRRC-ConnectionRe-establishmentComplete,
        awaitRB-SetupComplete,
        awaitRB-ReconfigurationComplete,
        awaitTransportCH-ReconfigurationComplete,
        awaitPhysicalCH-ReconfigurationComplete,
        awaitActiveSetUpdateComplete,
        awaitHandoverComplete,
        sendCellUpdateConfirm,
        sendUraUpdateConfirm,
        sendRrcConnectionReestablishment,
        otherStates }

END

```

CHANGE REQUEST

⌘ 25.331 CR 702 ⌘ rev r2 ⌘ Current version: 3.5.0 ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Measurement related corrections		
Source:	⌘ TSG-RAN WG2		
Work item code:	⌘	Date:	⌘ 01/02/2000
Category:	⌘ F	Release:	⌘ R99
<i>Use one of the following categories:</i>		<i>Use one of the following releases:</i>	
F (essential correction)		2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (Addition of feature),		R97 (Release 1997)	
C (Functional modification of feature)		R98 (Release 1998)	
D (Editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change: ⌘ The measurement procedures contain unclear and potentially ambiguous text. This CR is the outcome of the discussion of tdocs r2-010090, 97, 103, 104, 119, 155 at RAN2#18

Summary of change: ⌘ New UE variable CELL_LIST_INFO is introduced. Text specifying how cell lists are manipulated is clarified

New IE "Cells in measurement" is introduced into IEs "Intra/Inter-frequency/Inter-RAT cell info list" to indicate that only a subset of the cell list is considered in a particular measurement.

Throughout clause 8.4 where there are occurrences of 'SIB 12 or SIB 11' a reference to subclause 8.1.1.6.11 has been added in order to determine which one the UE should use.

Clause 8.4 - reference to 25.133 and 25.132 for the number of parallel measurements to be supported by the UE.

Clause 8.4 - measurement validity and additional measurement identities added to the list of measurement control information

Clause 8.4 - sentence added to indicate a UE may be requested to perform traffic volume type measurements during CELL_FACH/URA_PCH/CELL_PCH

Clause 8.4: UPLINK DIRECT TRANSFER added to the list of messages that can carry radio link related measurement reports.

Clause 8.4.1.3 - actions of the UE when inter-RAT or inter-frequency measurements are setup are corrected depending in simultaneous compressed mode activation and UE's measurement capabilities.

Clause 8.4.1.6/7/8/9 - many textual clarifications regarding the UE actions after state changes

Clause 8.4.1.6 - UE actions after the state transitions involving URA_PCH/CELL_PCH state are not included. Text is added to the CELL_FACH to cover this case.

Clause 8.4.2.2 is changed to be in line with subclause 8.6.7.8 regarding periodic reporting

Section 8.6.7.10: Clarification of UE behaviour at reception of IE "Traffic Volume Measurement"

Section 8.6.7.11: Clarification of UE behaviour related to IE "Tx interruption after trigger".

Section 8.6.7.x: New section for handling reception of IE "Measurement Reporting Mode".

Sections 8.6.7.x1 – 8.6.7.x5: Clarification of UE behaviour when IE "xxxx measurement" is received in a MEASUREMENT CONTROL message for setting up a new measurement, but IEs are missing.

Section 10.3.7 - Alignment of measured and reported values with RAN4 specifications.

Section 14 - TDD reporting events clarified

Section 14.4: Clarification of the traffic volume measurement procedure

Many other textual clarifications.

Changes included in revision 1

- New section added for measurements upon transition to idle mode

- Section 8.6.7.7: UE reporting of "Cell identity" in MEASUREMENT REPORT is inhibited, also for state CELL_FACH. This is already valid for state CELL_DCH. Reason is that only possibility to have UE report "Cell identity" would be to setup an intra/inter-frequency measurement as an additional measurement to a Traffic Volume measurement. Only Traffic Volume measurement reports are sent in state CELL_FACH. The complexity of having UE to read "Cell identity" from non-serving cells for this purpose is regarded as not justified.

- UE variable CONFIGURATION_INCOMPLETE define. For error cases specified in 8.6 the UE variable is set, rather than saying transmit a failure message. New section added in 8.4 specify UE actions if variable CONFIGURATION_INCOMPLETE is TRUE.

- Definition of active set is changed so that it is not based on an assumed UE receiver implementation as requested in liaison from RAN4

- IE 'read cell info' moved from CHOICE FDD part of the IE into a TDD/FFD common part.

- Text relating to the use of FACH measurement occasion for TDD is added

- Temporary offset value range changed from 0 - 70 in steps of 10 to 0 - 20 in steps of 1. Semantic description of temporary offset in tabular changed from seconds to dB.

- Cell individual offset for inter RAT measurements is re- introduced. It seems the offset has been mistakenly removed during previous restructuring

Changes included in revision 2:

- Change to the temporary offset value range added in rev1 was removed. The parameter does not have units - both dB and seconds were removed.

- In ASN.1 the parameter 'read cell info' is added to the TDD section rather than removed from FDD and placed into TDD/FDD common section as done in revision 1.

- Section 8.4.9.1 - text added to a bullet point to indicate that it only applied if SIB12 is broadcast in a cell according to 8.1.1.6.11

- Changes to some traffic volume measurement in section 14 removed from this CR. These

changes were duplicated in CR tdoc r2-010606

Consequences if not approved: ☒ The measurement procedures will continue to be unclear and ambiguous. This will lead to inconsistent behaviour from different UE implementations.

Clauses affected: ☒ 8.1.1.6.11, 8.1.1.6.12, 8.4, 8.4.1, 8.4.1.1, 8.4.1.2, 8.4.1.3, 8.4.1.4, 8.4.1.4a (new), 8.4.1.5, 8.4.1.6, 8.4.1.6.1, 8.4.1.6.2, 8.4.1.6.3, 8.4.1.6.4, 8.4.1.6.5, 8.4.1.6.6, 8.4.1.7.1, 8.4.1.7.2, 8.4.1.7.3, 8.4.1.7.4, 8.4.1.8.1, 8.4.1.8.2, 8.4.1.8.3, 8.4.1.8.4, 8.4.1.9.1, 8.4.1.9.2, 8.4.1.9.3, 8.4.1.9.4, 8.4.1.9a.1 (new), 8.4.1.9a.2 (new), 8.4.1.9a.3 (new), 8.4.2.2, 8.5.11, 8.6.7.3, 8.6.7.4, 8.6.7.5, 8.6.7.7, 8.6.7.8, 8.6.7.10, 8.6.7.11, 8.6.7.12, 8.6.7.x (new), 8.6.7.x.1 (new), 8.6.7.x.2 (new), 8.6.7.x.3 (new), 8.6.7.x.4 (new), 8.6.7.x.5 (new), 10.3.7.2, 10.3.7.3, 10.3.7.10, 10.3.7.13, 10.3.7.15, 10.3.7.23, 10.3.7.33, 10.3.7.39, 10.3.7.45, 10.3.7.52, 10.3.7.54, 10.3.7.55, 10.3.7.63, 10.3.7.65, 10.3.7.76, 10.3.7.80, 10.3.7.85, 11.3, 13.4.x (new), 13.4.y (new), 14.1.3.1, 14.1.3.2, 14.1.3.3

Other specs affected: ☒ Other core specifications ☒
 Test specifications
 O&M Specifications

Other comments: ☒

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ☒ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request. ☒

8.1.1.6.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall:

- if in connected mode, and System Information Block type 12 is indicated as used in the cell:
 - read and act on information sent in System Information Block type 12;
- for each measurement type start a measurement using the set of IEs specified for that measurement type;
- associate each measurement with the identity number given by the IE "Measurement identity";
- clear the variable CELL_INFO_LIST;
- act upon the received IE "Intra-frequency/Inter-frequency/Inter-RAT cell info list" as described in subclause 8.6.7.3;
- if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered;
- If IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency cell info list", for that cell use the same parameter values as used for the preceding IE "Intra-frequency cell info list";
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency cell info list", for that cell use the same parameter values as used for the preceding IE "Inter-frequency cell info list";
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-RAT Cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-RAT cell info list", for that cell use the same parameter values as used for the preceding IE "Inter-RAT cell info list";
- If IE "FACH measurement occasion info" is included:
 - act as specified in subclause 8.6.7
- else:
 - neither perform inter-frequency/inter-RAT measurements nor inter-frequency/inter-RAT cell re-selection evaluation, independent of UE measurement capabilities.

8.1.1.6.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall:

- for each measurement type start (or continue) a measurement using the set of IEs specified for that measurement type;
- ~~remove the intra-frequency cells given by the IE "Removed intra-frequency cells" from the list of intra-frequency cells specified in system information block type 11 and add the intra-frequency cells given by the IE "New intra-frequency cells" to the list of intra-frequency cells specified in system information block type 11;~~
- act upon the received IE "Intra-frequency/Inter-frequency/Inter-RAT cell info list" as described in subclause 8.6.7.3;

- if any of the IEs "Intra-frequency measurement quantity", "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" are not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement;
- if included in this system information block or in System Information Block type 11, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered;
- ~~— remove the inter-frequency cells given by the IE "Removed inter-frequency cells" from the list of inter-frequency cells specified in System Information Block type 11 and add the inter-frequency cells given by the IE "New inter-frequency cells" to the list of inter-frequency cells specified in System Information Block type 11;~~
- if the IE "Inter-frequency measurement quantity" is not included in the system information block, read the corresponding IE in System Information Block type 11 and use that information for the inter-frequency measurement;
- ~~— remove the inter-RAT cells given by the IE "Removed inter-RAT cells" from the list of inter-RAT cells specified in System Information Block type 11 and add the inter-RAT cells given by the IE "New inter-RAT cells" to the list of inter-RAT cells specified in System Information Block type 11;~~
- if the IE "Inter-RAT measurement quantity" is not included in the system information block, read the corresponding IE in System Information Block type 11 and use that information for the inter-RAT measurement;
- if in state CELL_FACH, start traffic volume measurement reporting as specified in the IE "Traffic volume reporting quantity";
- associate each measurement with the identity number given by the IE "Measurement identity";
- If IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency cell info list", for that cell use the same parameter values as used for the preceding IE "Intra-frequency cell info list";
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency cell info list", for that cell use the same parameter values as used for the preceding IE "Inter-frequency cell info list";
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-RAT cell info list", use the default values specified for the IE "HCS neighbouring cell information" for that cell;
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-RAT cell info list", for that cell use the same parameter values as used for the preceding IE "Inter-RAT cell info list".
- If IE "FACH measurement occasion info" is included:
 - act as specified in subclause 8.6.7
- else:
 - perform neither inter-frequency/inter-RAT measurements nor inter-frequency/inter-RAT cell re-selection evaluation, independent of UE measurement capabilities.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.4 Measurement procedures

The UE measurements are grouped into 6-7 different categories, according to what the UE should measure.

The different types of measurements are:

- **Intra-frequency measurements:** measurements on downlink physical channels at the same frequency as the active set. Detailed description is found in subclause 14.1.
- **Inter-frequency measurements:** measurements on downlink physical channels at frequencies that differ from the frequency of the active set. Detailed description is found in subclause 14.2.
- **Inter-RAT measurements:** measurements on downlink physical channels belonging to another radio access technology than UTRAN, e.g. PDC or GSM. Detailed description is found in subclause 14.3.
- **Traffic volume measurements:** measurements on uplink traffic volume. Detailed description is found in subclause 14.4.
- **Quality measurements:** Measurements of quality parameters, e.g. downlink transport block error rate. Detailed description is found in subclause 14.5
- **UE Internal measurements:** Measurements of UE transmission power and UE received signal level. Detailed description is found in subclause 14.6.
- **UE positioning measurements:** Measurements of UE position. Detailed description is found in subclause 14.7.

The UE shall support a number of measurements running in parallel (the number of parallel measurements to be supported is specified in [19] and [20]). The UE shall also support that each measurement is controlled and reported independently of every other measurement.

Cells that the UE is monitoring (e.g. for handover measurements) are grouped in the UE into three different categories:

1. Cells, which belong to the **active set**. User information is sent from all these cells ~~and they are simultaneously demodulated and coherently combined~~. In FDD, these cells in the active set are involved in soft handover. In TDD the active set always comprises of one cell only.
2. Cells, which are not included in the active set, but are monitored according to a neighbour list assigned by the UTRAN belong to the **monitored set**.
3. Cells detected by the UE, which are neither included in the active set nor in the monitored set, ~~and are detected by the UE without receiving a neighbour list from the UTRAN~~ belong to the **detected set**. Reporting of measurements of the detected set is only required for intra-frequency measurements made by ~~Intra-frequency measurements of the unlisted set is required only of~~ UEs in CELL_DCH state.

UTRAN may control a measurement in the UE either by broadcast system information and/or by transmitting a MEASUREMENT CONTROL message. The latter message includes the following measurement control information:

~~1. **Measurement type:** One of the types listed above describing what the UE shall measure.~~

~~2. **Measurement identity:** A reference number that should be used by the UTRAN when setting up, modifying or releasing the measurement and by the UE in the measurement report.~~

~~3. **Measurement command:** One out of three different measurement commands.~~

- Setup: Setup a new measurement.
- Modify: Modify a previously defined measurement, e.g. to change the reporting criteria.
- Release: Stop a measurement and clear all information in the UE that are related to that measurement.

~~3. **Measurement type:** One of the types listed above describing what the UE shall measure.~~

~~Presence or absence of the following control information depends on the measurement type~~

4. **Measurement objects:** The objects the UE shall measure, and corresponding object information. ~~(for example a neighbour cell list).~~
5. **Measurement quantity:** The quantity the UE shall measure. This also includes the filtering of the measurements. ~~(for example CPICH E_c/N_0).~~
6. **Reporting quantities:** The quantities the UE shall include in the report in addition to the quantities that are mandatory to report for the specific event.
7. **Measurement reporting criteria:** The triggering of the measurement report, e.g. periodical or event-triggered reporting.

9. Measurement Validity: Defines in which UE states the measurement is valid.

98. Measurement rReporting mode: This specifies whether the UE shall transmit the measurement report using AM or UM RLC.

10. Additional measurement identities: A list of references to other measurements. When this measurement triggers a measurement report, the UE shall also include the reporting quantities for the referenced measurements referenced by the additional measurement identities.

All these measurement parameters depend on the measurement type and are described in more detail in clause 14.

When the reporting criteria are fulfilled, i.e. a specified event occurred or the time since last report indicated for periodical reporting has elapsed, the UE shall send a MEASUREMENT REPORT message to UTRAN.

In CELL_FACH, CELL_PCH or URA_PCH state, the UE shall perform measurements according to the measurement control information included in System Information Block Type 12 or System Information Block Type 11, according to subclause 8.1.1.6.11. , which is transmitted on the BCCH. If System Information Block Type 12 is not transmitted in the cell, it shall perform measurements according to the measurement control information included in System Information Block Type 11, transmitted on the BCCH. The UE may also be requested to perform traffic volume measurements according to the measurement control information in a MEASUREMENT CONTROL message.

In CELL_DCH state, the UE may be requested ~~by UTRAN~~ to report measurements from any of the measurement types, intra-frequency, inter-frequency and inter-RAT measurements to the UTRAN with a MEASUREMENT REPORT message. The UE may also be requested ~~by the UTRAN~~ to report unlisted cells from the detected set, which it has detected. The triggering event for the UE to send a MEASUREMENT REPORT message for ~~a~~ detected set cells is defined in measurement events 1A and 1E in clause 14.

In order to receive information for the immediate establishment of macrodiversity (FDD) or to support the DCA algorithm (TDD), the UTRAN may also indicate to the UE in System Information Block Type 11 or System Information Block Type 12, to append radio link related measurement reports to the following messages when they are sent on common transport channels (e.g., i.e. RACH, CPCH, USCH):

- RRC CONNECTION REQUEST message sent to establish an RRC connection;
- INITIAL DIRECT TRANSFER message sent uplink to establish a signalling connection;
- UPLINK DIRECT TRANSFER message to transfer NAS messages for an existing signalling connection;
- CELL UPDATE message sent to respond to a UTRAN originated page;
- MEASUREMENT REPORT message sent to report uplink traffic volume;
- PUSCH CAPACITY REQUEST message sent to request PUSCH capacity (TDD only).

8.4.1 Measurement control



Figure 56: Measurement Control, normal case

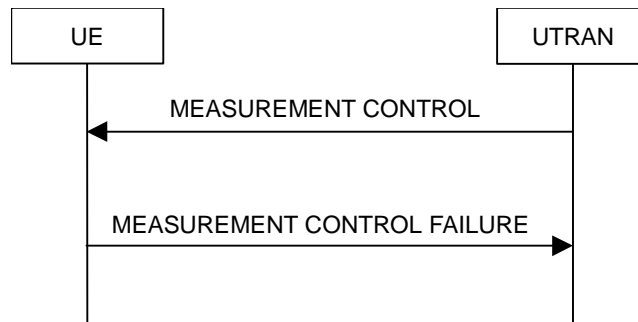


Figure 57: Measurement Control, **UE reverts to old measurements failure case**

8.4.1.1 General

The purpose of the measurement control procedure is to **s**Setup, modify or release a measurement in the UE.

8.4.1.2 Initiation

The UTRAN may request a measurement by the UE to be setup, modified or released with a MEASUREMENT CONTROL message, which is transmitted on the downlink DCCH using AM RLC.

The UTRAN should take the UE capabilities into account when a measurement is assigned to the UE.

When a new measurement is initiated, UTRAN should set the IE "Measurement identity" to a value, which is not used for other measurements. UTRAN may use several "Measurement identity" for the same "Measurement type". In case of setting several "Measurement identity" within a same "Measurement type", "Measurement object" can be set differently for each measurement with different "Measurement identity". **If no "Measurement object" is indicated for additional measurement within a same "Measurement type" in case of "Measurement type" = "Intra-frequency", it implies that only active set cells are the "Measurement objects"**.

When a current measurement is modified or released, UTRAN should set the IE "Measurement identity" to **the** value, which is used for the measurement being modified or released. In case of modifying IEs within a "Measurement identity", it is not needed for UTRAN to indicate the IEs other than modifying IEs, and the UE continues to use the current values of the IEs which are not modified.

8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

- read the IE "Measurement command";
- if the IE "measurement command" has the value "setup":
 - store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity";

- ~~— store into the variable MEASUREMENT_IDENTITY the control information defined by IE "Measurement object", the IE "Measurement quantity", the IE "Reporting quantity", the IE "Measurement reporting criteria", the IE "Measurement validity", the IE "Reporting mode" and if present all IEs "Additional measurement identity", which are valid for this measurement type; and~~
- for measurement types "inter-RAT measurement" or "inter-frequency measurement":
 - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or
 - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:
 - begin measurements according to the stored control information for this measurement identity, optionally with the use of compressed mode if at least one compressed mode pattern sequence is simultaneously activated with inclusion of the IE "DPCH compressed mode status info"; or
- for any other measurement type:
 - begin measurements according to the stored control information for this measurement identity.
- if the IE "Measurement command" has the value "modify":
 - ~~— retrieve the stored measurement information in variable MEASUREMENT_IDENTITY associated with the identity indicated by the IE "measurement identity";~~
 - for all measurement control present in the if any of IE "measurement quantity", IE "reporting quantity", IE "measurement reporting criteria", IE "measurement validity", IE "reporting mode" or IE "Additional measurement identity" are present in the MEASUREMENT CONTROL message, the UE control information defined by these IEs shall replace the corresponding stored information stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity";
 - ~~— store the new set of IEs and associate them with the measurement identity;~~
 - resume the measurements according to the new stored measurement control information.
- if the IE "measurement command" has the value "release":
 - terminate the measurement associated with the identity given in the IE "measurement identity";
 - clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.
- if the IE "DPCH Compressed Mode Status Info" is present, the UE shall:
 - activate the pattern sequence stored in the variable TGPS_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" and begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
 - deactivate the pattern sequence stored in variable TGPS_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "deactivate" and terminate the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each deactivated pattern sequence;
 - clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS.
 - and the procedure ends.

8.4.1.4 Unsupported measurement in the UE

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- ~~—transmit a MEASUREMENT CONTROL FAILURE message on the DCCH using AM RLC;~~
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the cause value in IE "failure cause" to "unsupported measurement";
- ~~when submit~~ the MEASUREMENT CONTROL FAILURE message ~~has been submitted~~ to lower layers for transmission ~~on the DCCH using AM RLC;~~
- ~~resume continue~~ normal operation as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

8.4.1.4a Configuration Incomplete

If UTRAN the variable CONFIGURATION_INCOMPLETE is set to TRUE the UE shall:

- retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;
- clear the variable CONFIGURATION_INCOMPLETE;
- set the cause value in IE "failure cause" to "incomplete configuration";
- submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;
- continue normal operation as if the invalid MEASUREMENT CONTROL message has not been received;
- and the procedure ends.

8.4.1.5 Invalid MEASUREMENT CONTROL message

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows:

- ~~—transmit a MEASUREMENT CONTROL FAILURE message on the uplink DCCH using AM RLC;~~
- set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and
- clear that entry.
- set the IE "failure cause" to the cause value "protocol error";
- include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;
- ~~when submit~~ the MEASUREMENT CONTROL FAILURE message ~~has been submitted~~ to lower layers for transmission ~~on the DCCH using AM RLC;~~

- resume normal operation as if the invalid MEASUREMENT CONTROL message has not been received and the procedure ends.

8.4.1.6 Measurements after transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state

The UE shall obey the following rules for different measurement types after transiting from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state:

8.4.1.6.1 Intra-frequency measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

- ~~The UE shall~~ stop intra-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message.
- ~~After transition to CELL_FACH state, the UE shall~~ begin monitoring ~~neighbouring~~ cells listed in the ~~IE~~ "intra-frequency cell info" received in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
- ~~If the UE has no previously assigned, valid intra-frequency measurement for CELL_DCH state, the UE shall store "intra-frequency measurement reporting criteria", from "System Information Block type 12" (or "System Information Block type 11"), for use after a subsequent transition to CELL_DCH state.~~
- If the UE receives the ~~IE~~ "Intra-frequency reporting quantity for RACH Reporting" and ~~the IE~~ "Maximum number of Reported cells on RACH" IEs from "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11"), the UE ~~shall~~ use this information for reporting measured results in RACH messages.

8.4.1.6.2 Inter-frequency measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

- ~~The UE shall~~ stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message.
- ~~After transition to CELL_FACH state, the UE shall~~ begin monitoring ~~neighbouring~~ cells listed in the ~~IE~~ "inter-frequency cell info" received in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
- ~~The UE shall not in CELL_FACH state, the UE shall perform~~ measurements on other frequencies ~~according to the IE "FACH measurement occasion info", except at the measurement occasions given in subclause 8.5.11.~~

8.4.1.6.3 Inter-RAT measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

- ~~The UE shall~~ stop the inter-RAT type measurement reporting assigned in a MEASUREMENT CONTROL message.
- ~~After transition to CELL_FACH state, the UE shall~~ begin monitoring ~~neighbouring~~ cells listed in the ~~IE~~ "inter-RAT" cell info" received in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
- ~~The UE shall not in CELL_FACH state perform~~ measurements on other systems ~~according to the IE "FACH measurement occasion info", except at the measurement occasions given in subclause 8.5.11.~~

8.4.1.6.4 Quality measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

- stop quality type measurement reporting;

- ~~retrieve each set of~~~~delete all~~ measurement control information of measurement type "quality" stored in the variable MEASUREMENT_IDENTITY, ~~and delete all control information associated to the measurement identity.~~

8.4.1.6.5 UE internal measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

- stop UE internal measurement type measurement reporting;
- ~~retrieve each set of~~~~delete all~~ measurement control information of measurement type "UE internal" stored in the variable MEASUREMENT_IDENTITY, ~~and delete all control information associated to the measurement identity.~~

8.4.1.6.6 Traffic volume measurement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall take the following actions:

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT_IDENTITY; and
- if the optional IE "measurement validity" for this measurement has not been included:
 - delete the measurement associated with the variable MEASUREMENT_IDENTITY.
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_DCH":
 - stop measurement reporting;
 - save the measurement associated with the variable MEASUREMENT_IDENTITY to be used after the next transition to CELL_DCH state.
- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states": [Editors note: this bullet and the next 3 bullets have indentation increased by 1 - not shown by change bars]
 - continue measurement reporting.
- ~~if the UE has previously stored a measurement, for which the~~ IE "measurement validity" has been included ~~and for which~~ the IE "UE state" has been assigned to value "all states except CELL_DCH":
 - resume this measurement and associated reporting.
- ~~if no traffic volume type measurements applicable to CELL_FACH/CELL_PCH/URA_PCH states are stored in the variable MEASUREMENT_IDENTITY: has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL_FACH state:~~
 - ~~monitor the BCH in order to receive "System Information Block type 11". Upon reception of "System Information Block Type 11":~~
 - ~~read the IE "Traffic volume measurement system information" and store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;~~
 - begin traffic volume measurement reporting according to the assigned information.
- ~~if the "System Information Block type 12" is transmitted in the cell, monitor the BCH in order to receive "System Information Block type 12". Upon reception of "System Information Block type 12":~~
 - ~~read the IE "Traffic volume measurement system information", and update the measurement control information in variable MEASUREMENT_IDENTITY;~~

~~—begin traffic volume measurement reporting according to the assigned information.~~

- if the UE in CELL_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT_IDENTITY:
 - update the stored information with the traffic volume measurement control information in variable MEASUREMENT_IDENTITY; and
 - refrain from updating the traffic volume measurement control information associated with this measurement identity received in System Information Block type 12 (or System Information Block type 11, according to 8.1.1.6.11) from the BCH until the UTRAN explicitly releases this measurement is explicitly released with another MEASUREMENT CONTROL message.

~~NOTE:—The UE may receive "System Information Block type 12" before "System Information Block type 11" and can store received information before receiving "System Information Block type 11". However, the UE shall not apply any information received System Information Block type 12 before having received information from "System Information Block type 11".~~

8.4.1.7 Measurements after transition from CELL_FACH to CELL_DCH state

The UE shall obey the follow rules for different measurement types after transiting from CELL_FACH to CELL_DCH state:

8.4.1.7.1 Intra-frequency measurement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY; and
- if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH; and
 - if the UE has not performed a cell reselection whilst out of CELL_DCH state:
 - resume the measurement reporting.
 - if the UE has performed a cell reselection whilst out of CELL_DCH state:
 - delete the measurement associated with the variable MEASUREMENT_IDENTITY.

~~If the UE has previously in CELL_DCH state stored an intra-frequency measurement, for which the IE "measurement validity" has been assigned the value "resume" and for which the IE "UE state for reporting" has been assigned the value "CELL_DCH", the UE shall resume this measurement and associated reporting. If the UE has performed cell reselection whilst out of CELL_DCH state, the UE shall not resume the measurement.~~

- If no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:
 - If the UE has no previously assigned measurement, it shall continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info" IE in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
 - If the IE "intra-frequency measurement reporting criteria" IE was included in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11"), the UE shall send the MEASUREMENT REPORT message when reporting criteria are fulfilled.

~~When the UE receives a MEASUREMENT CONTROL message including an intra-frequency measurement type assignment, the UE shall stop monitoring and measurement reporting for the list of neighbouring cells assigned in the "intra-frequency cell info" IE in "System Information Block type 12" (or "System Information Block type 11"). If the reporting criteria is included in the MEASUREMENT CONTROL message, the UE shall replace the measurement reporting criteria received in "System Information Block type 12" (or "System Information Block type 11") with the new information received in the MEASUREMENT CONTROL message.~~

8.4.1.7.2 Inter-frequency measurement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

- The UE shall stop monitoring the list of neighbouring cells assigned in the IE "inter-frequency cell info" IE in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
- If the UE has previously stored an inter-frequency measurement, for which the IE "measurement validity" has been assigned the value "resume" and for which the IE "UE state for reporting" for which the IE "measurement validity" for this measurement has been included, and the IE "UE state" has been assigned the value "CELL_DCH", the UE shall resume this measurement and associated reporting.

8.4.1.7.3 Inter-RAT measurement

The UE shall stop monitoring the list of neighbouring cells assigned in the "inter-frequency system info" IE in "System Information Block type 12" (or "System Information Block type 11"). If the UE has previously stored an inter-RAT measurement, for which the IE "measurement validity" has been assigned the value "resume" and for which the IE "UE state for reporting" for which the IE "measurement validity" for this measurement has been included, and the IE "UE state" has been assigned the value "CELL_DCH", the UE shall resume this measurement and associated reporting.

8.4.1.7.4 Traffic volume measurement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT_IDENTITY;
 - if the optional IE "measurement validity" for this measurement has not been included:
 - delete the measurement associated with the variable MEASUREMENT_IDENTITY.
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_FACH-but-CELL_DCH":
 - stop measurement reporting and save the measurement associated with the variable MEASUREMENT_IDENTITY to be used after the next transition to CELL_FACH state.
 - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
 - continue measurement reporting.
 - if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL_DCH":
 - resume this measurement and associated reporting.
- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL_DCH state:
 - continue an ongoing traffic volume type measurement, assigned in " System Information Block type 11" (or " System Information Block type 12 if transmitted in the cell);
- If the UE in CELL_DCH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in variable MEASUREMENT_IDENTITY:
 - update the stored information with the traffic volume measurement control information in variable MEASUREMENT_IDENTITY.

8.4.1.8 Measurements after transition from idle mode to CELL_DCH state

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL_DCH state:

8.4.1.8.1 Intra-frequency measurement

Upon transition from idle mode to CELL_DCH state, the UE shall:

- ~~The UE shall continue~~ begin monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info" ~~IE~~ in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").
- ~~If the IE~~ If the IE "intra-frequency measurement reporting criteria" IE was included in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11"), the UE shall begin measurement reporting according to the IE, ~~send the MEASUREMENT REPORT message when reporting criteria are fulfilled.~~

~~When the UE receives a MEASUREMENT CONTROL message including an intra-frequency measurement type assignment, the UE shall stop monitoring and measurement reporting for the list of neighbouring cells assigned in the "intra-frequency cell info" IE in "System Information Block type 12" (or "System Information Block type 11"). If the reporting criteria is included in the MEASUREMENT CONTROL message, the UE shall replace the measurement reporting criteria received in "System Information Block type 12" (or "System Information Block type 11") with the new information received in the MEASUREMENT CONTROL message.~~

8.4.1.8.2 Inter-frequency measurement

Upon transition from idle mode to CELL_DCH state, the UE shall:

- ~~The UE shall~~ stop monitoring the list of neighbouring cells assigned in the IE "inter-frequency cell info" ~~IE~~ in "System Information Block type 11.2" (or "~~System Information Block type 11~~").

8.4.1.8.3 Inter-RAT measurement

Upon transition from idle mode to CELL_DCH state, the UE shall:

- ~~The UE shall~~ stop monitoring the list of neighbouring cells assigned in the IE "inter-frequency system info" ~~IE~~ in "System Information Block type 11.12" (or "~~System Information Block type 11~~").

8.4.1.8.4 Traffic volume measurement

Upon transition from idle mode to CELL_DCH state, the UE shall:

- begin a traffic volume type measurement, assigned in "System Information Block type 11" (or "System Information Block type 12" ~~if transmitted in the cell~~, according to subclause 8.1.1.6.11).

8.4.1.9 Measurements after transition from idle mode to CELL_FACH state

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL_FACH state:

8.4.1.9.1 Intra-frequency measurement

Upon transition from idle mode to CELL_FACH state, the UE shall:

- ~~The UE shall~~ begin monitoring neighbouring cells listed in the IE "intra-frequency cell info" received in "System Information Block type 12" (or "System Information Block type 11, according to subclause 8.1.1.6.11").

~~If the UE receives "intra-frequency measurement reporting criteria", from "System Information Block type 12" (or "System Information Block type 11"), the UE shall store this information to use after a subsequent transition to CELL_DCH state.~~

- ~~If the UE receives the IEs "Intra-frequency reporting quantity for RACH Reporting" and the IE "Maximum number of Reported cells on RACH" from "System Information Block type 12" (or "System Information Block type 11", according to subclause 8.1.1.6.11), the UE shall use this information for reporting measured results in RACH messages.~~

8.4.1.9.2 Inter-frequency measurement

Upon transition from idle mode to CELL_FACH state, the UE shall:

- ~~The UE shall~~ begin monitoring ~~neighbouring~~ cells listed in the ~~IE~~ "inter-frequency cell info" received in "System Information Block type 12" (or "System Information Block type 11", ~~according to subclause 8.1.1.6.11~~).
- ~~perform The UE shall not~~ measurements on other frequencies ~~according to the IE "FACH measurement occasion info".~~ ~~except at the measurement occasions given in subclause 8.5.11.~~

8.4.1.9.3 Inter-RAT measurement

Upon transition from idle mode to CELL_FACH state, the UE shall:

- ~~The UE shall~~ begin monitoring ~~neighbouring~~ cells listed in the ~~IE~~ "inter-RAT" cell info" received in "System Information Block type 12" (or "System Information Block type 11", ~~according to subclause 8.1.1.6.11~~).
- ~~perform The UE shall not~~ measurements on other systems ~~according to the IE "FACH measurement occasion info".~~ ~~except at the measurement occasions given in subclause 8.5.11.~~

8.4.1.9.4 Traffic volume measurement

Upon transition from idle mode to CELL_FACH state, the UE shall:

- ~~store the measurement control information from the IE "Traffic volume measurements system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;~~
- ~~begin traffic volume measurement reporting according to the assigned information.~~
 - ~~monitor the BCH in order to receive "System Information Block type 11". Upon reception of " System Information Block type 11":~~
 - ~~read the IE "Traffic volume measurement system information" and store the measurement control information in variable MEASUREMENT_IDENTITY;~~
 - ~~begin traffic volume measurement reporting according to the assigned information.~~
 - ~~if the "System Information Block type 12" is transmitted in the cell:~~
 - ~~monitor the BCH in order to receive "System Information Block type 12". Upon reception of " System Information Block type 12":~~
 - ~~read the IE "Traffic volume measurement system information", and update the measurement control information in variable MEASUREMENT_IDENTITY;~~
 - ~~continue traffic volume measurement reporting according to the updated information.~~

8.4.1.9a Measurements after transition from connected mode to idle mode

Upon transition from connected mode to idle mode the UE shall:

- ~~stop measurement reporting for all measurements stored in the variable MEASUREMENT_IDENTITY;~~
- ~~clear the variable MEASUREMENT_IDENTITY;~~
- ~~obey the follow rules for different measurement types.~~

8.4.1.9a.1 Intra-frequency measurement

Upon transition from connected mode to idle mode, the UE shall:

- ~~stop monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11).~~

- begin monitoring intra-frequency cells listed in the IE "intra-frequency cell info" received in System Information Block type 11.

8.4.1.9a.2 Inter-frequency measurement

Upon transition from connect mode to idle mode, the UE shall:

- stop monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11).
- begin monitoring inter-frequency cells listed in the IE "inter-frequency cell info" received in System Information Block type 11.

8.4.1.9a.3 Inter-RAT measurement

Upon transition from connected mode to idle mode, the UE shall:

- stop monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 12 (if System Information Block type 12 is transmitted in the cell, according to 8.1.1.6.11).
- begin monitoring inter-RAT cells listed in the IE "inter-RAT cell info" received in System Information Block type 11.

8.4.1.10 Measurements when measurement object is no longer valid

8.4.1.10.1 Traffic volume measurement

If UE is no longer using the transport channel that is specified in "traffic volume measurement object", UE shall ignore any measurements that are assigned to that transport channel. If none of the transport channels that are specified in "traffic volume measurement object" is being used, UE shall release that particular measurement and its measurement ID.

8.4.2 Measurement report



Figure 58: Measurement report, normal case

8.4.2.1 General

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

8.4.2.2 Initiation

In CELL_DCH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

In CELL_FACH state, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement which is being performed in the UE.

In TDD, if the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for any ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

In CELL_PCH or URA_PCH state, the UE shall first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL_FACH state and then transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing traffic volume measurement which is being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting. the time indicated in the stored IE "Periodical reporting" has elapsed for a given measurement that was either initiated
- the time period indicated in the stored IE "Periodical reporting" has elapsed or since the last measurement report was transmitted related to this for a given measurement was transmitted; or
- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

The UE shall transmit the MEASUREMENT REPORT message using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

- Set the IE "measurement identity" to the measurement identity which is associated with that measurement in variable MEASUREMENT_IDENTITY.
- Set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY. If all the reporting quantities are set to "false", the UE shall not set the IE "measured results".
- Set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the IE "additional measurements" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report. If more than one several additional measured results are to be included, the UE shall sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.
- if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report), the UE shall:
 - Set the measurement IE "Event results" according to the event that triggered the report.

The UE shall transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission the procedure ends.

8.4.3 Assistance Data Delivery



Figure 59 Assistance Data Delivery

8.4.3.1 General

The purpose of the assistance data delivery procedure is to transfer UE positioning related assistance data from the UTRAN to the UE.

8.4.3.2 Initiation

The UTRAN may deliver UP related assistance data with a ASSISTANCE DATA DELIVERY message, which is transmitted on the downlink DCCH using AM RLC if RNC is requested to do so by the CN.

8.4.3.3 Reception of ASSISTANCE DATA DELIVERY message by the UE

Upon reception of a ASSISTANCE DATA DELIVERY message the UE shall:

- if IE "UP OTDOA assistance data" is included:
 - store the OTDOA assistance data
- if IE "UP GPS assistance data" is included:
 - store the GPS assistance data

8.4.3.4 Invalid ASSISTANCE DATA DELIVERY message

If the UE receives a ASSISTANCE DATA DELIVERY message, which contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to `TRUE` according to clause 9, the UE shall perform procedure specific error handling as follows:

- transmit an RRC STATUS message on the uplink DCCH using AM RLC;
- include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.
- when the RRC STATUS message has been submitted to lower layers for transmission:
- resume normal operation as if the invalid ASSISTANCE DATA DELIVERY message has not been received.

8.5.11 FACH measurement occasion calculation

When in CELL_FACH state the UE in FDD mode shall perform inter-frequency and inter system measurements during the frame(s) with the SFN value fulfilling the following equation:

$$\text{SFN div } N = \text{C_RNTI mod } M_REP + n * M_REP$$

where

- N is the TTI (in number of 10ms frames) of the FACH having the largest TTI on the SCCPCH monitored by UE
- C_RNTI is the C-RNTI value of the UE
- M_REP is the Measurement Occasion cycle length. According to the equation above, a FACH Measurement Occasion of N frames will be repeated every $N * M_REP$ frame, and $M_REP = 2^k$.

where,

- k is the FACH Measurement occasion cycle length coefficient.
The value of the FACH Measurement occasion cycle length coefficient is read in system information in "System Information Block type 11" or "System Information Block type 12" in the IE "FACH measurement occasion info".
- $n = 0, 1, 2, \dots$ as long as SFN is below its maximum value

The UE is allowed to measure on other occasions in case the UE moves "out of service" area or in case it can simultaneously perform the ordered measurements.

A UE in TDD mode shall use the frame(s) with the SFN value fulfilling the above equation for inter-frequency TDD neighbour cells only.

8.6.7 Measurement information elements

8.6.7.1 Measurement validity

If the optional IE "measurement validity" for a given measurement has not been included in measurement control information, the UE shall delete the measurement associated with the variable MEASUREMENT IDENTITY after the UE makes a transition to a new state.

If the IE "measurement validity" for this measurement has been included in measurement control information, the UE shall save the measurement associated with the variable MEASUREMENT IDENTITY. The IE "UE state" defines the scope of resuming the measurement.

If the "UE state" is defined as "all states", the UE shall continue the measurement after making a transition to a new state. This scope is assigned only for traffic volume type measurements and can only be applied by the UE if the IE "measurement object" has not been included in measurement control information. If the IE "measurement object" has been included in measurement control information, the UE shall not save the measurement control information in variable MEASUREMENT IDENTITY, but shall send a MEASUREMENT CONTROL FAILURE message to the UTRAN with failure cause "incomplete configuration".

If the "UE state" is defined as "all states except CELL_DCH", the UE shall store the measurement to be resumed after a subsequent transition from CELL_DCH state to any of the other states in connected mode. This scope is assigned only for traffic volume type measurements.

If the "UE state" is defined as "CELL_DCH", the UE shall store the measurement to be resumed after a subsequent transition to CELL_DCH state. After cell re-selection, the UE shall delete any ongoing intra-frequency or inter-frequency and inter-RAT type measurement associated with the variable MEASUREMENT IDENTITY. Other measurement types shall, however, be continued regardless of cell reselection.

8.6.7.2 Filter coefficient

If the IE "Filter coefficient" is received the UE shall apply filtering of the measurements for that measurement quantity according to the formula below. This filtering shall be performed by the UE before UE event evaluation. The UE shall also filter the measurements reported in the IE "Measured results" or the IE "Measurement results on RACH". The filtering shall not be performed for cell-reselection in connected or idle mode.

The filtering shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows:

F_n is the updated filtered measurement result

F_{n-1} is the old filtered measurement result

M_n is the latest received measurement result from physical layer measurements, the unit used for M_n is the same unit as the reported unit in the MEASUREMENT REPORT message or the unit used in the event evaluation.

$a = 1/2^{(k/2)}$, where k is the parameter received in the IE "Filter coefficient".

NOTE: if a is set to 1 that will mean no layer 3 filtering.

In order to initialise the averaging filter, F_0 is set to M_1 when the first measurement result from the physical layer measurement is received.

The physical layer measurement results are sampled once every measurement period. The measurement period and the accuracy for a certain measurement is defined in 3GPP TS 25.133.

8.6.7.3 Intra-frequency/Inter-frequency/Inter-RAT cell info list

If

- IE "Intra-frequency cell info list" is received and,
 - "Removed intra-frequency cells" or/and,
 - "New intra-frequency cells" is present in the received IE,

Or,

- IE "Inter-frequency cell info list" is received and,
 - "Removed inter-frequency cells" or/and,
 - "New inter-frequency cells" is present in the received IE,

Or,

- IE "Inter-RAT cell info list" is received and,
 - "Removed inter-RAT cells" or/and,
 - "New inter-RAT cells" is present in the received IE

the UE shall update measurement objects for that measurement accordingly.

If:

- IE "Intra-frequency cell info list" is included, but
 - neither "Removed intra-frequency cells" nor "New intra-frequency cells" is included,

Or,

If IE "Inter-frequency cell info list" is included, but

- neither "Removed inter-frequency cells" nor "New inter-frequency cells" is included,

Or,

If IE "Inter-RAT cell info list" is included, but

- neither "Removed inter-RAT cells" nor "New inter-RAT cells" is included,

the UE shall not change the information on that measurement object. (This case is applied only when Measurement Command is set to "Modify".)

If one of these IEs is not received, UE shall re-order the same measurement type using the measurement ID in ascending order, and use the preceding measurement ID's measurement object information. (For example, suppose UE is assigned 3 measurement IDs (suppose they were ID10, 11, and 15) for intra-frequency measurement, and UE did not receive "Intra-frequency cell info" for Measurement ID 15. When performing the measurement assigned with 15, UE shall use the measurement object information associated with Measurement ID 11).

If the IE "Intra-frequency cell info list" is received in System Information Block Type 11, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Intra-frequency cells" is received, the UE shall ignore the IE.
- If the IE "New Intra-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Intra-frequency cell id" is received, the UE shall store received cell information at this position in the Intra-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Intra-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Intra-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Intra-frequency cell info list" is received in System Information Block Type 12, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Intra-frequency cells" is received, the UE shall at the position indicated by the IE "Intra-frequency cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".
- If the IE "New Intra-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Intra-frequency cell id" is received, the UE shall store received cell information at this position in the Intra-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Intra-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Intra-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Intra-frequency cell info list" is received in a MEASUREMENT CONTROL message, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Intra-frequency cells" is received, the UE shall at the position indicated by the IE "Intra-frequency cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".
- If the IE "New Intra-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Intra-frequency cell id" is received, the UE shall store received cell information at this position in the Intra-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Intra-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Intra-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall in the measurement configured by this message only consider Intra-frequency cells whose cell information is stored at the position indicated by the IE "Intra-frequency cell id" in the variable CELL_INFO_LIST.
- If the IE "Cells for measurement" is not received, the UE shall in the measurement configured by this message consider all Intra-frequency cells whose cell information is stored in CELL_INFO_LIST

If the IE "Inter-frequency cell info list" is received in System Information Block Type 11, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-frequency cells" is received, the UE shall ignore the IE.
- If the IE "New Inter-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Inter-frequency cell id" is received, the UE shall store received cell information at this position in the Inter-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Inter-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Inter-frequency cell info list" is received in System Information Block Type 12, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-frequency cells" is received, the UE shall at the position indicated by the IE "Inter-frequency cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".
- If the IE "New Inter-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Inter-frequency cell id" is received, the UE shall store received cell information at this position in the Inter-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Inter-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Inter-frequency cell info list" is received in a MEASUREMENT CONTROL message, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-frequency cells" is received, the UE shall at the position indicated by the IE "Inter-frequency cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".
- If the IE "New Inter-frequency cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Inter-frequency cell id" is received, the UE shall store received cell information at this position in the Inter-frequency cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Inter-frequency cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-frequency cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall in the measurement configured by this message only consider Inter-frequency cells whose cell information is stored at the position indicated by the IE "Inter-frequency cell id" in the variable CELL_INFO_LIST.
- If the IE "Cells for measurement" is not received, the UE shall in the measurement configured by this message consider all Inter-frequency cells whose cell information is stored in CELL_INFO_LIST

If the IE "Inter-RAT cell info list" is received in System Information Block Type 11, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-RAT cells" is received, the UE shall ignore the IE.
- If the IE "New Inter-RAT cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
 - If the IE "Inter-RAT cell id" is received, the UE shall store received cell information at this position in the Inter-RAT cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
 - If the IE "Inter-RAT cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-RAT cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Inter-RAT cell info list" is received in System Information Block Type 12, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-RAT cells" is received, the UE shall at the position indicated by the IE "Inter-RAT cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".

- If the IE "New Inter-RAT cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
- If the IE "Inter-RAT cell id" is received, the UE shall store received cell information at this position in the Inter-RAT cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
- If the IE "Inter-RAT cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-RAT cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall ignore the IE.

If the IE "Inter-RAT cell info list" is received in a MEASUREMENT CONTROL message, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order:

- If the IE "Removed Inter-RAT cells" is received, the UE shall at the position indicated by the IE "Inter-RAT cell id" clear the cell information stored in the variable CELL_INFO_LIST, and mark the position "vacant".
- If the IE "New Inter-RAT cells" is received, the UE shall for each cell, and in the same order as the cells appear in the IE, update the variable CELL_INFO_LIST as follows
- If the IE "Inter-RAT cell id" is received, the UE shall store received cell information at this position in the Inter-RAT cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position, and mark the position "occupied".
- If the IE "Inter-RAT cell id" is not received, the UE shall store the received cell information at the first vacant position in ascending order in the Inter-RAT cell info list in the variable CELL_INFO_LIST, and mark the position as "occupied"
- If the IE "Cells for measurement" is received, the UE shall in the measurement configured by this message only consider Inter-RAT cells whose cell information is stored at the position indicated by the IE "Inter-RAT cell id" in the variable CELL_INFO_LIST.
- If the IE "Cells for measurement" is not received, the UE shall in the measurement configured by this message consider all Inter-RAT cells whose cell information is stored in CELL_INFO_LIST

8.6.7.4 Intra-frequency measurement quantity

If the IE "Intra-frequency measurement quantity" is received in a MEASUREMENT CONTROL message, the UE shall:

- if the check the parameter IE "Measurement quantity" is set to "pathloss"; and
- if the measurement quantity is set to "pathloss":
- for any intra-frequency cell indicated by the IE "Cells for measurement", the IE check whether the parameter "Primary CPICH Tx power" in FDD or the IE "Primary CCPCH TX Power" in TDD in the intra frequency cell info list in the variable CELL_INFO_LIST is not present; has been included for every intra-frequency cell in the IE "cell info" stored in variable MEASUREMENT_IDENTITY; and
- if the parameter " Primary CPICH Tx power" is missing from any cell in the intra-frequency cell info list:
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL FAILURE message with the IE "Failure cause" parameter set to "Configuration incomplete".
- otherwise
- configure the measurement quantity accordingly.

8.6.7.5 Inter-RAT measurement quantity

If the IE "Inter-RAT measurement quantity" is received in a MEASUREMENT CONTROL message and CHOICE system is GSM, the UE shall:

—check the IE "BSIC verification required".

- if IE "BSIC verification required" is set to "required", for cells that match any of the BCCH ARFCN and BSIC combinations in the list of inter-RAT cells that the UE has received in IE "Inter-RAT cell info list", and that has a "verified" BSIC:
 - report measurement quantities according to IE "inter-RAT reporting quantity";;
 - trigger inter-RAT events according to IE "inter-RAT measurement reporting criteria".
- if IE "BSIC verification required" is set to "not required", for cells that match any of the BCCH ARFCN in the list of inter-RAT cells that the UE has received in IE "Inter-RAT cell info list", regardless if the BSIC is "verified" or "non-verified":
 - report measurement quantities according to IE "inter-RAT reporting quantity".
 - trigger inter-RAT events according to IE "inter-RAT measurement reporting criteria".

NOTE:—The requirements for a cell to be considered "verified" or "non-verified" can be found in [19].

—check the parameter "Measurement quantity":

- if the IE "~~M~~measurement quantity" is set to "pathloss";; and
 - for any inter-RAT cell indicated by the IE "Cells for measurement", the IE check whether the parameter "Output power" in the inter-RAT cell info list in the variable CELL_INFO_LIST is not present; has been included for every inter-RAT cell in the IE "inter-RAT cell info list" stored in variable MEASUREMENT_IDENTITY;
- if the parameter "output power" is missing from any cell in the inter-RAT cell info list:
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL FAILURE message with the IE "Failure cause" parameter set to "Configuration incomplete".

NOTE: The requirements for a cell to be considered "verified" or "non-verified" can be found in [19].

8.6.7.6 Inter-RAT reporting quantity

If the IE "Inter-RAT reporting quantity" is received by the UE, the UE shall

store the content of the IE to the variable MEASUREMENT_IDENTITY.

- If the IE "Inter-RAT measurement quantity" is received and CHOICE system is GSM, the UE shall check each quantity in the GSM choice. The UE shall include measured results in MEASUREMENT REPORT as specified in the IE "Inter-RAT reporting quantity" with the following restrictions:
 - if the UE has not confirmed the BSIC of the measured cell, then:
 - if no compressed mode pattern sequence specified with measurement purpose "Initial BSIC identification" is active, the UE is not required to include the "BSIC" nor "Observed time difference to GSM cell" in the IE "Measured results", when a MEASUREMENT REPORT is triggered.
 - if the UE has confirmed the BSIC of the measured cell, then:
 - if no compressed mode pattern sequence specified with measurement purpose "Initial BSIC identification" nor "BSIC re-confirmation" is active, the UE is not required to include the "BSIC" nor "Observed time difference to GSM cell" in the IE "Measured results", when a MEASUREMENT REPORT is triggered.
- If IE "Pathloss" is set to "TRUE",
 - include optional IE "Pathloss" with a value set to the measured pathloss to that GSM cell in IE "Inter-RAT measured results list"
- If IE "Observed time difference to GSM cell" is set to "TRUE",

- include optional IE "Observed time difference to GSM cell" with the value set to the time difference to that GSM cell for the GSM cells that have a BSIC that is "verified", and that match any of the BCCH ARFCN and BSIC combinations in the list of inter-RAT cells that the UE has received in IE "Inter-RAT cell info list". Observed time difference to GSM cells with "non-verified" BSIC shall not be included.
- If IE "GSM Carrier RSSI" is set to "TRUE",
 - include optional IE "GSM Carrier RSSI" with a value set to the measured RXLEV to that GSM cell in IE "Inter-RAT measured results list"
- If the BSIC of reported GSM cell is "verified"
 - set the CHOICE BSIC to "Verified BSIC" and IE "inter-RAT cell id" to the value that GSM cell had in the IE "Inter-RAT cell info list".
- If the BSIC of reported GSM cell is "non-verified"
 - set the CHOICE BSIC to "Non verified BSIC" and the IE "BCCH ARFCN" to the value of that GSM cells ARFCN.

The requirements for a cell to be considered "verified" or "non-verified" can be found in [19].

8.6.7.7 Cell Reporting Quantities

If the IE "Cell Reporting Quantities" is received by the UE, the UE shall store the content of the IE "Cell Reporting Quantities" to the variable MEASUREMENT_IDENTITY.

The UE shall include measured results in MEASUREMENT REPORT as specified in the IE "Cell Reporting Quantities", except for the following cases:

If the IE "Cell Identity" is set to TRUE, the UE shall in this version of the specification:

~~— in CELL_FACH state:~~

~~— report the IE "Cell Identity" that is given in System Information Block type 4 (or System Information Block type 3, if System Information Block type 4 is not being broadcast).~~

~~— in CELL_DCH state:~~

- treat the IE as if the IE "Cell Identity" is set to FALSE.

If the IE "Cell synchronisation information reporting indicator" is set to TRUE, the UE shall:

- include the IE "Cell synchronisation information" in MEASUREMENT REPORT as specified in the IE "Cell Reporting Quantities":
 - if the measurement is performed on another frequency:
 - a UE may omit the information group "COUNT-C-SFN frame difference" in the IE "Cell synchronisation information".
 - if the measurement is performed on the same frequency and no RLC Transparent Mode COUNT-C exists in the UE:
 - set the IE "COUNT-C-SFN high" to 0.
 - otherwise:
 - include the information group "COUNT-C-SFN frame difference".

If the IE "Proposed TGSN Reporting required" is set to TRUE, the UE shall:

- if compressed mode was used to monitor a TDD cell and the variable TGSN_REPORTED is set to FALSE:
 - report the IE "Proposed TGSN" indicating the TGSN that suits best to the measured cell;
 - set the variable TGSN_REPORTED to TRUE.

- otherwise
- omit the IE "Proposed TGSN".

8.6.7.8 Periodical Reporting Criteria

If the IE "Periodical Reporting Criteria" is received by the UE, the UE shall store the contents of the IE "Amount of Reporting" and IE "Reporting interval" in the variable MEASUREMENT_IDENTITY.

The UE shall send the first MEASUREMENT REPORT message as soon as the first measurement has been completed according to the requirements set in [19] and [20] 3GPP TS 25.133. After this, the UE shall send the next MEASUREMENT REPORT messages with intervals specified by the IE "Reporting interval".

After the UE has sent a total number of MEASUREMENT REPORT messages, which equal the value indicated in the IE "Amount of reporting", the UE shall terminate measurement reporting and delete all measurement information linked with the "Measurement identity" of the ongoing measurement from the variable MEASUREMENT_IDENTITY.

8.6.7.9 Reporting Cell Status

If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows:

- for intra-frequency measurement and inter-frequency measurement:
 - include the IE "Cell Measured Results" for cells that satisfy the condition (such as "Report cells within active set") specified in "Reporting Cell Status", in descending order by the measurement quantity.
 - the maximum number of the IE "Cell Measured Results" to be included in the IE "Measured Results" is the number specified in "Reporting Cell Status".

If the IE "Reporting Cell Status" is not received for intra-frequency or inter-frequency measurement, the UE shall:

- exclude the IE "cell measured results" for any cell in MEASUREMENT REPORT.

8.6.7.10 Traffic Volume Measurement

If the IE "Traffic Volume Measurement" is received by the UE, the UE shall store the content of the IE to the variable MEASUREMENT_IDENTITY.

If the IE "Traffic volume measurement Object" is not included, the UE shall apply the measurement reporting criteria to all uplink transport channels.

If IE "Traffic volume measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", and if the IE "traffic volume reporting quantity" is included, the UE shall:

Report the measured quantities specified in the IE "traffic volume reporting quantity".

- If the parameter "Average of RLC Bbuffer Ppayload for each RB" or the parameter "Variance of RLC Bbuffer payload for each RB" is set and;
 - If the IE "Traffic volume measurement quantity" is not included;
 - set the variable CONFIGURATION_INCOMPETE to TRUE.send to the UTRAN a MEASUREMENT CONTROL FAILURE message with the IE "Failure cause" set to "Configuration incomplete".
 - If the IE "Traffic volume measurement quantity" is included and;
 - If the parameter "time interval to take an average or a variance" is included;
 - Use the time specified in the parameter "time interval to take an average or a variance" to calculate the average and/or variance of RLC Bbuffer Ppayload according to the IE "traffic volume reporting quantity"
 - If the parameter "time interval to take an average or a variance" is not included;

- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL FAILURE message with the IE "Failure cause" set to "Configuration incomplete".

If IE "Traffic volume measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Traffic volume measurement quantity", IE "Inter-frequency Traffic volume reporting quantity" or "CHOICE Report criteria" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.11 Traffic Volume Measurement Reporting Criteria

If the IE "Traffic Volume Measurement Reporting Criteria" is received by the UE, the UE shall store the content of the IE "Traffic Volume Measurement Reporting Criteria" to the variable MEASUREMENT_IDENTITY.

If the IE "UL transport channel id" is not included, the UE shall apply the measurement reporting criteria to all uplink transport channels indicated in the "Traffic volume measurement Object". If the UTRAN has not specified a traffic volume measurement object for a given measurement identity, the UE shall apply the measurement reporting criteria to all uplink transport channels, which it is using that are configured for the current UE state.

If the IE "Tx interruption after trigger" is included, the UE shall block DTCH transmissions on the RACH during the time specified in the IE after a measurement report is transmitted.

8.6.7.12 FACH measurement occasion info

IE "FACH measurement occasion info" is used to control UE measurement activities in inter-frequency and inter-RAT cells in CELL_FACH state.

If IE "FACH measurement occasion info" is received, UE shall, when in CELL_FACH state:

- if IE "FACH Measurement occasion length coefficient" is included; and
 - if, according to its measurement capabilities, UE is not able to perform some of the indicated measurements in this IE simultaneously as receiving the SCCPCH of serving cell:
 - perform those measurements during FACH measurement occasions, see subclause 8.5.12.
 - if, according to its measurement capabilities, UE is able to perform some of the indicated measurements in this IE simultaneously as receiving the SCCPCH of serving cell:
 - UE may perform measurements also on other occasions.
- if, according to its measurement capabilities, UE is able to perform the measurements supported by UE and indicated in this IE simultaneously as receiving the SCCPCH of serving cell:
 - perform the measurements simultaneously as receiving the SCCPCH of serving cell.
- if IE "FACH Measurement occasion length coefficient" is not included:
 - perform those indicated measurements indicated in this IE that UE, according to its measurement capabilities, is able to perform simultaneously as receiving the SCCPCH of serving cell.
- if IE "Inter-frequency FDD measurement indicator" is set to TRUE:
 - perform measurements and evaluate cell re-selection criteria according to 3GPP TS 25.304 on inter-frequency FDD cells listed in IE "Measurement control system information" in "System Information Block type 11" or "System Information Block type 12".
- if IE "Inter-frequency FDD measurement indicator" is set to FALSE:
 - neither perform measurements nor evaluate cell re-selection criteria on inter-frequency FDD cells.

- if IE "Inter-frequency TDD measurement indicator" is set to TRUE:
 - perform measurements and evaluate cell re-selection criteria according to 3GPP TS 25.304 on inter-frequency TDD cells listed in IE "Measurement control system information" in "System Information Block type 11" or "System Information Block type 12".
- if IE "Inter-frequency TDD measurement indicator" is set to FALSE:
 - neither perform measurements nor evaluate cell re-selection criteria on inter-frequency TDD cells.
- if IE "Inter-RAT measurement indicators" is included:
 - perform measurements and evaluate cell re-selection criteria according to 3GPP TS 25.304 on those cells of listed Inter-RAT types that are present in IE "Measurement control system information" in "System Information Block type 11" or "System Information Block type 12".

8.6.7.x Measurement Reporting Mode

If IE "Measurement Reporting Mode" is received by the UE, UE shall

- store the contents of the IE "Measurement Report Transfer Mode" in the variable MEASUREMENT_IDENTITY;
- use the indicated RLC mode when sending MEASUREMENT REPORT message(s) related to this measurement;
- ignore IE "Periodical Reporting / Event Trigger Reporting Mode"

If IE "Measurement Reporting Mode" is not received by the UE in MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.x1 Inter-frequency measurement

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-frequency measurement quantity", IE "Inter-frequency reporting quantity" or "CHOICE Report criteria" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.x2 Inter-RAT measurement

If IE "Inter-RAT measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-RAT measurement quantity", IE "Inter-RAT reporting quantity" or "CHOICE Report criteria" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE, send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.x3 Intra-frequency measurement

If IE "Intra-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Intra-frequency measurement quantity", IE "Intra-frequency reporting quantity" or "CHOICE Report criteria" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE.send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.x4 Quality measurement

If IE "Quality measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Quality reporting quantity" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE.send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

8.6.7.x5 UE internal measurement

If IE "QualityUE internal measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "UE internal measurement quantity" or IE "UE internal reporting quantity" is not received, UE shall

- clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;
- set the variable CONFIGURATION_INCOMPETE to TRUE.send to the UTRAN a MEASUREMENT CONTROL message with the IE "Failure cause" set to "Configuration incomplete".

10.3.7 Measurement Information elements

10.3.7.1 Additional measurements list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Additional measurements	MP	1 to <MaxAdditionalMeas>		
>Additional measurement identity	MP		Measurement identity 10.3.7.48	

10.3.7.2 Cell info

Includes non-frequency related cell info used in the IE "inter-frequency cell info list" and "intra frequency cell info list".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB Default value is 0 dB Used to offset measured quantity value
Reference time difference to cell	OP		Reference time difference to cell 10.3.7.60	In chips. This IE is absent for serving cell.
<u>Read SFN indicator</u>	<u>MP</u>		<u>Boolean</u>	<u>TRUE indicates that read of SFN is requested for the target cell</u>
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	OP		Primary CPICH info 10.3.6.60	This IE is absent only if measuring RSSI only (broadband measurement.)
>>>Primary CPICH Tx power	OP		Primary CPICH Tx power 10.3.6.61	Required if calculating pathloss.
>>>Read SFN indicator	<u>MP</u>		<u>Boolean</u>	<u>TRUE indicates that read of SFN is requested for the target cell</u>
>>TX Diversity Indicator	MP		Boolean	
>TDD				
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>>>Primary CCPCH TX power	OP		Primary CCPCH TX power 10.3.6.59	
>> Timeslot list	OP	1 to <maxTS>		The UE shall report Timeslot ISCP values according the order of the listed Timeslot numbers
>>>Timeslot number	MP		Integer (0...14)	Timeslot numbers, for which the UE shall report Timeslot ISCP
>>>Burst Type	MD		Enumerated (Type1, Type2)	Use for Timeslot ISCP measurements only. Default value is "Type1"
Cell Selection and Re-selection Info	CV-BCHopt		Cell Selection and Re-selection for SIB11/12Info 10.3.2.4	Only when sent in system information. This IE is absent for serving cell. For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are default value, this IE is absent.

10.3.7.3 Cell measured results

Includes non frequency related measured results for a cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Cell Identity	OP		Cell Identity 10.3.2.2	
SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.63	
Cell synchronisation information	OP		Cell synchronisation information 10.3.7.6	
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>CPICH Ec/No	OP		Integer(-20..50)	In dB According to CPICH Ec/No in [19] and [20]
>>CPICH RSCP	OP		Integer(-115..-400..91)	In dBm According to CPICH RSCP in [19] and [20]
>>Pathloss	OP		Integer(46..158)	In dB
>TDD				
>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9	
>>Proposed TGSN	OP		Integer (0..14)	Proposal for the next TGSN
>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54	
>>Pathloss	OP		Integer(46..158)	In dB
>> Timeslot list	OP	1 to <maxTS>		
>>>Timeslot ISCP	MP		Timeslot ISCP Info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info

10.3.7.4 Cell measurement event results

Includes non frequency related cell reporting quantities.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH info	MP	1 to <maxCellMEas>	Primary CPICH info 10.3.6.60	
>TDD				
>>Primary CCPCH info	MP	1 to <maxCellMEas>	Primary CCPCH info 10.3.6.57	

10.3.7.5 Cell reporting quantities

Includes non frequency related cell reporting quantities.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference reporting indicator	MP		Enumerated(No report, type 1, type 2)	
Cell synchronisation information reporting indicator	MP		Boolean	
Cell Identity reporting indicator	MP		Boolean	
CHOICE <i>mode</i>	MP			
>FDD				
>>CPICH Ec/N0 reporting indicator	MP		Boolean	
>>CPICH RSCP reporting indicator	MP		Boolean	
>>Pathloss reporting indicator	MP		Boolean	
>TDD				
>>Timeslot ISCP reporting indicator	MP		Boolean	
>> Proposed TGSN Reporting required	MP		Boolean	
>>Primary CCPCH RSCP reporting indicator	MP		Boolean	
>>Pathloss reporting indicator	MP		Boolean	

10.3.7.6 Cell synchronisation information

The IE "Cell synchronisation information" contains the OFF and Tm as defined in 3GPP TS 25.215 and 3GPP TS 25.225 and the four most significant bits of the difference between the 12 least significant bits of the RLC Transparent Mode COUNT-C in the UE and the SFN of the measured cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>COUNT-C-SFN frame difference	OP			
>>>COUNT-C-SFN high	MP		Integer(0..3840 by step of 256)	in frames
>>>OFF	MP		Integer(0..255)	in frames
>>Tm	MP		Integer(0..38399)	in chips
>TDD				
>>COUNT-C-SFN frame difference	OP			
>>>COUNT-C-SFN high	MP		Integer(0..3840 by step of 256)	in frames
>>>OFF	MP		Integer(0..255)	in frames

NOTE: This measurement is only used in TDD when cells are not SFN synchronised

10.3.7.7 Event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE 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-RAT measurement event results			Inter-RAT measurement event results 10.3.7.28	For IS-2000 results, include fields of the <i>Pilot Strength Measurement Message</i> from subclause 2.7.2.3.2.5 of TIA/EIA/IS-2000.5
>Traffic volume measurement event results			Traffic volume measurement event results 10.3.7.69	
>Quality measurement event results			Quality measurement event results 10.3.7.57	
>UE internal measurement event results			UE internal measurement event results 10.3.7.78	
>UP measurement event results			UP measurement event results 10.3.7.101	

CHOICE event result	Condition under which the given event result is chosen
Intra-frequency measurement event results	If measurement type = intra-frequency measurement
Inter-frequency measurement event results	If measurement type = inter-frequency measurement
Inter-RAT measurement event results	If measurement type = inter-RAT measurement
Traffic volume measurement event results	If measurement type = traffic volume measurement
Quality measurement event results	If measurement type = Quality measurement
UE internal measurement event results	If measurement type = UE internal measurement
UP measurement event results	If measurement type = UP 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
FACH Measurement occasion cycle length coefficient	OP		Integer(1..12)	
Inter-frequency FDD measurement indicator	MP		Boolean	TRUE means that measurements are required
Inter-frequency TDD measurement indicator	MP		Boolean	TRUE means that measurements are required
Inter-RAT measurement indicators	OP	1 to <maxOther RAT>		
>RAT type	MP		Enumerated(GSM, IS2000)	

10.3.7.9 Filter coefficient

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MD		Integer(0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19)	Default value is 0

10.3.7.10 HCS Cell re-selection information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Penalty_time	MD		Integer(0, 10, 20, 30, 40, 50, 60)	Default value is 0 which means = not used In seconds
Temporary_offsets	<i>CV-Penalty used</i>			
>Temporary_offset1	<u>MP</u>		Integer(10, 20, 30, 40, 50, 60, 70, infinity)	In seconds
>Temporary_offset2	<i>CV-FDD-Quality-Measure</i>		Integer(10, 20, 30, 40, 50, 60, 70, infinity)	Default value is Temporary_offset1

Condition	Explanation
<i>Penalty used</i>	Not allowed if IE Penalty time equals 'not used' else MP
<i>FDD-Quality-Measure</i>	Presence is not allowed if the IE "Cell_selection_and_reselection_quality_measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.

10.3.7.11 HCS neighbouring cell information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q _{HCS}	MD		Integer (-0..99)	Default value = 0
HCS Cell Re-selection Information	OP		HCS Cell Re-selection Information 10.3.7.10	

10.3.7.12 HCS Serving cell information

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
HCS_PRIO	MD		Integer (0..7)	Default value = 0
Q _{HCS}	MD		Integer(0..99)	Default value = 0
T _{CRmax}	MD		Integer(0, 30, 60, 120, 180, 240)	[s] Default value is 0 which means = not used
N _{CR}	CV-UE speed detector		Integer(1..16)	Default value = 8
T _{CRmaxHyst}	CV-UE speed detector		Integer(0, 10..70 by step of 10)	[s] Default value is 0 which means = not used

Condition	Explanation
UE Speed detector	Not allowed if T _{CRmax} equals 'not used' else MP

10.3.7.13 Inter-frequency cell info list

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Inter-frequency cell removal	MP			
>Remove all inter-frequency cells				No data
>Remove some inter-frequency cells				
>>Removed inter-frequency cells	MP	1 .. <maxCellMeas>		
>>>Inter-frequency cell id	MP		Integer(0 .. <MaxInterCells>)	
>No inter-frequency cells removed				No data
New inter-frequency cells	OP	1 to <maxCellMeas>		
>Inter-frequency cell id	MD		Integer(0 .. <MaxInterCells>)	The first inter-frequency cell in the list corresponds to inter-frequency cell id 0, the second corresponds to inter-frequency cell id 1 etc
>Frequency info	MD		Frequency info 10.3.6.36	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>Cell info	MP		Cell info 10.3.7.2	
<u>Cell for measurement</u>	<u>OP</u>	<u>1 to <maxCellMeas></u>		
<u>>Inter-frequency cell id</u>	<u>MP</u>		<u>Integer(0 .. <MaxInterCells>)</u>	

10.3.7.14 Inter-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Enumerated(2a, 2b, 2c, 2d, 2e, 2f)	

10.3.7.15 Inter-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency measurement results	OP	1 to <maxFreq>		
>Frequency info	MD		Frequency info 10.3.6.36	Default value is the value of the previous "frequency info" in the list (note : the first occurrence is then MP)
>UTRA carrier RSSI	OP		Integer(-95..-390..76)	In dBm According to UTRA carrier RSSI LEV in [19] and [20]
>Inter-frequency cell measurement results	OP	1 to <maxCellMeas>		
>>Cell measured results	MP		Cell measured results 10.3.7.3	

10.3.7.16 Inter-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	MP		Inter-frequency cell info list 10.3.7.13	Measurement object
Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
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 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.17 Inter-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
Inter-frequency cells	OP	1 to <maxFreq>		
>Frequency info	MP		Frequency info 10.3.6.36	
>Non frequency related measurement event results	MP		Cell measurement event results 10.3.7.4	

10.3.7.18 Inter-frequency measurement quantity

The quantity the UE shall measure in case of inter-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>reporting criteria</i>	MP			
>Intra-frequency reporting criteria				
>>Intra-frequency measurement quantity	MP		Intra-frequency measurement quantity 10.3.7.38	
>Inter-frequency reporting criteria				
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>CHOICE <i>mode</i>	MP			
>>>FDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(CPICH Ec/N0, CPICH RSCP)	
>>>TDD				
>>>>Measurement quantity for frequency quality estimate	MP		Enumerated(Primary CCPCH RSCP)	

10.3.7.19 Inter-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an inter-frequency measurements. All events concerning inter-frequency measurements are labelled 2x where x is a,b,c..

Event 2a: Change of best frequency.

Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

Event 2c: The estimated quality of a non-used frequency is above a certain threshold.

Event 2d: The estimated quality of the currently used frequency is below a certain threshold.

Event 2e: The estimated quality of a non-used frequency is below a certain threshold.

Event 2f: The estimated quality of the currently used frequency is above a certain threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Inter-frequency event identity	MP		Inter-frequency event identity 10.3.7.14	
>Threshold used frequency	CV – clause 0		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm
>W used frequency	CV – clause 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 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms.
>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>Parameters required for each non-used frequency	OP	1 to <maxFreq >		
>>Threshold non used frequency	CV – clause 1		Integer(-115..0)	Ranges used depend on measurement quantity. CPICH Ec/No -24..0dB CPICH/Primary CCPCH RSCP -115..-25dBm
>>W non-used frequency	CV-clause 1		Real(0, 0.1..2.0 by step of 0.1)	

Condition	Explanation
Clause 0	2a,2b, 2d, or 2f, otherwise the IE is not needed
Clause 1	The IE is mandatory in if "inter frequency event identity" is set to 2a, 2b, 2c or 2 ^e , otherwise the IE is not needed

10.3.7.20 Inter-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-frequency cell info list	OP		Inter-frequency cell info list 10.3.7.13	

10.3.7.21 Inter-frequency reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRA Carrier RSSI	MP		Boolean	TRUE means report is requested
Frequency quality estimate	MP		Boolean	TRUE means that report is requested
Non frequency related cell reporting quantities	MP		Cell reporting quantities 10.3.7.5	

10.3.7.22 Inter-frequency SET UPDATE

NOTE: Only for FDD.

Contains the changes of the active set associated with a non-used frequency. This information makes it possible to use events defined for Intra-frequency measurement within the same non-used frequency for Inter-frequency measurement reporting criteria. This information also controls if the UE should use autonomous updating of the active set associated with a non-used frequency.

Information Element/group name	Need	Multi	Type and reference	Semantics description
UE autonomous update mode	MP		Enumerated (On, On with no reporting, Off)	
Non autonomous update mode	CV-Update			
>Radio link addition information	OP	1 to <maxRL>		Radio link addition information required for each RL to add
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Note 1
>Radio link removal information	OP	1 to <MaxRL>		Radio link removal information required for each RL to remove
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Note 1

Condition	Explanation
<i>Update</i>	The IE is mandatory if IE"UE autonomous update mode" is set to "Off", otherwise the IE is not needed.

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-RAT cell info list

Contains the measurement object information for an inter-RAT measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Inter-RAT cell removal	MP			
>Remove all inter-RAT cells				No data
>Remove some inter-RAT cells				
>>Removed inter-RAT cells	MP	1 to <maxCellMeas>		
>>>Inter-RAT cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no inter-RAT cells				
New inter-RAT cells	OP	1 to <maxCellMeas>		
>Inter-RAT cell id	MD		Integer(0 .. <maxCellMeas> - 1)	The first inter-RAT cell in the list corresponds to inter-RAT cell id 0, the second corresponds to inter-RAT cell id 1 etc.
>CHOICE Radio Access Technology	MP			
>>GSM				
>>>Cell individual offset	MD		Integer (-50..50)	In dB Default value is 0 dB Used to offset measured quantity value
>>>Cell selection and re-selection info	CV-BCHopt		Cell selection and re-selection info for SIB11/12 10.3.2.4	Only when sent in system information. If HCS is not used and all the parameters in cell selection and re-selection info are default values, this IE is absent.
>>>BSIC	MP		BSIC 10.3.8.2	
>>>BCCH ARFCN	MP		Integer (0..1023)	GSM TS 04.18
>>>Output power	OP			
>>IS-2000				
>>>System specific measurement info			enumerated (frequency, timeslot, colour code, output power, PN offset)	For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3.7.3.3.2.27, Candidate Frequency Neighbour List Message
Cell for measurement	OP	1 to <maxCellMeas>		
>Inter-RAT cell id	MP		Integer(0 .. <MaxInterCells>)	

10.3.7.24 Inter-RAT event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT event identity	MP		Enumerated (3a, 3b, 3c, 3d)	

10.3.7.25 Inter-RAT info

Inter-RAT info defines the target system for redirected cell selection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT info	MP		Enumerated (GSM)	

10.3.7.26 Inter-RAT measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT measurement results	OP	1 to <maxOtherRAT>		
>CHOICE system				At least one spare value needed
>>GSM				
>>>Measured GSM cells	MP	1 to <maxReportedGSMCells>		
>>>>GSM carrier RSSI	OP		bit string(6)	RXLEV, GSM TS 05.08
>>>>Pathloss	OP		Integer(46..158)	In dB
>>>>CHOICE BSIC	MP			
>>>>>Verified BSIC				
>>>>>>inter-RAT cell id			Integer(0..<maxCellMeasurements>)	
>>>>>Non verified BSIC				
>>>>>>BCCH ARFCN			Integer (0..1023)	GSM TS 04.18
>>>>Observed time difference to GSM cell	OP		Observed time difference to GSM cell 10.3.7.52	

10.3.7.27 Inter-RAT measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT cell info list	OP		Inter-RAT cell info list 10.3.7.23	Measurement object
Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
CHOICE report criteria	MP			
>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.28 Inter-RAT measurement event results

This IE contains the measurement event results that are reported to UTRAN for inter-RAT measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT event identity	MP		Inter-RAT event identity 10.3.7.24	
Cells to report	MP	1 to <maxCellMeas>		
>CHOICE BSIC	MP			
>>Verified BSIC				
>>>inter-RAT cell id			Integer(0..<maxCellMeas>)	
>>Non verified BSIC				
>>>BCCH ARFCN			Integer (0..1023)	GSM TS 04.18

10.3.7.29 Inter-RAT measurement quantity

The quantity the UE shall measure in case of inter-RAT measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity for UTRAN quality estimate	OP		Intra-frequency measurement quantity 10.3.7.38	
CHOICE system	MP			
>GSM				
>>Measurement quantity	MP		Enumerated(GSM Carrier RSSI, Pathloss)	
>>Filter coefficient	MP		Filter coefficient 10.3.7.9	
>>BSIC verification required	MP		Enumerated(required, not required)	
>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

Also, this IE must be set to "required" if IE "Observed time difference to GSM cell" in IE "Inter-RAT reporting quantity" is set to "true".

10.3.7.30 Inter-RAT measurement reporting criteria

The triggering of the event-triggered reporting for an inter-RAT measurement. All events concerning inter-RAT measurements are labelled 3x where x is a,b,c..

Event 3a: The estimated quality of the currently used UTRAN frequency is below a certain threshold **and** the estimated quality of the other system is above a certain threshold.

Event 3b: The estimated quality of other system is below a certain threshold.

Event 3c: The estimated quality of other system is above a certain threshold.

Event 3d: Change of best cell in other system.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Inter-RAT event identity	MP		Inter-RAT event identity 10.3.7.24	
>Threshold own system	CV – clause 0			
>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 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory if " Inter-RAT event identity" is set to "3a", otherwise the IE is not needed
Clause 1	The IE is mandatory if " Inter-RAT event identity" is set to 3a, 3b or 3c, otherwise the IE is not needed

10.3.7.31 Inter-RAT measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Inter-RAT cell info list	OP		Inter-RAT cell info list 10.3.7.23	

10.3.7.32 Inter-RAT reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UTRAN estimated quality	MP		Boolean	
CHOICE <i>system</i>	MP			
>GSM				
>>Pathloss	MP		Boolean	
>>>Observed time difference to GSM cell	MP		Boolean	
>>>GSM Carrier RSSI	MP		Boolean	

10.3.7.33 Intra-frequency cell info list

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Intra-frequency cell removal	MP			
>Remove all intra-frequency cells				No data
>Remove some intra-frequency cells				
>>Removed intra-frequency cells	MP	1 to <maxCellMeas>		
>>>Intra-frequency cell id	MP		Integer(0 .. <maxCellMeas> - 1)	
>Remove no intra-frequency cells				
New intra-frequency cell	OP	1 to <maxCellMeas>		This information element must be present when "Intra-frequency cell info list" is included in the system information
>Intra-frequency cell id	MD		Integer(0 .. <maxCellMeas> - 1)	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	
<u>Cell for measurement</u>	<u>OP</u>	<u>1 to <maxCellMeas></u>		
<u>>Intra-frequency cell id</u>	<u>MP</u>		<u>Integer(0 .. <MaxInterCells>)</u>	

10.3.7.34 Intra-frequency event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Enumerated (1a,1b,1c,1d,1e,1f,1g,1h,1i)	

10.3.7.35 Intra-frequency measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measured results	OP	1 to <maxCellMeas>		
>Cell measured results	MP		Cell measured results 10.3.7.3	

10.3.7.36 Intra-frequency measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	Measurement object
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
Reporting cell status	CV-reporting		Reporting cell status 10.3.7.61	
Measurement validity	OP		Measurement validity 10.3.7.51	
CHOICE report criteria	OP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

Condition	Explanation
<i>reporting</i>	This IE is optional if the CHOICE "report criteria" is equal to "periodical reporting criteria" or "No reporting", otherwise the IE is not needed

10.3.7.37 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
Cell measured event results	MP		Cell measured event results 10.3.7.4	

10.3.7.38 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE <i>mode</i>	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(C PICH Ec/N0, C PICH RSCP, Pathloss, UTRA Carrier RSSI)	Pathloss=Primary CPICH Tx power-CPICH RSCP If used in Inter system measurement quantity only Ec/N0 an RSCP is allowed. If used in inter-frequency measurement quantity RSSI is not allowed.
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP, UTRA Carrier RSSI)	Pathloss=Primary CCPCH Tx power-Primary CCPCH RSCP If used in inter-frequency measurement quantity RSSI is not allowed.

10.3.7.39 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labelled 1x where x is a, b, c....

Event 1a: A Primary CPICH enters the Reporting Range (FDD only).

Event 1b: A Primary CPICH leaves the Reporting Range (FDD only).

Event 1c: A Non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).

Event 1d: Change of best cell [Note 1] (FDD only).

Event 1e: A Primary CPICH becomes better than an absolute threshold (FDD only).

Event 1f: A Primary CPICH becomes worse than an absolute threshold (FDD only).

Event 1g: Change of best cell in TDD.

Event 1h: Timeslot ISCP below a certain threshold (TDD only).

Event 1i: Timeslot ISCP above a certain threshold (TDD only).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
> Intra-frequency event identity	MP		Intra-frequency event identity 10.3.7.34	
>Triggering condition 1	CV – clause 0		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells)	Indicates which cells can trigger the event
>Triggering condition 2	CV – clause 6		Enumerated(Active set cells, Monitored set cells, Active set cells and monitored set cells, Detected set cells, Detected set cells and monitored set cells)	Indicates which cells can trigger the event
>Reporting Range	CV – clause 2		Real(0..14.5 by step of 0.5)	In dB. In event 1a,1b.
>Cells forbidden to affect Reporting range	CV – clause 1	1 to <maxCellMeas>		In event 1a,1b
>>CHOICE mode	MP			
>>>FDD				
>>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>>TDD				
>>>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57	
>W	CV – clause 2		Real(0.0..2.0 by step of 0.1)	
>Hysteresis	MP		Real(0..7.5 by step of 0.5)	In dB.
> Threshold used frequency	CV-clause 3		Integer (-115..165)	Range used depend on measurement quantity. CPICH RSCP -115 .. -2540 dBm CPICH Ec/No -24..0 dB Pathloss 30..165dB ISCP -115..-25 dBm
>Reporting deactivation threshold	CV – clause 4		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. 0 means not applicable

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Replacement activation threshold	CV - clause 5		Integer(0, 1, 2, 3, 4, 5, 6, 7)	In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. 0 means not applicable
>Time to trigger	MP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>Amount of reporting	CV – clause 7		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	
>Reporting interval	CV – clause 7		Integer(0, 250, 500, 1000, 2000, 4000, 8000, 16000)	Indicates the interval of periodical reporting when such reporting is triggered by an event. Interval in milliseconds. 0 means no periodical reporting
>Reporting cell status	OP		Reporting cell status 10.3.7.61	

Condition	Explanation
Clause 0	The IE is mandatory if "Intra-frequency event identity" is set to "1b" or "1f", otherwise the IE is not needed
Clause 1	The IE is optional if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1b", otherwise the IE is not needed
Clause 3	The IE is mandatory if "Intra-frequency event identity" is set to , "1e", "1f", "1h", "1i" or "1j", otherwise the IE is not needed
Clause 4	The IE is mandatory if "Intra-frequency event identity" is set to "1a", otherwise the IE is not needed
Clause 5	The IE is mandatory if "Intra-frequency event identity" is set to "1c", otherwise the IE is not needed
Clause 6	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1e".
Clause 7	The IE is mandatory if "Intra-frequency event identity" is set to "1a" or "1c".

10.3.7.40 Intra-frequency measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency measurement identity	MD		Measurement identity 10.3.7.48	The intra-frequency measurement identity has default value 1.
Intra-frequency cell info list	OP		Intra-frequency cell info list 10.3.7.33	
Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 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 10.3.7.43	
Reporting information for state CELL_DCH	OP		Reporting information for state CELL_DCH 10.3.7.62	Note 1

NOTE 1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.3.7.41 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Reporting quantities for active set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for monitored set cells	MP		Cell reporting quantities 10.3.7.5	
Reporting quantities for detected set cells	OP		Cell reporting quantities 10.3.7.5	

10.3.7.42 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
SFN-SFN observed time difference	MP		Enumerated(No report, type 1, type 2)	
CHOICE <i>mode</i>	MP			
>FDD				
>>Reporting quantity	MP		Enumerated(CPICH Ec/No, CPICH RSCP, Pathloss, No report)	
>TDD				
>>Reporting quantity list	MP	1 to 2		
>>>Reporting quantity	MP		Enumerated(Timeslot ISCP, Primary CCPCH RSCP, No report)	

10.3.7.43 Maximum number of reported cells on RACH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Maximum number of reported cells	MP		Enumerated (no report, current cell, current cell + best neighbour, current cell+2 best neighbours, ..., current cell+6 best neighbours)	

10.3.7.44 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control. "Measured results" can be used for both event trigger mode and periodical reporting mode. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" FDD cell has the largest value when the measurement quantity is "Ec/No" or "RSCP". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE 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-RAT measured results list			Inter-RAT measured results list 10.3.7.26	
>Traffic volume measured results list			Traffic volume measured results list 10.3.7.67	
>Quality measured results list			Quality measured results list 10.3.7.55	
>UE Internal measured results			UE Internal measured results 10.3.7.76	
>UP measured results			UP measured results 10.3.7.99	

10.3.7.45 Measured results on RACH

Contains the measured results on RACH of the quantity indicated optionally by Reporting Quantity in the system information broadcast on BCH. The list should be in the order of the value of the measurement quality (the first cell should be the best cell). The "best" FDD cell has the largest value when the measurement quantity is "Ec/No" or "RSCP". On the other hand, the "best" cell has the smallest value when the measurement quantity is "Pathloss". The "best" TDD cell has the largest value when measurement quantity is "Primary CCPCH RSCP".

Information Element/group name	Need	Multi	Type and reference	Semantics description
Measurement result for current cell				
CHOICE <i>mode</i>	MP			
>FDD				
>>CHOICE measurement quantity	MP			
>>>CPICH Ec/N0			Integer(-20..0)(0..50)	In dBAccording to CPICH Ec/No in [19] and [20]
>>>CPICH RSCP			Integer(-115..-40)(0..91)	In dBmAccording to CPICH RSCP LEV in [19] and [20]
>>>Pathloss			Integer(46..158)	In dB
>TDD				
>>Timeslot List	OP	1 to 14		
>>>Timeslot ISCP	MP		Timeslot ISCP info 10.3.7.65	The UE shall report the Timeslot ISCP in the same order as indicated in the cell info
>>>Primary CCPCH RSCP	OP		Primary CCPCH RSCP info 10.3.7.54	
Measurement results for monitored cells	OP	1 to 7		
>SFN-SFN observed time difference	OP		SFN-SFN observed time difference 10.3.7.63	It is absent for current cell
>CHOICE <i>mode</i>	MP			
>>FDD				
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	
>>>CHOICE measurement quantity	OP			It is absent for current cell
>>>>CPICH Ec/N0			Integer(-20..0)(0..50)	In dBAccording to CPICH Ec/No in [19] and [20]
>>>>CPICH RSCP			Integer(-115..-40)(0..91)	In dBmAccording to CPICH RSCP LEV in [19] and [20]
>>>>Pathloss			Integer(46..158)	In dB
>>TDD				
>>>Cell parameters Id	MP		Cell parameters Id 10.3.6.9	
>>>Primary CCPCH RSCP	MP		Primary CCPCH RSCP info 10.3.7.54	

NOTE 1: Monitored cells consist of current cell and neighbouring cells.

10.3.7.46 Measurement Command

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement command	MP		Enumerated(Setup,Modify,Release)	

10.3.7.47 Measurement control system information

Information element/Group name	Need	Multi	Type and reference	Semantics description
Use of HCS	MP		Enumerated (Not used, used)	Indicates if the serving cell belongs to a HCS structure
Cell_selection_and_reselection_quality_measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCP)	Choice of measurement (CPICH Ec/N0 or CPICH RSCP) to use as quality measure Q.
Intra-frequency measurement system information	OP		Intra-frequency measurement system information 10.3.7.40	
Inter-frequency measurement system information	OP		Inter-frequency measurement system information 10.3.7.20	
Inter-RAT measurement system information	OP		Inter-RAT measurement system information 10.3.7.31	
Traffic volume measurement system information	OP		Traffic volume measurement system information 10.3.7.73	
UE Internal measurement system information	OP		UE Internal measurement system information 10.3.7.81	

NOTE1: The reporting of intra-frequency measurements is activated when state CELL_DCH is entered.

10.3.7.48 Measurement Identity

A reference number that is used by the UTRAN at modification and release of the measurement, and by the UE in the measurement report.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement identity	MP		Integer(1..16)	

10.3.7.49 Measurement reporting mode

Contains the type of Measurement Report transfer mode and the indication of periodical/event trigger.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Report Transfer Mode	MP		enumerated (Acknowledged mode RLC, Unacknowledged mode RLC)	
Periodical Reporting / Event Trigger Reporting Mode	MP		Enumerated (Periodical reporting, Event trigger)	

10.3.7.50 Measurement Type

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement Type	MP		Enumerated(Intra-frequency, Inter-frequency, Inter-RAT, Traffic volume, Quality, UE internal, UP)	

10.3.7.51 Measurement validity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE state	MP		Enumerated(CELL_DCH, all states except CELL_DCH, all states)	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'.

10.3.7.52 Observed time difference to GSM cell

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Observed time difference to GSM cell	OP		Real(0..4095*3060/(4096*13) by step of 3060/(4096*13)) Integer(0..4095)	In ms According to GSM TIME in [19] and [20]

10.3.7.53 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Amount of reporting	MD		Integer(1, 2, 4, 8, 16, 32, 64, Infinity)	The default value is infinity.
Reporting interval	MP		Integer(250, 500, 1000, 2000, 3000, 4000, 6000, 8000, 12000, 16000, 20000, 24000, 28000, 32000, 64000)	Indicates the interval of periodical report. Interval in milliseconds

10.3.7.54 Primary CCPCH RSCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Primary CCPCH RSCP	MP		Enumerated (-115, -114 ... -25) Integer(0..91)	Granularity 1dB According to P-CCPCH_RSCP_LEV in [19] and [20]

10.3.7.55 Quality measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
BLER measurement results	OP	1 to <maxTrCH>		
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
>DL Transport Channel BLER	OP		Integer (0..63)	Transport channel BLER according to the mapping of BLER_LOG value in 25.133 According to BLER_LOG in [19] and [20]
CHOICE mode				
>FDD				No data
>TDD				
>>SIR measurement results	OP	1 to <MaxCCTrCH>		SIR measurements for DL CCTrCH
>>>TFCS ID	MP		Enumerated (1..8)	
>>>Timeslot list	MP	1 to <maxTS>		for all timeslot on which the CCTrCH is mapped on
>>>>SIR	MP		Integer(-10...20)(0..63)	the UE shall report in ascending timeslot order According to UE_SIR in [20]

10.3.7.56 Quality measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Quality reporting quantity	OP		Quality reporting quantity 10.3.7.59	
CHOICE report criteria	MP			
>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.57 Quality measurement event results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Transport channels causing the event	OP	1 to <maxTrCH >		
>Transport channel identity	MP		Transport channel identity 10.3.5.18	

10.3.7.58 Quality measurement reporting criteria

Event 5a: Number of bad CRCs on a certain transport channel exceeds a threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH >		
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>Total CRC	MP		Integer(1..512)	Number of CRCs
>Bad CRC	MP		Integer(1..512)	Number of CRCs
>Pending after trigger	MP		Integer(1..512)	Number of CRCs

10.3.7.59 Quality reporting quantity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DL Transport Channel BLER	MP		Boolean	TRUE means report requested
Transport channels for BLER reporting	CV BLER reporting	1 to <maxTrCH >		The default, if no transport channel identities are present, is that the BLER is reported for all downlink transport channels
>DL Transport channel identity	MP		Transport channel identity 10.3.5.18	
CHOICE mode				
>FDD				No data
>TDD				
>>SIR measurement list	OP	1 to <maxCCTr CH>		SIR measurements shall be reported for all listed TFCS IDs
>>>TFCS ID	MP		Enumerated (1..8)	

Condition	Explanation
<i>BLER reporting</i>	This information element is absent if 'DL Transport Channel BLER' is 'False' and optional, if 'DL Transport Channel BLER' is 'True'

10.3.7.60 Reference time difference to cell

In the System Information message, the reference time difference to cell indicates the timing difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell..

In the Measurement Control message, the reference time difference to cell indicates the timing difference between UE uplink transmission timing and the primary CCPCH of a neighbouring cell.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>accuracy</i>	MP			
>40 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 40)	In chips
>256 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 256)	In chips
>2560 chips				
>>Reference time difference	MP		Integer(0..38400 by step of 2560)	In chips

10.3.7.61 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or virtual active set cells and/or monitored set cells on and/or detected set cells used frequency and/or monitored set cells on non used frequency should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Choice reported cell	MP			
>Report cells within active set				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within active set and/or monitored set cells on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within detected set on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report all active set cells + cells within monitored set on used frequency				
>> Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2,, virtual/active set cells+6)	
>Report all active set cells + cells within detected set on used frequency				
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2,, virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2,, virtual/active set cells+6)	

>Report cells within virtual active set				
>>Maximum number of reported cells	MP		Integer(1..6)	
> Report cells w within monitored set on non-used frequency				
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored and/or active set on non-used frequency				
>> Maximum number of reported cells	MP		Integer(1..6)	
>Report all virtual active set cells + cells within monitored set on non-used frequency				
>> Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, ..., virtual/active set cells+6)	
>Report cells within active set or within virtual active set				
>>Maximum number of reported cells	MP		Integer (1..12)	
>Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency				
>>Maximum number of reported cells	MP		Integer(1..12)	

10.3.7.62 Reporting information for state CELL_DCH

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Intra-frequency reporting quantity	MP		Intra-frequency reporting quantity 10.3.7.41	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.49	
CHOICE report criteria	MP			
>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	

10.3.7.63 SFN-SFN observed time difference

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE type	MP			
>Type 1			Integer(0..9830399)	Number of chips According to T1_SFNN-SFN_TIME in [19] and [20]
>Type 2			Real(-1280.0..1280.0 by step of 0.0625)Integer(0..40961)	Resolution of 1/16th of a chip According to T2_SFNN-SFN_TIME in [19] and [20]

10.3.7.64 Time to trigger

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Time to trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms

10.3.7.65 Timeslot ISCP info

NOTE: Only for TDD

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
Timeslot ISCP	MP		Integer(-115...-25)(0..91)	In dBm According to UE_TS_ISCP_LEV in [20]

10.3.7.66 Traffic volume event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume event identity	MP		Enumerated(4a, 4b)	

10.3.7.67 Traffic volume measured results list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement results	OP	1 to <maxRB >		
>RB Identity	MP		RB Identity 10.3.4.16	
>RLC buffers payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Average RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K, 32K, 64K, 128K, 256K, 512K, 1024K)	In bytes And N Kbytes = N*1024 bytes
>Variance of RLC buffer payload	OP		Enumerated(0, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2K, 4K, 8K, 16K)	In bytes And N Kbytes = N*1024 bytes

10.3.7.68 Traffic volume measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement Object	OP		Traffic volume measurement Object 10.3.7.70	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
Measurement validity	OP		Measurement validity 10.3.7.51	
CHOICE report criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

10.3.7.69 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UL Transport Channel causing the event	MP		Transport channel identity 10.3.5.18	
Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	

10.3.7.70 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement objects	MP	1 to <maxTrCH >		
>UL Target Transport Channel ID	MP		Transport channel identity 10.3.5.18	

10.3.7.71 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Measurement quantity	MP		Enumerated(RLC buffer payload, Average RLC buffer payload, Variance of RLC buffer payload)	
Time Interval to take an average or a variance	CV-A/V		Integer(20, 40, ..260, by steps of 20)	In ms

Condition	Explanation
A/V	This IE is present when "Average RLC buffer" or "Variance of RLC buffer payload" is chosen.

10.3.7.72 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Event 4a: RLC buffer payload exceeds an absolute threshold.

Event 4b: RLC buffer payload becomes smaller than an absolute threshold.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each transport channel	OP	1 to <maxTrCH >		
>UL Transport Channel ID	OP		Transport channel identity 10.3.5.18	
>Parameters required for each Event	OP	1 to <maxMeas perEvent>		
>>Traffic volume event identity	MP		Traffic volume event identity 10.3.7.66	
>>Reporting Threshold	MP		Enumerated(8,16,32,64,128,256,512,1024,2K,3K,4K,6K,8K,12K,16K,24K,32K,48K,64K,96K,128K,192K,256K,384K,512K,768K)	Threshold in bytes And N Kbytes = N*1024 bytes
>>Time to trigger	OP		Time to trigger 10.3.7.64	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report. Time in ms
>>Pending time after trigger	OP		Integer(250, 500, 1000, 2000, 4000, 8000, 16000)	Time in seconds. Indicates the period of time during which it is forbidden to send any new measurement reports with the same Traffic volume event identity even if the triggering condition is fulfilled again. Time in milliseconds
>>Tx interruption after trigger	OP		Integer (250, 500, 1000, 2000, 4000, 8000, 16000)	Time in milliseconds. Indicates whether or not the UE shall block DTCH transmissions on the RACH after a measurement report is triggered.

10.3.7.73 Traffic volume measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Traffic volume measurement identity	MD		Measurement identity 10.3.7.48	The traffic volume measurement identity has default value 4.
Traffic volume measurement objects	OP		Traffic volume measurement objects 10.3.7.70	
Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
Traffic volume reporting quantity	OP		Traffic	

			volume reporting quantity 10.3.7.74	
Measurement validity	OP		Measurement validity 10.3.7.51	
Measurement Reporting Mode	MP		Measurement Reporting Mode 10.3.7.49	
CHOICE reporting criteria	MP			
>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	

10.3.7.74 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
RLC buffer payload for each RB	MP		Boolean	
Average RLC buffer payload for each RB	MP		Boolean	
Variance of RLC buffer payload for each RB	MP		Boolean	

10.3.7.75 UE internal event identity

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal event identity	MP		Enumerated(6a,6b,6c,6d,6e, 6f, 6g)	

10.3.7.76 UE internal measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>UE Transmitted Power	OP		UE I _t ransmitted P _p ower info 10.3.7.85	
>>UE Rx-Tx report entries	OP	1 to <maxRL >		
>>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60	Primary CPICH info for each cell included in the active set
>>>UE Rx-Tx time difference type 1	MP		UE Rx-Tx time difference type 1 10.3.7.83	UE Rx-Tx time difference in chip for each RL included in the active set
>TDD				
>>UE I _t ransmitted Power list	OP	1 to <maxTS >		UE I _t ransmitted P _p ower for each used uplink timeslot in ascending timeslot number order
>>>UE I _t ransmitted P _p ower	MP		UE I _t ransmitted P _p ower info 10.3.7.85	
>>Applied TA	OP		Uplink Timing Advance 10.3.6.95	

10.3.7.77 UE internal measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
CHOICE report criteria	MP			
>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement

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

10.3.7.78 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 10.3.7.75	
CHOICE mode	MP			
>FDD				
>Primary CPICH info	CV - clause 1		Primary CPICH info 10.3.6.60	
>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

10.3.7.79 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE mode	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(UE Transmitted Power, UTRA Carrier RSSI, UE Rx-Tx time difference)	
>TDD				
>>Measurement quantity	MP		Enumerated(UE Transmitted Power, UTRA Carrier RSSI)	
Filter coefficient	MP		Filter coefficient 10.3.7.9	

10.3.7.80 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c.... In TDD, the events 6a - 6d are measured and reported on timeslot basis.

Event 6a: The UE Transmitted Power becomes larger than an absolute threshold

Event 6b: The UE Transmitted Power becomes less than an absolute threshold

Event 6c: The UE Transmitted Power reaches its minimum value

Event 6d: The UE Transmitted Power reaches its maximum value

Event 6e: The UE RSSI reaches the UEs dynamic receiver range

Event 6f: The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold

Event 6g: The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Parameters sent for each UE internal measurement event	OP	1 to <maxMeas Event>		
> UE internal event identity	MP		UE internal event identity 10.3.7.75	
>Time-to-trigger	MP		Integer(0, 10, 20, 40, 60, 80, 100, 120, 160, 200, 240, 320, 640, 1280, 2560, 5000)	Time in ms. Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
>UE Transmitted P _{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(768..1280)	Time difference in chip. In event 6f, 6g.

Condition	Explanation
Clause 1	The IE is mandatory if "UE internal event identity" is set to "6a" or "6b", otherwise the IE is not needed
Clause 2	The IE is mandatory if "UE internal event identity" is set to "6f" or "6g", otherwise the IE is not needed

10.3.7.81 UE internal measurement system information

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE internal measurement identity	MD		Measurement identity 10.3.7.48	The UE internal measurement identity has default value 5.
UE internal measurement quantity	MP		UE internal measurement quantity 10.3.7.79	

10.3.7.82 UE Internal reporting quantity

For all boolean types TRUE means inclusion in the report is requested.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Transmitted Power	MP		Boolean	
CHOICE mode	MP			
>FDD				
>>UE Rx-Tx time difference	MP		Boolean	
>TDD				
>>Applied TA	MP		Boolean	

10.3.7.83 UE Rx-Tx time difference type 1

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 1	MP		Integer(768..1280)	In chips.

10.3.7.84 UE Rx-Tx time difference type 2

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 2	MP		Real(768.0..1279.9375 by step of 0.0625)	Resolution of 1/16 of a chip.

10.3.7.85 UE Transmitted Power info

Information Element/Group name	Need	Multi	IE type and reference	Semantics description
UE Transmitted Power	MP		Integer (50...33)(0..104)	In dBm According to UE_TX_POWER in [19 and 20]

10.3.7.86 UP Cipher GPS Data Indicator

The UP Cipher GPS Data Indicator IE contains information for the ciphering of SIB types 15.1, 15.2 and 15.3.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Ciphering parameters	OP			
>Ciphering Key Flag	MP		Bitstring(1)	See note 1
>Ciphering Serial Number	MP		Integer(0..65535)	The serial number used in the DES ciphering algorithm

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

10.3.7.87 UP 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

10.3.7.88 UP GPS acquisition assistance

The Acquisition Assistance field of the GPS Assistance Data Information Element contains parameters that enable fast acquisition of the GPS signals in network-based GPS positioning. Essentially, these parameters describe the range and derivatives from respective satellites to the Reference Location at the Reference Time.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Reference Time				
>UTRAN reference time				GPS Time of Week counted in microseconds, given as GPS TOW in milliseconds and GPS TOW remainder in microseconds, UTRAN reference time = 1000 * GPS TOW msec + GPS TOW rem usec
>>GPS TOW msec	MP		Integer(0..6.048*10 ⁸ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit)
>>GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
>>SFN	MP		Integer(0..4095)	
>GPS reference time only				
>>GPS TOW	MP		Integer(0..6.048*10 ⁸ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Identifies the satellites
>Doppler (0 th order term)	MP		Integer(-2048..2047)	Hz, scaling factor 2.5
>Extra Doppler	OP			
>>Doppler (1 st order term)	MP		Integer(-42..21)	Scaling factor 1/42
>>Doppler Uncertainty	MP		Real(12.5,25,50,100,200)	Hz
>Code Phase	MP		Integer(0..1022)	Chips, specifies the centre of the search window
>Integer Code Phase	MP		Integer(0..1023)	1023 chip segments
>GPS Bit number	MP		Integer(0..3)	Specifies GPS bit number (20 1023 chip segments)
>Code Phase Search Window	MP		Integer(1023,1,2,3,4,6,8,12,16,24,32,48,64,96,128,192)	Specifies the width of the search window.
>Azimuth and Elevation	OP			
>>Azimuth	MP		Integer(0..315)	Degrees, scale factor 11.25
>>Elevation	MP		Integer(0..7)	Degrees, scale factor 11.25

CHOICE Reference time	Condition under which the given reference time is chosen
UTRAN reference time	The reference time is relating GPS time to UTRAN time (SFN)
GPS reference time only	The time gives the time for which the location estimate is valid

10.3.7.89 UP GPS almanac

These fields specify the coarse, long-term model of the satellite positions and clocks. With one exception (δi), these parameters are a subset of the ephemeris and clock correction parameters in the Navigation Model, although with reduced resolution and accuracy. The almanac model is useful for receiver tasks that require coarse accuracy, such as determining satellite visibility. The model is valid for up to one year, typically. Since it is a long-term model, the field should be provided for all satellites in the GPS constellation.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
WN _a	MP		Bit string(8)	
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>e	MP		Bit string(16)	
>t _{oa}	MP		Bit string(8)	
>δi	MP		Bit string(16)	
>OMEGADOT	MP		Bit string(16)	
>SV Health	MP		Bit string(8)	
>A ^{1/2}	MP		Bit string(24)	
>OMEGA ₀	MP		Bit string(24)	
>M ₀	MP		Bit string(24)	
>ω	MP		Bit string(24)	
>af ₀	MP		Bit string(11)	
>af ₁	MP		Bit string(11)	

10.3.7.90 UP GPS assistance data

The GPS Assistance Data element contains a single GPS assistance message that supports both UE-assisted and UE-based GPS methods.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UP GPS reference time	OP		UP GPS reference time 10.3.7.96	
UP 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.
UP GPS DGPS corrections	OP		UP GPS DGPS corrections 10.3.7.91	
UP GPS navigation model	OP		UP GPS navigation model 10.3.7.94	
UP GPS ionospheric model	OP		UP GPS ionospheric model 10.3.7.92	
UP GPS UTC model	OP		UP GPS UTC model 10.3.7.97	
UP GPS almanac	OP		UP GPS almanac 10.3.7.89	
UP GPS acquisition assistance	OP		UP GPS acquisition assistance 10.3.7.88	
UP GPS real-time integrity	OP		UP GPS real-time integrity 10.3.7.95	

10.3.7.91 UP 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..60 4799)	Seconds. This field indicates the baseline time for which the corrections are valid.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>IODE	MP		Bit string(8)	This IE is the sequence number for the ephemeris for the particular satellite. The UE can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations. See [13] for details
>UDRE	MP		Enumerated(UDRE \leq 1.0 m, 1.0m < UDRE \leq 4.0m, 4.0m < UDRE \leq 8.0m, 8.0m < UDRE)	User Differential Range Error. This field provides an estimate of the uncertainty (1- σ) in the corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the common Corrections Status/Health field to determine the final UDRE estimate for the particular satellite. See [13] for details
>PRC	MP		Integer(-2047..2047)	Scaling factor 0.32 meters See (different from [13])
>RRC	MP		Integer(-127..127)	Scaling factor 0.032 meters/sec (different from [13])
>Delta PRC2	MP		Integer(-127..127)	Meters. The difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE -2.
>Delta RRC2	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. The difference in the rate of the change of the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE -2.
>Delta PRC3	MP		Integer(-127..127)	Meters. The difference in the pseudorange correction between the satellite's ephemeris identified by IODE

				and the previous ephemeris three issues ago IODE -3.
>Delta RRC3	MP		Integer(-7..7)	Scaling factor 0.032 meters/sec. The difference in the rate of the change of the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris three issues ago IODE -3.

10.3.7.92 UP 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)	

10.3.7.93 UP GPS measurement

The purpose of the GPS Measurement Information element is to provide GPS measurement information from the UE to the SRNC. This information includes the measurements of code phase and Doppler, which enables the network-based GPS method where the position is computed in the SRNC.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	OP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	MP		Integer(0..6.048*10 ⁹ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time is the GPS TOW measured by the UE. If the Reference SFN field is present it is the ms flank closest to the beginning of that frame. GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	CV-capability and request		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
Measurement Parameters	MP	1 to <maxSat>		
>Satellite ID	MP		Enumerated(0..63)	
>C/N ₀	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2 ¹⁰ -1))	Scale factor 2 ⁻¹⁰
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Condition	Explanation
<i>Capability and request</i>	This field is included only if the UE has this capability <i>and</i> if it was requested in the UP reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	$P < 0.5$
1	001	000	0.5625	$0.5 \leq P < 0.5625$
I	X	Y	$0.5 * (1 + x/8) * 2^y$	$x_{i-1} \leq P < x_i$
62	110	111	112	$104 \leq P < 112$
63	111	111	--	$112 \leq P$

10.3.7.94 UP GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE. This information includes control bit fields as well as satellite ephemeris and clock corrections.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
N_SAT	MP		Integer(1..16)	The number of satellites included in this IE
Satellite information	MP	1 to <maxSat >		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN, ES_SN, ES_NN, REVD)	See note 1
>C/A or P on L2	MP		Bit string(2)	Standard formats as defined in [12]
>URA Index	MP		Bit string(4)	
>SV Health	MP		Bit string(6)	
>IODC	MP		Bit string(10 ⁽¹⁾)	
>L2 P Data Flag	MP		Bit string(1)	
>SF 1 Reserved	MP		Bit string(87)	
>T _{GD}	MP		Bit string(8)	
>t _{oc}	MP		Bit string(16 ⁽¹⁾)	
>af ₂	MP		Bit string(8)	
>af ₁	MP		Bit string(16)	
>af ₀	MP		Bit string(22)	
>C _{rs}	MP		Bit string(16)	
>Δn	MP		Bit string(16)	
>M ₀	MP		Bit string(32)	
>C _{uc}	MP		Bit string(16)	
>e	MP		Bit string(32 ⁽¹⁾)	
>C _{us}	MP		Bit string(16)	
>(A) ^{1/2}	MP		Bit string(32 ⁽¹⁾)	
>t _{oe}	MP		Bit string(16 ⁽¹⁾)	
>Fit Interval Flag	MP		Bit string(1)	
>AODO	MP		Bit string(5)	
>C _{ic}	MP		Bit string(16)	
>OMEGA ₀	MP		Bit string(32)	
>C _{is}	MP		Bit string(16)	
>i ₀	MP		Bit string(32)	
>C _{rc}	MP		Bit string(16)	
>ω	MP		Bit string(32)	
>OMEGA _{dot}	MP		Bit string(24)	
>Idot	MP		Bit string(14)	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Symbol	Interpretation
NS_NN	New satellite, new Navigation Model
ES_SN	Existing satellite, same Navigation Model
ES_NN	Existing satellite, new Navigation Model
REVD	Reserved

Condition	Explanation
<i>status</i>	Group Included unless status is ES_SN

10.3.7.95 UP 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 via a list of bad satellites. The satellites identified in this IE should not be used for position fixes at the moment.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	OP	1 to <maxSat >		N_BAD_SAT=the number of bad satellites included in this IE
>BadSatID	MP		Enumerated(0..63)	Satellite ID

10.3.7.96 UP GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW msec	MP		Integer(0..6.048*10 ⁸ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	MP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
SFN	MP		Integer(0..4095)	The SFN which the GPS TOW time stamps
GPS TOW Assist	OP	1 to <maxSat >		Fields to help the UE with time-recovery (needed to predict satellite signal)
>SatID	MP		Enumerated(0..63)	Identifies the satellite for which the corrections are applicable
>TLM Message	MP		Bit string(14)	A 14-bit value representing the Telemetry Message (TLM) being broadcast by the GPS satellite identified by the particular SatID, with the MSB occurring first in the satellite transmission.
>Anti-Spoof	MP		Boolean	The Anti-Spoof and Alert flags that are being broadcast by the GPS satellite identified by SatID.
>Alert	MP		Boolean	
>TLM Reserved	MP		Bit string(2)	Two reserved bits in the TLM Word being broadcast by the GPS satellite identified by SatID, with the MSB occurring first in the satellite transmission.

10.3.7.97 UP GPS UTC model

The UTC Model field contains a set of parameters needed to relate GPS time to Universal Time Coordinate (UTC).

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
A ₁	MP		Bit string(24)	
A ₀	MP		Bit string(32)	
t _{ot}	MP		Bit string(8)	
Δt _{LS}	MP		Bit string(8)	
WN _t	MP		Bit string(8)	
WN _{LSF}	MP		Bit string(8)	
DN	MP		Bit string(8)	
Δt _{LSF}	MP		Bit string(8)	

10.3.7.98 UP IPDL parameters

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Integer(5,7,10,15,20,30,40,50)	The IPs are repeated every IP spacing frame.
IP length	MP		Integer(5,10)	The length in symbols of the idle periods
IP offset	MP		Integer(0..9)	Relates the BFN and SFN, should be same as T _{cell} defined in 25.402
Seed	MP		Integer(0..63)	Seed used to start the random number generator
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	The frame number where the 1 st 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 xth 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}

10.3.7.99 UP measured results

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UP Multiple Sets	OP		UP Multiple Sets 10.3.7.102	
UP reference cell Identity	OP		Primary CPICH Info 10.3.6.60	
UP OTDOA measurement	OP		UP OTDOA measurement 10.3.7.105	
UP Position	OP		UP Position 10.3.7.109	
UP GPS measurement	OP		UP GPS measurement 10.3.7.93	
UP error	OP		UP error 10.3.7.87	Included if UP error occurred

10.3.7.100 UP measurement

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UP reporting quantity	MP		UP reporting quantity 10.3.7.111	
CHOICE reporting criteria	MP			
>UP reporting criteria			UP reporting criteria 10.3.7.110	
>Periodical reporting criteria			Periodical reporting criteria 10.3.7.53	
>No reporting				(no data) Chosen when this measurement only is used as additional measurement to another measurement
UP OTDOA assistance data	OP		UP OTDOA assistance data 10.3.7.103	
UP GPS assistance data	OP		UP GPS assistance data 10.3.7.90	

10.3.7.101 UP measurement event results

This IE contains the measurement event results that are reported to UTRAN for UP measurements.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Event ID	MP			
>7a				
>>UP Position	MP		UP Position 10.3.7.109	
>7b				
>> UP OTDOA measurement	MP		UP OTDOA measureme nt 10.3.7.105	
>7c				
>> UP GPS measurement	MP		UP GPS measureme nt 10.3.7.93	

10.3.7.102 UP 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.)	<p>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'.</p> <p>If this field is not included, the relation between reference cell and Number of OTDOA-IPDL/GPS Measurement Information Sets is as follows:</p> <p>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.</p> <p>If there are two sets and two reference cells -> First reference cell relates to first set, and second reference cell relates to second set.</p> <p>If there is only one reference cell and 1-3 sets -> this reference cell relates to all sets.</p>

10.3.7.103 UP OTDOA assistance data

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UP OTDOA reference cell for assistance data	OP		UP OTDOA reference cell for assistance data 10.3.7.108	
UP OTDOA measurement assistance data	OP	1 to <maxCellMeasurements>	UP OTDOA measurement assistance data 10.3.7.106	
UP IPDL parameters	OP		UP IPDL parameters 10.3.7.98	If this element is not included there are no idle periods present

10.3.7.104 UP 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(10, 20, 30, 40, 50, 60, 70, infinity)	Specifies the maximum size of the search window in chips. Infinity means more
Reference Cell Position	MP		Ellipsoid point or Ellipsoid point with altitude as defined in 23.032	The position of the antenna which defines the serving cell. Used for the UE based method.
UP IPDL parameters	OP		UP IPDL parameters 10.3.7.98	If this element is not included there are no idle periods present
Cells to measure on	MP	1 to <maxCellMeas>		
>SFN-SFN drift	OP		Real(0,+0.33,+0.66,+1,+1.33,+1.66,+2,+2.5,+3,+4,+5,+7,+9,+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 10.3.6.60	
>Frequency info	OP		Frequency info 10.3.6.36	Default the same. Included if different
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference 10.3.7.63	Gives the relative timing compared to the reference cell. UE shall use CHOICE "type 1" in IE "SFN-SFN observed time difference".
>Fine SFN-SFN	MP		Real(0,0.25,0.5,0.75)	Gives finer resolution for UE-Based method 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 reference cell.
>>Relative East	MP		Integer(-32767..32767)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
>>Relative Altitude	MP		Integer(-4095..4095)	Relative altitude in meters compared to reference cell.

NOTE 1: The UE always receives two (2) cipher keys during the location update procedure. One of the keys is time-stamped to be current one and the other is time-stamped to be the next one. Thus, the UE always has two cipher keys in memory. The Cipher Key Change Indicator in this broadcast message instructs the UE whether to use current or next cipher key for deciphering the received broadcast message. The UE shall interpret this IE as follows:

- **Ciphering Key Flag**(previous message) = **Ciphering Key Flag**(this message) => Deciphering Key not changed
- **Ciphering Key Flag**(previous message) <> **Ciphering Key Flag**(this message) => Deciphering Key changed

10.3.7.105 UP OTDOA measurement

The purpose of the OTDOA Measurement Information element is to provide OTDOA measurements of signals sent from the reference and neighbour cells.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
SFN	MP		Integer(0..4095)	SFN during which the last measurement was performed
UE Rx-Tx time difference type 2	MP		UE Rx-Tx time difference type 2 10.3.7.84	
UP OTDOA quality type	MP		UP OTDOA quality type 10.3.7.107	
Neighbours	MP	0..maxCell Meas		Number of neighbours included in this IE
>Neighbour Identity	OP		Primary CPICH info 10.3.6.60	If this field is left out it the identity is the same as in the first set of multiple sets.
>UP OTDOA quality type	MP		UP OTDOA quality type 10.3.7.107	Quality of the OTDOA from the neighbour cell.
>SFN-SFN observed time difference	MP		SFN-SFN observed time difference 10.3.7.63	Gives the timing relative to the reference cell. Only type 2 is allowed. Type 2 means that only the slot timing is accounted for

10.3.7.106 UP 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 10.3.6.60	
Frequency info	OP		Frequency info 10.3.6.36	Default the same. Included if different
SFN-SFN observed time difference	MP		SFN-SFN observed time difference 10.3.7.63	Gives the relative timing compared to the reference cell. UE shall use CHOICE "type 1" in IE "SFN-SFN observed time difference".
Fine SFN-SFN	OP		Real(0,0.25, 0.5,0.75)	Gives finer resolution for UE-Based
Search Window Size	MP		Integer(10, 20, 30, 40, 50, 60,70, infinity)	Specifies the maximum size of the search window in chips. Infinity means more
Relative North	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative East	OP		Integer(-20000..20000)	Seconds, scale factor 0.03. Relative position compared to ref. cell.
Relative Altitude	OP		Integer(-4000..4000)	Relative altitude in meters compared to ref. cell.

10.3.7.107 UP OTDOA quality type

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
CHOICE Quality type	MP			
>STD_10				
>>Reference Quality 10	MP		Integer(10..320 by step of 10)	Std of TOA measurements from the cell
>STD_50				
>>Reference Quality 50	MP		Integer(50..1600 by step of 50)	Std of TOA measurements from the cell
>CPICH Ec/N0				
>>CPICH Ec/N0	MP		Enumerated(<-24, -24 dB ≤ CPICH Ec/No < -23 dB,.. -1 dB ≤ CPICH Ec/No < -0 dB, >=0 dB)	CPICH Ec/N0 for the measurement
>DEFAULT_QUALITY				
>>Reference Quality	MP		Enumerated(0-19 meters, 20-39 meters, 40-79 meters, 80-159 meters, 160-319 meters, 320-639 meters, 640-1319 meters over 1320 meters)	Estimated error in meters.

CHOICE Quality type	Condition under which the given quality type is chosen
STD_10	Chosen when the quality type is standard deviation with a step-size of 10 m
STD_50	Chosen when the quality type is standard deviation with a step-size of 50 m
CPICH Ec/N0	Chosen when the quality type is CPICH Ec/N0
Default	Chosen if the quality type field is not included.

10.3.7.108 UP 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 10.3.6.60	
Frequency info	OP		Frequency info 10.3.6.36	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.

10.3.7.109 UP position

The purpose of Location Information element is to provide the location estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	MP		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	CV-Capability and request		Integer(0..6.048*10 ⁸ -1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit). This time-stamps the beginning of the frame defined in Reference SFN GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
GPS TOW rem usec	CV-Capability and request		Integer(0..999)	GPS Time of Week in microseconds MOD 1000.
Position estimate	MP		23.032, allowed types are Ellipsoid Point; Ellipsoid point with uncertainty circle; Ellipsoid point with uncertainty ellipse; Ellipsoid point with altitude; Ellipsoid point with altitude and uncertainty ellipse.	

Condition	Explanation
<i>Capability and request</i>	This field is included only if the UE has this capability <i>and</i> if it was requested in the UP reporting quantity and if the method was UE-based GPS

10.3.7.110 UP reporting criteria

The triggering of the event-triggered reporting for an UP measurement. There are three types of events. The first, 7a, is for UE-based methods and is triggered when the position has changed more than a threshold. The second one, 7b, is primarily for UE assisted methods, but can be used also for UE based. It is triggered when the SFN-SFN measurement has changed more than a certain threshold. The third one, 7c, is triggered when the GPS time and the SFN time has drifted apart more than a certain threshold.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Parameters required for each event	OP	1 to <maxMeas Event>		
>Amount of reporting	MP		Integer(1, 2, 4, 8, 16, 32, 64,infinite)	
>Report first fix	MP		Boolean	If true the UE reports the position once the measurement control is received, and then each time an event is triggered.
>Measurement interval	MP		Integer(5,15, 60,300,900,1 800,3600,72 00)	Indicates how often the UE should make the measurement In seconds
>CHOICE Event ID				
>>7a				
>>>Threshold Position Change	MP		Integer(10,2 0,30,40,50,1 00,200,300,5 00,1000,200 0,5000,1000 0,20000,500 00,100000)	Indicated how much the position should change compared to last reported position fix in order to trigger the event.
>>7b				
>>>Threshold SFN-SFN change	MP		Real(0.25,0. 5,1,2,3,4,5,1 0,20,50,100, 200,500,100 0,2000,5000)	Chips. Indicates how much the SFN-SFN measurement of ANY measured cell is allowed to change before the event is triggered.
>>7c				
>>>Threshold SFN-GPS TOW	MP		Integer(1,2,3 ,5,10,20,50,1 00)	Time in ms. When the GPS TOW and SFN timer has drifted apart more than the specified value the event is triggered)

10.3.7.111 UP reporting quantity

The purpose of the element is to express the allowed/required location method(s), and to provide information required QoS.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Method Type	MP		Enumerated(UE assisted, UE based, UE based is preferred but UE assisted is allowed, UE assisted is preferred but UE based is allowed)	
Positioning Methods	MP		Enumerated(OTDOA, GPS OTDOA or GPS)	Indicates which location method or methods should be used. The third option means that both can be reported. OTDOA includes IPDL if idle periods are present.
Response Time	MP		Integer(1,2,4, 8, 16, 32, 64, 128)	Indicates the desired response time in seconds
Accuracy	CV		Bit string(7)	Mandatory in all cases except when Method Type is UE assisted, then it is optional. 23.032
GPS timing of Cell wanted	MP		Boolean	If true the SRNC wants the UE to report the SFN-GPS timing of the reference cell. This is however optional in the UE.
Multiple Sets	MP		Boolean	This field indicates whether UE is requested to send multiple <i>OTDOA/GPS Measurement Information Sets</i> . The maximum number of measurement sets is three. This is field is mandatory. UE is expected to include the current measurement set.
Environment Characterization	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

11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=
```

```
-- *****  
--  
-- CORE NETWORK INFORMATION ELEMENTS (10.3.1)  
--  
-- *****
```

```
BEGIN
```

```
IMPORTS
```

```
    hiPDSCHidentities,  
    hiPUSCHidentities,  
    hiRM,  
    maxAC,  
    maxAdditionalMeas,  
    maxASC,  
    maxASCmap,  
    maxASCPersist,  
    maxCCTrCH,  
    maxCellMeas,  
    maxCellMeas-1,  
    maxCNdomains,  
    maxCPCHsets,  
    maxDPCH-DLchan,  
    maxDPCHcodesPerTS,  
    maxDPDCH-UL,  
    maxDRACclasses,  
    maxFACH,  
    maxFreq,  
    maxFrequencybands,  
    maxInterSysMessages,  
    maxLoCHperRLC,  
    maxMeasEvent,  
    maxMeasIntervals,  
    maxMeasParEvent,  
    maxNumCDMA2000Freqs,  
    maxNumFDDFreqs,  
    maxNumGSMFreqRanges,  
    maxNumTDDFreqs,  
    maxOtherRAT,  
    maxPage1,  
    maxPCPCH-APsig,  
    maxPCPCH-APsubCh,  
    maxPCPCH-CDSig,  
    maxPCPCH-CDSUBch,  
    maxPCPCH-SF,  
    maxPCPCHs,  
    maxPDCPAlgoType,  
    maxPDSCH,  
    maxPDSCH-TFCIgroups,  
    maxPRACH,  
    maxPUSCH,  
    maxRABsetup,  
    maxRAT,  
    maxRB,  
    maxRBallRABs,  
    maxRBMuxOptions,  
    maxRBperRAB,  
    maxReportedGSMCells,  
    maxSRBsetup,  
    maxRL,  
    maxRL-1,  
    maxSCCPCH,  
    maxSat,  
    maxSIB,  
    maxSIB-FACH,  
    maxSig,  
    maxSubCh,  
    maxSystemCapability,  
    maxTF,  
    maxTF-CPCH,  
    maxTFC,
```

```

maxTFCI-2-Combs,
maxTGPS,
maxTrCH,
maxTS,
maxTS-1,
maxURA
FROM Constant-definitions;

CN-DomainIdentity ::=
    ENUMERATED {
        cs-domain,
        ps-domain }

CN-DomainInformation ::=
    SEQUENCE {
        cn-DomainIdentity
        cn-DomainSpecificNAS-Info
    }

CN-DomainInformationList ::=
    SEQUENCE (SIZE (1..maxCNdomains)) OF
        CN-DomainInformation

CN-DomainSysInfo ::=
    SEQUENCE {
        cn-DomainIdentity
        cn-Type
            gsm-MAP
            ansi-41
        },
        cn-DRX-CycleLengthCoeff
    }

CN-DomainSysInfoList ::=
    SEQUENCE (SIZE (1..maxCNdomains)) OF
        CN-DomainSysInfo

CN-InformationInfo ::=
    SEQUENCE {
        plmn-Identity
        cn-CommonGSM-MAP-NAS-SysInfo
        cn-DomainInformationList
    }
    OPTIONAL,
    OPTIONAL,
    OPTIONAL

Digit ::=
    INTEGER (0..9)

IMEI ::=
    SEQUENCE (SIZE (15)) OF
        IMEI-Digit

IMEI-Digit ::=
    INTEGER (0..15)

IMSI-GSM-MAP ::=
    SEQUENCE (SIZE (6..15)) OF
        Digit

IntraDomainNasNodeSelector ::=
    BIT STRING (SIZE (16))

LAI ::=
    SEQUENCE {
        plmn-Identity
        lac
    }

MCC ::=
    SEQUENCE (SIZE (3)) OF
        Digit

MNC ::=
    SEQUENCE (SIZE (2..3)) OF
        Digit

NAS-Message ::=
    OCTET STRING (SIZE (1..4095))

NAS-Synchronisation-Indicator ::=
    BIT STRING(SIZE(4))

NAS-SystemInformationGSM-MAP ::=
    OCTET STRING (SIZE (1..8))

P-TMSI-GSM-MAP ::=
    BIT STRING (SIZE (32))

PagingRecordTypeID ::=
    ENUMERATED {
        imsi-GSM-MAP,
        tmsi-GSM-MAP-P-TMSI,
        imsi-DS-41,
        tmsi-DS-41 }

PLMN-Identity ::=
    SEQUENCE {
        mcc
        mnc
    }

```



```

        s-Intersearch          S-SearchQual          OPTIONAL,
        s-SearchHCS            S-SearchRXLEV        OPTIONAL,
        rat-List               RAT-FDD-InfoList             OPTIONAL,
        q-QualMin              Q-QualMin,
        q-RxlevMin             Q-RxlevMin
    },
    tdd                        SEQUENCE {
        s-Intrasearch          S-SearchRXLEV        OPTIONAL,
        s-Intersearch          S-SearchRXLEV        OPTIONAL,
        s-SearchHCS            S-SearchRXLEV        OPTIONAL,
        rat-List               RAT-TDD-InfoList             OPTIONAL,
        q-RxlevMin             Q-RxlevMin
    }
},
q-Hyst-l-S                   Q-Hyst-S,
t-Reselection-S              T-Reselection-S,
hcs-ServingCellInformation    HCS-ServingCellInformation    OPTIONAL,
maxAllowedUL-TX-Power        MaxAllowedUL-TX-Power
}

MapParameter ::=              INTEGER (0..99)

Mapping ::=                    SEQUENCE {
    rat                        RAT,
    mappingFunctionParameterList MappingFunctionParameterList
}

MappingFunctionParameter ::=  SEQUENCE {
    functionType               MappingFunctionType,
    mapParameter1              MapParameter                OPTIONAL,
    mapParameter2              MapParameter                OPTIONAL,
    upperLimit                 UpperLimit                OPTIONAL
    -- The parameter is conditional on the number of repetition
}

MappingFunctionParameterList ::= SEQUENCE (SIZE (1..maxMeasIntervals)) OF
    MappingFunctionParameter

MappingFunctionType ::=        ENUMERATED {
    linear,
    functionType2,
    functionType3,
    functionType4 }

MappingInfo ::=                SEQUENCE (SIZE (1..maxRAT)) OF
    Mapping

-- Actual value = IE value * 2
Q-Hyst-S ::=                   INTEGER (0..20)

RAT ::=                         ENUMERATED {
    ultra-FDD,
    ultra-TDD,
    gsm,
    cdma2000 }

RAT-FDD-Info ::=              SEQUENCE {
    rat-Identifier             RAT-Identifier,
    s-SearchRAT                S-SearchQual,
    s-HCS-RAT                  S-SearchRXLEV        OPTIONAL,
    s-Limit-SearchRAT          S-SearchQual
}

RAT-FDD-InfoList ::=          SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-FDD-Info

RAT-Identifier ::=            ENUMERATED {
    gsm, cdma2000 }

RAT-TDD-Info ::=              SEQUENCE {
    rat-Identifier             RAT-Identifier,
    s-SearchRAT                S-SearchRXLEV,
    s-HCS-RAT                  S-SearchRXLEV        OPTIONAL,
    s-Limit-SearchRAT          S-SearchRXLEV
}

RAT-TDD-InfoList ::=          SEQUENCE (SIZE (1..maxOtherRAT)) OF
    RAT-TDD-Info

```

```

ReservedIndicator ::=          ENUMERATED {
                                reserved,
                                notReserved }

-- Actual value = IE value * 2
S-SearchQual ::=              INTEGER (-16..10)

-- Actual value = (IE value * 2) + 1
S-SearchRXLEV ::=             INTEGER (-53..45)

T-Barred ::=                   ENUMERATED {
                                s10, s20, s40, s80,
                                s160, s320, s640, s1280 }

T-Reselection-S ::=           INTEGER (0..31)

-- The used range depends on the RAT used.
UpperLimit ::=                 INTEGER (1..91)

URA-Identity ::=              BIT STRING (SIZE (16))

URA-IdentityList ::=          SEQUENCE (SIZE (1..maxURA)) OF
                                URA-Identity

```



```

-- *****
--
--      MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- *****

AcquisitionSatInfo ::=          SEQUENCE {
    satID                        SatID,
    doppler0thOrder              INTEGER (-2048..2047),
    extraDopplerInfo              ExtraDopplerInfo              OPTIONAL,
    codePhase                     INTEGER (0..1022),
    integerCodePhase              INTEGER (0..19),
    gps-BitNumber                 INTEGER (0..3),
    codePhaseSearchWindow         CodePhaseSearchWindow,
    azimuthAndElevation           AzimuthAndElevation           OPTIONAL
}

AcquisitionSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                AcquisitionSatInfo

AdditionalAssistanceData ::=    OCTET STRING (SIZE (1..38))

AdditionalMeasurementID-List ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                MeasurementIdentity

AlmanacSatInfo ::=             SEQUENCE {
    satID                        SatID,
    e                            BIT STRING (SIZE (16)),
    t-oa                          BIT STRING (SIZE (8)),
    deltaI                        BIT STRING (SIZE (16)),
    omegaDot                      BIT STRING (SIZE (16)),
    satHealth                     BIT STRING (SIZE (8)),
    a-Sqrt                       BIT STRING (SIZE (24)),
    omega0                        BIT STRING (SIZE (24)),
    m0                            BIT STRING (SIZE (24)),
    omega                         BIT STRING (SIZE (24)),
    af0                           BIT STRING (SIZE (11)),
    af1                           BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=         SEQUENCE (SIZE (1..maxSat)) OF
                                AlmanacSatInfo

AverageRLC-BufferPayload ::=   ENUMERATED {
    pla0, pla4, pla8, pla16, pla32,
    pla64, pla128, pla256, pla512,
    pla1024, pla2k, pla4k, pla8k, pla16k,
    pla32k, pla64k, pla128k, pla256k,
    pla512k, pla1024k }

AzimuthAndElevation ::=        SEQUENCE {
    azimuth                       INTEGER (0..31),
    elevation                     INTEGER (0..7)
}

BadSatList ::=                 SEQUENCE (SIZE (1..maxSat)) OF
                                INTEGER (0..63)

BCCH-ARFCN ::=                 INTEGER (0..1023)

BLER-MeasurementResults ::=     SEQUENCE {
    transportChannelIdentity       TransportChannelIdentity,
    dl-TransportChannelBLER        DL-TransportChannelBLER        OPTIONAL
}

BLER-MeasurementResultsList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
                                BLER-MeasurementResults

BLER-TransChIdList ::=         SEQUENCE (SIZE (1..maxTrCH)) OF
                                TransportChannelIdentity

BSIC-VerificationRequired ::=   ENUMERATED {
    required, notRequired }

BSICReported ::=               CHOICE {
    verifiedBSIC                   INTEGER (0..maxCellMeas),

```

```

    nonVerifiedBSIC                BCCH-ARFCN
}

BurstModeParameters ::=
    burstStart                      INTEGER (0..15),
    burstLength                    INTEGER (10..25),
    burstFreq                      INTEGER (1..16)
}

CellDCH-ReportCriteria ::=
    intraFreqReportingCriteria     IntraFreqReportingCriteria,
    periodicalReportingCriteria     PeriodicalReportingCriteria
}

-- Actual value = IE value * 0.5
CellIndividualOffset ::=
    INTEGER (-20..20)

CellInfo ::=
    cellIndividualOffset            CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell   ReferenceTimeDifferenceToCell    OPTIONAL,
    modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    primaryCPICH-Info          PrimaryCPICH-Info          OPTIONAL,
                    primaryCPICH-TX-Power     PrimaryCPICH-TX-Power     OPTIONAL,
                    readSFN-Indicator         BOOLEAN,
                    tx-DiversityIndicator     BOOLEAN
                },
            tdd
                SEQUENCE {
                    primaryCCPCH-Info         PrimaryCCPCH-Info,
                    primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power     OPTIONAL,
                    timeslotInfoList         TimeslotInfoList         OPTIONAL,
                    readSFN-Indicator         BOOLEAN
                }
        }
}

CellInfoSI-RSCP ::=
    cellIndividualOffset            CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell   ReferenceTimeDifferenceToCell    OPTIONAL,
    modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    primaryCPICH-Info          PrimaryCPICH-Info          OPTIONAL,
                    primaryCPICH-TX-Power     PrimaryCPICH-TX-Power     OPTIONAL,
                    readSFN-Indicator         BOOLEAN,
                    tx-DiversityIndicator     BOOLEAN
                },
            tdd
                SEQUENCE {
                    primaryCCPCH-Info         PrimaryCCPCH-Info,
                    primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power     OPTIONAL,
                    timeslotInfoList         TimeslotInfoList         OPTIONAL,
                    readSFN-Indicator         BOOLEAN
                }
        }
    },
    cellSelectionReselectionInfo    CellSelectReselectInfoSIB-11-12-RSCP  OPTIONAL
}

CellInfoSI-ECN0 ::=
    cellIndividualOffset            CellIndividualOffset                DEFAULT 0,
    referenceTimeDifferenceToCell   ReferenceTimeDifferenceToCell    OPTIONAL,
    modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    primaryCPICH-Info          PrimaryCPICH-Info          OPTIONAL,
                    primaryCPICH-TX-Power     PrimaryCPICH-TX-Power     OPTIONAL,
                    readSFN-Indicator         BOOLEAN,
                    tx-DiversityIndicator     BOOLEAN
                },
            tdd
                SEQUENCE {
                    primaryCCPCH-Info         PrimaryCCPCH-Info,
                    primaryCCPCH-TX-Power     PrimaryCCPCH-TX-Power     OPTIONAL,
                    timeslotInfoList         TimeslotInfoList         OPTIONAL,
                    readSFN-Indicator         BOOLEAN
                }
        }
    },
    cellSelectionReselectionInfo    CellSelectReselectInfoSIB-11-12-ECN0  OPTIONAL
}

CellInfoSI-HCS-RSCP ::=
    SEQUENCE {

```

```

cellIndividualOffset          CellIndividualOffset          DEFAULT 0,
referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell OPTIONAL,
modeSpecificInfo             CHOICE {
    fdd                       SEQUENCE {
        primaryCPICH-Info     PrimaryCPICH-Info     OPTIONAL,
        primaryCPICH-TX-Power PrimaryCPICH-TX-Power OPTIONAL,
        readSFN-Indicator      BOOLEAN,
        tx-DiversityIndicator  BOOLEAN
    },
    tdd                       SEQUENCE {
        primaryCCPCH-Info     PrimaryCCPCH-Info,
        primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power OPTIONAL,
        timeslotInfoList      TimeslotInfoList      OPTIONAL,
        readSFN-Indicator      BOOLEAN
    }
},
cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-HCS-RSCP OPTIONAL
}

CellInfoSI-HCS-ECN0 ::= SEQUENCE {
    cellIndividualOffset          CellIndividualOffset          DEFAULT 0,
    referenceTimeDifferenceToCell ReferenceTimeDifferenceToCell OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            primaryCPICH-Info     PrimaryCPICH-Info     OPTIONAL,
            primaryCPICH-TX-Power PrimaryCPICH-TX-Power OPTIONAL,
            readSFN-Indicator      BOOLEAN,
            tx-DiversityIndicator  BOOLEAN
        },
        tdd                       SEQUENCE {
            primaryCCPCH-Info     PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power PrimaryCCPCH-TX-Power OPTIONAL,
            timeslotInfoList      TimeslotInfoList      OPTIONAL
        }
    },
    cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12-HCS-ECN0 OPTIONAL
}

CellMeasuredResults ::= SEQUENCE {
    cellIdentity                 CellIdentity                 OPTIONAL,
    sfm-SFN-ObsTimeDifference    SFN-SFN-ObsTimeDifference    OPTIONAL,
    cellSynchronisationInfo      CellSynchronisationInfo      OPTIONAL,
    modeSpecificInfo             CHOICE {
        fdd                       SEQUENCE {
            primaryCPICH-Info     PrimaryCPICH-Info,
            cpich-Ec-N0           CPICH-Ec-N0             OPTIONAL,
            cpich-RSCP            CPICH-RSCP              OPTIONAL,
            pathloss              Pathloss                 OPTIONAL
        },
        tdd                       SEQUENCE {
            cellParametersID      CellParametersID,
            proposedTGSN          TGSN                    OPTIONAL,
            primaryCCPCH-RSCP     PrimaryCCPCH-RSCP        OPTIONAL,
            timeslotISCP-List     TimeslotISCP-List       OPTIONAL
        }
    }
}

CellMeasurementEventResults ::= CHOICE {
    fdd                       SEQUENCE (SIZE (1..maxCellMeas)) OF
        PrimaryCPICH-Info,
    tdd                       SEQUENCE (SIZE (1..maxCellMeas)) OF
        PrimaryCCPCH-Info
}

CellPosition ::= SEQUENCE {
    relativeNorth              INTEGER (-32767..32767),
    relativeEast               INTEGER (-32767..32767),
    relativeAltitude           INTEGER (-4095..4095)
}

CellReportingQuantities ::= SEQUENCE {
    sfm-SFN-OTD-Type          SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator    BOOLEAN,
    cellSynchronisationInfoReportingIndicator    BOOLEAN,
    modeSpecificInfo          CHOICE {
        fdd                       SEQUENCE {
            cpich-Ec-N0-reportingIndicator    BOOLEAN,

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        cpich-RSCP-reportingIndicator          BOOLEAN,
        pathloss-reportingIndicator          BOOLEAN
    },
    tdd                                       SEQUENCE {
        timeslotISCP-reportingIndicator      BOOLEAN,
        proposedTGSN-ReportingRequired      BOOLEAN,
        primaryCCPCH-RSCP-reportingIndicator BOOLEAN,
        pathloss-reportingIndicator          BOOLEAN
    }
}

CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-Offset1S-N          Q-OffsetS-N          DEFAULT 0,
    q-Offset2S-N          Q-OffsetS-N          OPTIONAL,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP      HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd               SEQUENCE {
            q-QualMin     Q-QualMin          OPTIONAL,
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        tdd               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        gsm               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-RSCP ::= SEQUENCE {
    q-OffsetS-N          Q-OffsetS-N          DEFAULT 0,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd               SEQUENCE {
            q-QualMin     Q-QualMin          OPTIONAL,
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        tdd               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        gsm               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-ECN0 ::= SEQUENCE {
    q-Offset1S-N          Q-OffsetS-N          DEFAULT 0,
    q-Offset2S-N          Q-OffsetS-N          DEFAULT 0,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd               SEQUENCE {
            q-QualMin     Q-QualMin          OPTIONAL,
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        tdd               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        gsm               SEQUENCE {
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-HCS-RSCP ::= SEQUENCE {
    q-OffsetS-N          Q-OffsetS-N          DEFAULT 0,
    maxAllowedUL-TX-Power MaxAllowedUL-TX-Power OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP      HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo     CHOICE {
        fdd               SEQUENCE {
            q-QualMin     Q-QualMin          OPTIONAL,
            q-RxlevMin    Q-RxlevMin        OPTIONAL
        },
        tdd               SEQUENCE {

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        q-RxlevMin                Q-RxlevMin                OPTIONAL
    },
    gsm                            SEQUENCE {
        q-RxlevMin                Q-RxlevMin                OPTIONAL
    }
}

CellSelectReselectInfoSIB-11-12-HCS-ECNO ::= SEQUENCE {
    q-Offset1S-N                  Q-OffsetS-N                DEFAULT 0,
    q-Offset2S-N                  Q-OffsetS-N                DEFAULT 0,
    maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power     OPTIONAL,
    hcs-NeighbouringCellInformation-ECNO HCS-NeighbouringCellInformation-ECNO
    OPTIONAL,
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            q-QualMin              Q-QualMin                  OPTIONAL,
            q-RxlevMin            Q-RxlevMin                  OPTIONAL
        },
        tdd                        SEQUENCE {
            q-RxlevMin            Q-RxlevMin                  OPTIONAL
        },
        gsm                        SEQUENCE {
            q-RxlevMin            Q-RxlevMin                  OPTIONAL
        }
    }
}

CellsForInterFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterFreqCellID
CellsForInterRATMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    InterRATCellID
CellsForIntraFreqMeasList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    IntraFreqCellID

CellSynchronisationInfo ::= SEQUENCE {
    modeSpecificInfo              CHOICE {
        fdd                        SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference OPTIONAL,
            tm                      INTEGER(0..38399)
        },
        tdd                        SEQUENCE {
            countC-SFN-Frame-difference CountC-SFN-Frame-difference
        }
    }
}

CellToMeasure ::= SEQUENCE {
    sfn-sfn-Drift                 INTEGER (0..30)              OPTIONAL,
    primaryCPICH-Info             PrimaryCPICH-Info,
    frequencyInfo                 FrequencyInfo                 OPTIONAL,
    sfn-SFN-ObservedTimeDifference SFN-SFN-ObsTimeDifference1,
    fineSFN-SFN                   FineSFN-SFN,
    cellPosition                  CellPosition                 OPTIONAL
}

CellToMeasureInfoList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToMeasure

CellToReport ::= SEQUENCE {
    bsicReported                  BSICReported
}

CellToReportList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellToReport

CodePhaseSearchWindow ::= ENUMERATED {
    w1023, w1, w2, w3, w4, w6, w8,
    w12, w16, w24, w32, w48, w64,
    w96, w128, w192 }

CountC-SFN-Frame-difference ::= SEQUENCE {
    countC-SFN-High              INTEGER(0..15),              -- Actual value = IE value * 256
    off                           INTEGER(0..255)
}

CPICH-Ec-NO ::= INTEGER (-20..0..50)

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-- IE value 0 = <-24 dB, 1 = between -24 and -23 and so on
CPICH-Ec-N0-OTDOA ::= INTEGER (0..26)
| CPICH-RSCP ::= INTEGER (-115..400..91)

DeltaPRC ::= INTEGER (-127..127)
DeltaRRC ::= INTEGER (-7..7)

DGPS-CorrectionSatInfo ::= SEQUENCE {
    satID          SatID,
    iode           BIT STRING (SIZE (8)),
    udre           UDRE,
    prc            PRC,
    rrc            RRC,
    deltaPRC2     DeltaPRC,
    deltaRRC2     DeltaRRC,
    deltaPRC3     DeltaPRC,
    deltaRRC3     DeltaRRC
}

DGPS-CorrectionSatInfoList ::= SEQUENCE (SIZE (1..maxSat)) OF
    DGPS-CorrectionSatInfo

DGPS-Information ::= SEQUENCE {
    satID          SatID,
    iode           IODE,
    udre           UDRE,
    prc            PRC,
    rrc            RRC,
    deltaPRC2     DeltaPRC,
    deltaRRC2     DeltaRRC
}

DGPS-InformationList ::= SEQUENCE (SIZE (1..maxSat)) OF
    DGPS-Information

DiffCorrectionStatus ::= ENUMERATED {
    udre-1-0, udre-0-75, udre-0-5, udre-0-3,
    udre-0-2, udre-0-1, noData, invalidData }

-- Actual value = IE value * 0.02
DL-PhysicalChannelBER ::= INTEGER (0..255)
DL-TransportChannelBLER ::= INTEGER (0..63)
DopplerUncertainty ::= ENUMERATED {
    hz12-5, hz25, hz50, hz100, hz200 }

EllipsoidPoint ::= OCTET STRING (SIZE (7))
EllipsoidPointAltitude ::= OCTET STRING (SIZE (9))
EllipsoidPointAltitudeEllipse ::= OCTET STRING (SIZE (14))
EllipsoidPointUncertCircle ::= OCTET STRING (SIZE (8))
EllipsoidPointUncertEllipse ::= OCTET STRING (SIZE (11))
EnvironmentCharacterisation ::= ENUMERATED {
    possibleHeavyMultipathNLOS,
    lightMultipathLOS,
    notDefined }

Event1a ::= SEQUENCE {
    triggeringCondition TriggeringCondition2,
    reportingRange      ReportingRange,
    forbiddenAffectCellList ForbiddenAffectCellList    OPTIONAL,
    w                   W,
    reportDeactivationThreshold ReportDeactivationThreshold,
    reportingAmount     ReportingAmount,
    reportingInterval   ReportingInterval
}

Event1b ::= SEQUENCE {
    triggeringCondition TriggeringCondition1,
    reportingRange      ReportingRange,

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    forbiddenAffectCellList      ForbiddenAffectCellList      OPTIONAL,
    w                             W
}

Event1c ::=                      SEQUENCE {
    replacementActivationThreshold ReplacementActivationThreshold,
    reportingAmount              ReportingAmount,
    reportingInterval            ReportingInterval
}

Event1e ::=                      SEQUENCE {
    triggeringCondition           TriggeringCondition2,
    thresholdUsedFrequency       ThresholdUsedFrequency
}

Event1f ::=                      SEQUENCE {
    triggeringCondition           TriggeringCondition1,
    thresholdUsedFrequency       ThresholdUsedFrequency
}

Event2a ::=                      SEQUENCE {
    usedFreqThreshold            Threshold,
    usedFreqW                    W,
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList     NonUsedFreqParameterList    OPTIONAL
}

Event2b ::=                      SEQUENCE {
    usedFreqThreshold            Threshold,
    usedFreqW                    W,
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList     NonUsedFreqParameterList    OPTIONAL
}

Event2c ::=                      SEQUENCE {
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList     NonUsedFreqParameterList    OPTIONAL
}

Event2d ::=                      SEQUENCE {
    usedFreqThreshold            Threshold,
    usedFreqW                    W,
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL
}

Event2e ::=                      SEQUENCE {
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL,
    nonUsedFreqParameterList     NonUsedFreqParameterList    OPTIONAL
}

Event2f ::=                      SEQUENCE {
    usedFreqThreshold            Threshold,
    usedFreqW                    W,
    hysteresis                   HysteresisInterFreq,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL
}

Event3a ::=                      SEQUENCE {
    thresholdOwnSystem           Threshold,
    w                             W,
    thresholdOtherSystem         Threshold,
    hysteresis                   Hysteresis,
    timeToTrigger                TimeToTrigger,
    reportingCellStatus          ReportingCellStatus          OPTIONAL
}

Event3b ::=                      SEQUENCE {

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    thresholdOtherSystem      Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus                OPTIONAL
}

Event3c ::=
    thresholdOtherSystem      Threshold,
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus                OPTIONAL
}

Event3d ::=
    hysteresis                 Hysteresis,
    timeToTrigger              TimeToTrigger,
    reportingCellStatus        ReportingCellStatus                OPTIONAL
}

EventIDInterFreq ::=
    ENUMERATED {
        e2a, e2b, e2c, e2d, e2e, e2f }

EventIDInterRAT ::=
    ENUMERATED {
        e3a, e3b, e3c, e3d }

EventIDIntraFreq ::=
    ENUMERATED {
        e1a, e1b, e1c, e1d, e1e,
        e1f, e1g, e1h, e1i }

EventResults ::=
    intraFreqEventResults      IntraFreqEventResults,
    interFreqEventResults      InterFreqEventResults,
    interRATEventResults       InterRATEventResults,
    trafficVolumeEventResults  TrafficVolumeEventResults,
    qualityEventResults         QualityEventResults,
    ue-InternalEventResults     UE-InternalEventResults,
    up-MeasurementEventResults  UP-MeasurementEventResults
}

ExtraDopplerInfo ::=
    doppler1stOrder            INTEGER (-42..21),
    dopplerUncertainty         DopplerUncertainty
}

FACH-MeasurementOccasionInfo ::=
    fACH-meas-occasion-coeff    INTEGER (1..12)                OPTIONAL,
    inter-freq-FDD-meas-ind     BOOLEAN,
    inter-freq-TDD-meas-ind     BOOLEAN,
    inter-RAT-meas-ind          SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                RAT-Type                OPTIONAL
}

FilterCoefficient ::=
    ENUMERATED {
        fc0, fc1, fc2, fc3, fc4, fc5,
        fc6, fc7, fc8, fc9, fc11, fc13,
        fc15, fc17, fc19, spare1 }

FineSFN-SFN ::=
    ENUMERATED {
        fs0, fs0-25, fs0-5, fs0-75 }

ForbiddenAffectCell ::=
    fdd                         PrimaryCPICH-Info,
    tdd                         PrimaryCCPCH-Info
}

ForbiddenAffectCellList ::=
    SEQUENCE (SIZE (1..maxCellMeas)) OF
        ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::= ENUMERATED {
    cpich-Ec-N0,
    cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::= ENUMERATED {
    primaryCCPCH-RSCP }

GPS-MeasurementParam ::=
    satelliteID                 INTEGER (0..63),

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c-NO                INTEGER (0..63),
doppler             INTEGER (-32768..32768),
wholeGPS-Chips      INTEGER (0..1023),
fractionalGPS-Chips INTEGER (0..1023),
multipathIndicator  MultipathIndicator,
pseudorangeRMS-Error INTEGER (0..63)
}

GPS-MeasurementParamList ::= SEQUENCE (SIZE (1..maxSat)) OF
                             GPS-MeasurementParam

GSM-CarrierRSSI ::= BIT STRING (SIZE (6))

GSM-MeasuredResults ::= SEQUENCE {
    gsm-CarrierRSSI          GSM-CarrierRSSI          OPTIONAL,
    pathloss                Pathloss                OPTIONAL,
    bsicReported            BSICReported,
    observedTimeDifferenceToGSM ObservedTimeDifferenceToGSM OPTIONAL
}

GSM-MeasuredResultsList ::= SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
                             GSM-MeasuredResults

-- **TODO**, not defined yet
GSM-OutputPower ::= SEQUENCE {
}

GPS-TOW-1msec ::= INTEGER (0..604799999)

GPS-TOW-lusec ::= SEQUENCE {
    tow-1msec          GPS-TOW-1msec,
    tow-rem-usec      GPS-TOW-rem-usec
}

GPS-TOW-Assist ::= SEQUENCE {
    satID              SatID,
    tlm-Message        BIT STRING (SIZE (14)),
    antiSpoof          BOOLEAN,
    alert              BOOLEAN,
    tlm-Reserved       BIT STRING (SIZE (2))
}

GPS-TOW-AssistList ::= SEQUENCE (SIZE (1..maxSat)) OF
                       GPS-TOW-Assist

GPS-TOW-rem-usec ::= INTEGER (0..999)

HCS-CellReselectInformation-RSCP ::= SEQUENCE {
    penaltyTime          PenaltyTime-RSCP
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-CellReselectInformation-ECNO ::= SEQUENCE {
    penaltyTime          PenaltyTime-ECNO
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO            HCS-PRIO                DEFAULT 0,
    q-HCS               Q-HCS                 DEFAULT 0,
    hcs-CellReselectInformation HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECNO ::= SEQUENCE {
    hcs-PRIO            HCS-PRIO                DEFAULT 0,
    q-HCS               Q-HCS                 DEFAULT 0,
    hcs-CellReselectInformation HCS-CellReselectInformation-ECNO
}

HCS-PRIO ::= INTEGER (0..7)

HCS-ServingCellInformation ::= SEQUENCE {
    hcs-PRIO            HCS-PRIO                DEFAULT 0,
    q-HCS               Q-HCS                 DEFAULT 0,
    t-CR-Max           T-CR-Max                OPTIONAL
}

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-- Actual value = IE value * 0.5
Hysteresis ::= INTEGER (0..15)

-- Actual value = IE value * 0.5
HysteresisInterFreq ::= INTEGER (0..29)

InterFreqCell ::= SEQUENCE {
    frequencyInfo          FrequencyInfo,
    nonFreqRelatedEventResults CellMeasurementEventResults
}

InterFreqCellID ::= INTEGER (0..maxCellMeas-1)

InterFreqCellInfoList ::= SEQUENCE {
    removedInterFreqCellList    RemovedInterFreqCellList    OPTIONAL,
    newInterFreqCellList        NewInterFreqCellList        OPTIONAL,
    cellsForInterFreqMeasList    CellsForInterFreqMeasList    OPTIONAL
}

InterFreqCellInfoSI-List-RSCP ::= SEQUENCE {
    removedInterFreqCellList    RemovedInterFreqCellList    OPTIONAL,
    newInterFreqCellList        NewInterFreqCellSI-List-RSCP    OPTIONAL
}

InterFreqCellInfoSI-List-ECNO ::= SEQUENCE {
    removedInterFreqCellList    RemovedInterFreqCellList    OPTIONAL,
    newInterFreqCellList        NewInterFreqCellSI-List-ECNO    OPTIONAL
}

InterFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedInterFreqCellList    RemovedInterFreqCellList    OPTIONAL,
    newInterFreqCellList        NewInterFreqCellSI-List-HCS-RSCP    OPTIONAL
}

InterFreqCellInfoSI-List-HCS-ECNO ::= SEQUENCE {
    removedInterFreqCellList    RemovedInterFreqCellList    OPTIONAL,
    newInterFreqCellList        NewInterFreqCellSI-List-HCS-ECNO    OPTIONAL
}

InterFreqCellList ::= SEQUENCE (SIZE (1..maxFreq)) OF
    InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
    CellMeasuredResults

InterFreqEvent ::= CHOICE {
    event2a      Event2a,
    event2b      Event2b,
    event2c      Event2c,
    event2d      Event2d,
    event2e      Event2e,
    event2f      Event2f
}

InterFreqEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
    InterFreqEvent

InterFreqEventResults ::= SEQUENCE {
    eventID      EventIDInterFreq,
    interFreqCellList    InterFreqCellList    OPTIONAL
}

InterFreqMeasQuantity ::= SEQUENCE {
    reportingCriteria      CHOICE {
        intraFreqReportingCriteria      SEQUENCE {
            intraFreqMeasQuantity      IntraFreqMeasQuantity
        },
        interFreqReportingCriteria      SEQUENCE {
            filterCoefficient      FilterCoefficient      DEFAULT fc0,
            modeSpecificInfo      CHOICE {
                fdd      SEQUENCE {
                    freqQualityEstimateQuantity-FDD      FreqQualityEstimateQuantity-FDD
                },
                tdd      SEQUENCE {
                    freqQualityEstimateQuantity-TDD      FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

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    }
}

InterFreqMeasuredResults ::= SEQUENCE {
    frequencyInfo          FrequencyInfo          OPTIONAL,
    ultra-CarrierRSSI      UTRA-CarrierRSSI      OPTIONAL,
    interFreqCellMeasuredResultsList InterFreqCellMeasuredResultsList OPTIONAL
}

InterFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxFreq)) OF
    InterFreqMeasuredResults

InterFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-RSCP OPTIONAL
}

InterFreqMeasurementSysInfo-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-ECNO OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-RSCP OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECNO ::= SEQUENCE {
    interFreqCellInfoSI-List InterFreqCellInfoSI-List-HCS-ECNO OPTIONAL
}

InterFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria IntraFreqReportingCriteria,
    interFreqReportingCriteria InterFreqReportingCriteria,
    periodicalReportingCriteria PeriodicalWithReportingCellStatus,
    noReporting ReportingCellStatusOpt
}

InterFreqReportingCriteria ::= SEQUENCE {
    interFreqEventList InterFreqEventList OPTIONAL
}

InterFreqReportingQuantity ::= SEQUENCE {
    ultra-Carrier-RSSI BOOLEAN,
    frequencyQualityEstimate BOOLEAN,
    nonFreqRelatedQuantities CellReportingQuantities
}

InterFrequencyMeasurement ::= SEQUENCE {
    interFreqCellInfoList InterFreqCellInfoList,
    interFreqMeasQuantity InterFreqMeasQuantity OPTIONAL,
    interFreqReportingQuantity InterFreqReportingQuantity OPTIONAL,
    measurementValidity MeasurementValidity OPTIONAL,
    interFreqSetUpdate UE-AutonomousUpdateMode OPTIONAL,
    reportCriteria InterFreqReportCriteria
}

InterRAT-TargetCellDescription ::= SEQUENCE {
    technologySpecificInfo CHOICE {
        gsm SEQUENCE {
            bsic BSIC,
            bcch-ARFCN BCCH-ARFCN,
            ncMode NC-Mode OPTIONAL
        },
        is-2000 NULL,
        spare NULL
    }
}

InterRATCellID ::= INTEGER (0..maxCellMeas-1)

InterRATCellInfoList ::= SEQUENCE {
    removedInterRATCellList RemovedInterRATCellList,
    newInterRATCellList NewInterRATCellList,
    cellsForRATFreqMeasList CellsForRATFreqMeasList OPTIONAL
}

InterRATCellInfoList-HCS ::= SEQUENCE {
    removedInterRATCellList RemovedInterRATCellList,
    newInterRATCellList NewInterRATCellList-HCS
}

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}
InterRATCellIndividualOffset ::= INTEGER (-50..50)

InterRATEvent ::= CHOICE {
    event3a          Event3a,
    event3b          Event3b,
    event3c          Event3c,
    event3d          Event3d
}

InterRATEventList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
    InterRATEvent

InterRATEventResults ::= SEQUENCE {
    eventID          EventIDInterRAT,
    cellToReportList CellToReportList
}

InterRATInfo ::= ENUMERATED {
    gsm
}

InterRATMeasQuantity ::= SEQUENCE {
    measQuantityUTRAN-QualityEstimate IntraFreqMeasQuantity OPTIONAL,
    ratSpecificInfo                   CHOICE {
        gsm                               SEQUENCE {
            measurementQuantity          MeasurementQuantityGSM,
            filterCoefficient            FilterCoefficient          DEFAULT fcl,
            bsic-VerificationRequired    BSIC-VerificationRequired
        },
        is-2000                          SEQUENCE {
            tadd-EcIo                    INTEGER (0..63),
            tcomp-EcIo                   INTEGER (0..15),
            softSlope                     INTEGER (0..63)          OPTIONAL,
            addIntercept                  INTEGER (0..63)          OPTIONAL
        }
    }
}

InterRATMeasuredResults ::= CHOICE {
    gsm          GSM-MeasuredResultsList,
    spare        NULL
}

InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT)) OF
    InterRATMeasuredResults

InterRATMeasurement ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList          OPTIONAL,
    interRATMeasQuantity      InterRATMeasQuantity          OPTIONAL,
    interRATReportingQuantity InterRATReportingQuantity    OPTIONAL,
    reportCriteria            InterRATReportCriteria
}

InterRATMeasurementSysInfo ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList          OPTIONAL
}

InterRATMeasurementSysInfo-HCS ::= SEQUENCE {
    interRATCellInfoList      InterRATCellInfoList-HCS      OPTIONAL
}

InterRATReportCriteria ::= CHOICE {
    interRATReportingCriteria InterRATReportingCriteria,
    periodicalReportingCriteria PeriodicalWithReportingCellStatus,
    noReporting                ReportingCellStatusOpt
}

InterRATReportingCriteria ::= SEQUENCE {
    interRATEventList          InterRATEventList          OPTIONAL
}

InterRATReportingQuantity ::= SEQUENCE {
    utran-EstimatedQuality     BOOLEAN,
    ratSpecificInfo            CHOICE {
        gsm                     SEQUENCE {
            pathloss              BOOLEAN,
            observedTimeDifferenceGSM BOOLEAN,
        }
    }
}

```

```

        }
    }
}

gsm-Carrier-RSSI                BOOLEAN

IntraFreqCellID ::=              INTEGER (0..maxCellMeas-1)

IntraFreqCellInfoList ::=        SEQUENCE {
    removedIntraFreqCellList     RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList         NewIntraFreqCellList         OPTIONAL,
    cellsForIntraFreqMeasList    CellsForIntraFreqMeasList   OPTIONAL
}

IntraFreqCellInfoSI-List-RSCP ::= SEQUENCE {
    removedIntraFreqCellList     RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList         NewIntraFreqCellSI-List-RSCP
}

IntraFreqCellInfoSI-List-ECNO ::= SEQUENCE {
    removedIntraFreqCellList     RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList         NewIntraFreqCellSI-List-ECNO
}

IntraFreqCellInfoSI-List-HCS-RSCP ::= SEQUENCE {
    removedIntraFreqCellList     RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList         NewIntraFreqCellSI-List-HCS-RSCP
}

IntraFreqCellInfoSI-List-HCS-ECNO ::= SEQUENCE {
    removedIntraFreqCellList     RemovedIntraFreqCellList     OPTIONAL,
    newIntraFreqCellList         NewIntraFreqCellSI-List-HCS-ECNO
}

IntraFreqEvent ::=              CHOICE {
    ela                           Event1a,
    e1b                           Event1b,
    e1c                           Event1c,
    e1d                           NULL,
    e1e                           Event1e,
    e1f                           Event1f,
    e1g                           NULL,
    e1h                           ThresholdUsedFrequency,
    e1i                           ThresholdUsedFrequency
}

IntraFreqEventCriteria ::=       SEQUENCE {
    event                          IntraFreqEvent,
    hysteresis                     Hysteresis,
    timeToTrigger                 TimeToTrigger,
    reportingCellStatus           ReportingCellStatus           OPTIONAL
}

IntraFreqEventCriteriaList ::=   SEQUENCE (SIZE (1..maxMeasEvent)) OF
    IntraFreqEventCriteria

IntraFreqEventResults ::=        SEQUENCE {
    eventID                       EventIDIntraFreq,
    cellMeasurementEventResults   CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=        SEQUENCE {
    filterCoefficient             FilterCoefficient           DEFAULT fcl,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            intraFreqMeasQuantity-FDD IntraFreqMeasQuantity-FDD
        },
        tdd                       SEQUENCE {
            intraFreqMeasQuantity-TDDList IntraFreqMeasQuantity-TDDList
        }
    }
}

IntraFreqMeasQuantity-FDD ::=    ENUMERATED {
    cpich-EC-NO,
    cpich-RSCP,
    pathloss,
    ultra-CarrierRSSI }

```

```

IntraFreqMeasQuantity-TDD ::=      ENUMERATED {
                                     primaryCCPCH-RSCP,
                                     pathloss,
                                     timeslotISCP,
                                     ultra-CarrierRSSI }

IntraFreqMeasQuantity-TDDList ::= SEQUENCE (SIZE (1..4)) OF
                                   IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                   CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-RSCP  OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-ECN0  OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-RSCP ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-RSCP  OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-ECN0 ::= SEQUENCE {
    intraFreqMeasurementID          MeasurementIdentity          DEFAULT 1,
    intraFreqCellInfoSI-List        IntraFreqCellInfoSI-List-HCS-ECN0  OPTIONAL,
    intraFreqMeasQuantity           IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantityForRACH IntraFreqReportingQuantityForRACH  OPTIONAL,
    maxReportedCellsOnRACH          MaxReportedCellsOnRACH          OPTIONAL,
    reportingInfoForCellDCH         ReportingInfoForCellDCH         OPTIONAL
}

IntraFreqReportCriteria ::= CHOICE {
    intraFreqReportingCriteria      IntraFreqReportingCriteria,
    periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
    noReporting                     ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::= SEQUENCE {
    eventCriteriaList              IntraFreqEventCriteriaList  OPTIONAL
}

IntraFreqReportingQuantity ::= SEQUENCE {
    activeSetReportingQuantities    CellReportingQuantities,
    monitoredSetReportingQuantities CellReportingQuantities,
    detectedSetReportingQuantities  CellReportingQuantities      OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-OTD-Type              SFN-SFN-OTD-Type,
    modeSpecificInfo              CHOICE {
        fdd                       SEQUENCE {
            intraFreqRepQuantityRACH-FDD  IntraFreqRepQuantityRACH-FDD
        },
        tdd                       SEQUENCE {
            intraFreqRepQuantityRACH-TDDList  IntraFreqRepQuantityRACH-TDDList
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::= ENUMERATED {
    cpich-EcN0, cpich-RSCP,
}

```

```

        pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::= ENUMERATED {
    timeslotISCP,
    primaryCCPCH-RSCP,
    noReport }

IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
    IntraFreqRepQuantityRACH-TDD

IntraFrequencyMeasurement ::= SEQUENCE {
    intraFreqCellInfoList          IntraFreqCellInfoList          OPTIONAL,
    intraFreqMeasQuantity          IntraFreqMeasQuantity          OPTIONAL,
    intraFreqReportingQuantity    IntraFreqReportingQuantity    OPTIONAL,
    measurementValidity           MeasurementValidity          OPTIONAL,
    reportCriteria                 IntraFreqReportCriteria      OPTIONAL
}

IODE ::= INTEGER (0..255)

IP-Length ::= ENUMERATED {
    ip15, ip110 }

IP-Spacing ::= ENUMERATED {
    e5, e7, e10, e15, e20,
    e30, e40, e50 }

IS-2000SpecificMeasInfo ::= ENUMERATED {
    frequency, timeslot, colourcode,
    outputpower, pn-Offset }

MaxNumberOfReportingCellsType1 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::= ENUMERATED {
    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}

MaxNumberOfReportingCellsType3 ::= ENUMERATED {
    viactCellsPlus1,
    viactCellsPlus2,
    viactCellsPlus3,
    viactCellsPlus4,
    viactCellsPlus5,
    viactCellsPlus6 }

MaxReportedCellsOnRACH ::= ENUMERATED {
    noReport,
    currentCell,
    currentAnd-1-BestNeighbour,
    currentAnd-2-BestNeighbour,
    currentAnd-3-BestNeighbour,
    currentAnd-4-BestNeighbour,
    currentAnd-5-BestNeighbour,
    currentAnd-6-BestNeighbour }

MeasuredResults ::= CHOICE {
    intraFreqMeasuredResultsList    IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList    InterFreqMeasuredResultsList,
    interRATMeasuredResultsList     InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults           QualityMeasuredResults,
    ue-InternalMeasuredResults       UE-InternalMeasuredResults,
    up-MeasuredResults               UP-MeasuredResults
}

MeasuredResultsList ::= SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
    MeasuredResults

MeasuredResultsOnRACH ::= SEQUENCE {
    currentCell          SEQUENCE {
        modeSpecificInfo CHOICE {
            fdd          SEQUENCE {
                measurementQuantity CHOICE {
                    cpich-Ec-N0,
                    cpich-RSCP,
                    pathloss
                }
            },
        },
    },
}

```

```

        tdd
            timeslotISCP
            primaryCCPCH-RSCP
        }
    },
    monitoredCells
}

MeasurementCommand ::=
    setup
    modify
        measurementType
    },
    release
}

MeasurementControlSysInfo ::=
    use-of-HCS
        hcs-not-used
            cellSelectQualityMeasure
            cpich-RSCP
            intraFreqMeasurementSysInfo
        OPTIONAL,
            interFreqMeasurementSysInfo
        },
        cpich-Ec-No
            intraFreqMeasurementSysInfo
        OPTIONAL,
            interFreqMeasurementSysInfo
    },
    interRATMeasurementSysInfo
    },
    hcs-used
        cellSelectQualityMeasure
        cpich-RSCP
        intraFreqMeasurementSysInfo
    OPTIONAL,
        interFreqMeasurementSysInfo
    OPTIONAL
    },
        cpich-Ec-No
            intraFreqMeasurementSysInfo
        OPTIONAL,
            interFreqMeasurementSysInfo
    OPTIONAL
    },
    interRATMeasurementSysInfo
}

trafficVolumeMeasSysInfo
ue-InternalMeasurementSysInfo
}

MeasurementIdentity ::= INTEGER (1..16)

MeasurementQuantityGSM ::= ENUMERATED {
    gsm-CarrierRSSI,
    pathloss }

MeasurementReportingMode ::= SEQUENCE {
    measurementReportTransferMode
    periodicalOrEventTrigger
}

MeasurementType ::= CHOICE {
    intraFrequencyMeasurement
    interFrequencyMeasurement
    interRATMeasurement
    up-Measurement
    trafficVolumeMeasurement
    qualityMeasurement
    ue-InternalMeasurement
}

MeasurementValidity ::= SEQUENCE {

```



```

    ue-State                                ENUMERATED {
                                            cell-DCH, all-But-Cell-DCH, all-States }
}

MonitoredCellRACH-List ::=                SEQUENCE (SIZE (1..7)) OF
                                           MonitoredCellRACH-Result

MonitoredCellRACH-Result ::=              SEQUENCE {
    sfn-SFN-ObsTimeDifference              SFN-SFN-ObsTimeDifference          OPTIONAL,
    modeSpecificInfo                       CHOICE {
        fdd                                SEQUENCE {
            primaryCPICH-Info              PrimaryCPICH-Info,
            measurementQuantity            CHOICE {
                cpich-Ec-N0                CPICH-Ec-N0,
                cpich-RSCP                 CPICH-RSCP,
                pathloss                   Pathloss
            }
        },
        tdd                                SEQUENCE {
            cellParametersID               CellParametersID,
            primaryCCPCH-RSCP              PrimaryCCPCH-RSCP
        }
    }
}

MultipathIndicator ::=                    ENUMERATED {
    nm,
    low,
    medium,
    high }

N-CR-T-CRMaxHyst ::=                     SEQUENCE {
    n-CR                                    INTEGER (1..16)                    DEFAULT 8,
    t-CRMaxHyst                             T-CRMaxHyst
}

NavigationModelSatInfo ::=                SEQUENCE {
    satID                                    SatID,
    satelliteStatus                         SatelliteStatus,
    navModel                                 NavModel
}

NavigationModelSatInfoList ::=            SEQUENCE (SIZE (1..maxSat)) OF
                                           NavigationModelSatInfo

NavModel ::=                              SEQUENCE {
    codeOnL2                                BIT STRING (SIZE (2)),
    uraIndex                                BIT STRING (SIZE (4)),
    satHealth                               BIT STRING (SIZE (6)),
    iodc                                    BIT STRING (SIZE (10)),
    l2Pflag                                BIT STRING (SIZE (1)),
    sflRevd                                 SubFrame1Reserved,
    t-GD                                    BIT STRING (SIZE (8)),
    t-oc                                    BIT STRING (SIZE (16)),
    af2                                     BIT STRING (SIZE (8)),
    af1                                     BIT STRING (SIZE (16)),
    af0                                     BIT STRING (SIZE (22)),
    c-rs                                    BIT STRING (SIZE (16)),
    delta-n                                BIT STRING (SIZE (16)),
    m0                                      BIT STRING (SIZE (32)),
    c-uc                                    BIT STRING (SIZE (16)),
    e                                       BIT STRING (SIZE (32)),
    c-us                                    BIT STRING (SIZE (16)),
    a-Sqrt                                  BIT STRING (SIZE (32)),
    t-oe                                    BIT STRING (SIZE (16)),
    fitInterval                             BIT STRING (SIZE (1)),
    aodo                                    BIT STRING (SIZE (5)),
    c-ic                                    BIT STRING (SIZE (16)),
    omega0                                  BIT STRING (SIZE (32)),
    c-is                                    BIT STRING (SIZE (16)),
    i0                                      BIT STRING (SIZE (32)),
    c-rc                                    BIT STRING (SIZE (16)),
    omega                                   BIT STRING (SIZE (32)),
    omegaDot                               BIT STRING (SIZE (24)),
    iDot                                    BIT STRING (SIZE (14))
}

NC-Mode ::=                              BIT STRING (SIZE (3))

```

```

Neighbour ::=
  neighbourIdentity
  neighbourQuantity
  sfn-SFN-ObsTimeDifference2
}
SEQUENCE {
  PrimaryCPICH-Info
  NeighbourQuantity,
  SFN-SFN-ObsTimeDifference2
} OPTIONAL,

NeighbourList ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  Neighbour

-- **TODO**, to be defined fully
NeighbourQuantity ::=
}
SEQUENCE {

NewInterFreqCell ::=
  interFreqCellID
  frequencyInfo
  cellInfo
}
SEQUENCE {
  InterFreqCellID
  FrequencyInfo
  CellInfo
} OPTIONAL,
OPTIONAL,

NewInterFreqCellList ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterFreqCell

NewInterFreqCellSI-RSCP ::=
  interFreqCellID
  frequencyInfo
  cellInfo
}
SEQUENCE {
  InterFreqCellID
  FrequencyInfo
  CellInfoSI-RSCP
} OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-ECN0 ::=
  interFreqCellID
  frequencyInfo
  cellInfo
}
SEQUENCE {
  InterFreqCellID
  FrequencyInfo
  CellInfoSI-ECN0
} OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-HCS-RSCP ::=
  interFreqCellID
  frequencyInfo
  cellInfo
}
SEQUENCE {
  InterFreqCellID
  FrequencyInfo
  CellInfoSI-HCS-RSCP
} OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-HCS-ECN0 ::=
  interFreqCellID
  frequencyInfo
  cellInfo
}
SEQUENCE {
  InterFreqCellID
  FrequencyInfo
  CellInfoSI-HCS-ECN0
} OPTIONAL,
OPTIONAL,

NewInterFreqCellSI-List-ECN0 ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterFreqCellSI-ECN0

NewInterFreqCellSI-List-HCS-RSCP ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECN0 ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterFreqCellSI-HCS-ECN0

NewInterFreqCellSI-List-RSCP ::=
SEQUENCE (SIZE (1..maxCellMeas)) OF
  NewInterFreqCellSI-RSCP

NewInterRATCell ::=
  interRATCellID
  technologySpecificInfo
  gsm
  cellSelectionReselectionInfo
  cellIndividualOffset
  bsic
  bcch-ARFCN
  gsm-OutputPower
  is-2000
  is-2000SpecificMeasInfo
  spare1
  spare2
}
SEQUENCE {
  InterRATCellID
  CHOICE {
    SEQUENCE {
      CellSelectReselectInfoSIB-11-12
      CellIndividualOffset,
      BSIC,
      BCCH-ARFCN,
      GSM-OutputPower
    } OPTIONAL,
    SEQUENCE {
      IS-2000SpecificMeasInfo
    }
  },
  NULL,
  NULL
}

NewInterRATCell-HCS ::=
  interRATCellID
}
SEQUENCE {
  InterRATCellID
} OPTIONAL,

```

```

    technologySpecificInfo          CHOICE {
      gsm                            SEQUENCE {
        cellSelectionReselectionInfo CellSelectReselectInfoSIB-11-12  OPTIONAL,
        cellIndividualOffset         CellIndividualOffset,
        bsic                          BSIC,
        bcch-ARFCN                     BCCH-ARFCN,
        gsm-OutputPower                 GSM-OutputPower           OPTIONAL
      },
      is-2000                          SEQUENCE {
        is-2000SpecificMeasInfo        IS-2000SpecificMeasInfo
      },
      spare1                            NULL,
      spare2                            NULL
    }
  }

NewInterRATCellList ::=          SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewInterRATCell

NewInterRATCellList-HCS ::=      SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewInterRATCell-HCS

NewIntraFreqCell ::=            SEQUENCE {
  intraFreqCellID                 IntraFreqCellID           OPTIONAL,
  cellInfo                         CellInfo
}

NewIntraFreqCellList ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewIntraFreqCell

NewIntraFreqCellSI-RSCP ::=      SEQUENCE {
  intraFreqCellID                 IntraFreqCellID           OPTIONAL,
  cellInfo                         CellInfoSI-RSCP
}

NewIntraFreqCellSI-ECN0 ::=     SEQUENCE {
  intraFreqCellID                 IntraFreqCellID           OPTIONAL,
  cellInfo                         CellInfoSI-ECN0
}

NewIntraFreqCellSI-HCS-RSCP ::= SEQUENCE {
  intraFreqCellID                 IntraFreqCellID           OPTIONAL,
  cellInfo                         CellInfoSI-HCS-RSCP
}

NewIntraFreqCellSI-HCS-ECN0 ::= SEQUENCE {
  intraFreqCellID                 IntraFreqCellID           OPTIONAL,
  cellInfo                         CellInfoSI-HCS-ECN0
}

NewIntraFreqCellSI-List-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewIntraFreqCellSI-HCS-RSCP

NewIntraFreqCellSI-List-HCS-ECN0 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                  NewIntraFreqCellSI-HCS-ECN0

NodeB-ClockDrift ::=           INTEGER (0..15)

NonUsedFreqParameter ::=        SEQUENCE {
  nonUsedFreqThreshold             Threshold,
  nonUsedFreqW                     W
}

NonUsedFreqParameterList ::=    SEQUENCE (SIZE (1..maxFreq)) OF
                                  NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::=  INTEGER (0..4095)

OTDOA-SearchWindowSize ::=      ENUMERATED {
  c10, c20, c30, c40, c50,
  c60, c70, moreThan70 }

Pathloss ::=                    INTEGER (46..158)

```

```

PenaltyTime-RSCP ::=
    notUsed
    pt10
    pt20
    pt30
    pt40
    pt50
    pt60
}

PenaltyTime-ECNO ::=
    notUsed
    pt10
    pt20
    pt30
    pt40
    pt50
    pt60
}

PendingTimeAfterTrigger ::=
    ENUMERATED {
        ptat0-25, ptat0-5, ptat1,
        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=
    ENUMERATED {
        periodical,
        eventTrigger }

PeriodicalReportingCriteria ::=
    reportingAmount
    reportingInterval
}

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria
    reportingCellStatus
}

PositionEstimate ::=
    ellipsoidPoint
    ellipsoidPointUncertCircle
    ellipsoidPointUncertEllipse
    ellipsoidPointAltitude
    ellipsoidPointAltitudeEllipse
}

PositioningMethod ::=
    ENUMERATED {
        otdoa,
        gps,
        otdoaOrGPS }

PRC ::=
    INTEGER (-2047..2047)

| PrimaryCCPCH-RSCP ::=
    INTEGER (-115..-250..91)

Q-HCS ::=
    INTEGER (0..99)

Q-OffsetS-N ::=
    INTEGER (-50..50)

| Q-QualMin ::=
    INTEGER (-20..0-24..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=
    INTEGER (-58..-13)

QualityEventResults ::=
    SEQUENCE (SIZE (1..maxTrCH)) OF
        TransportChannelIdentity

QualityMeasuredResults ::=
    blerMeasurementResultsList
    modeSpecificInfo
        fdd
        tdd
        sir-MeasurementResults
}

}

}

```

```

QualityMeasurement ::=
    qualityReportingQuantity
    reportCriteria
}
SEQUENCE {
    QualityReportingQuantity
    QualityReportCriteria
} OPTIONAL,

QualityReportCriteria ::=
    qualityReportingCriteria
    periodicalReportingCriteria
    noReporting
}
CHOICE {
    QualityReportingCriteria,
    PeriodicalReportingCriteria,
    NULL
}

QualityReportingCriteria ::=
SEQUENCE (SIZE (1..maxTrCH)) OF
    QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::=
    transportChannelIdentity
    totalCRC
    badCRC
    pendingAfterTrigger
}
SEQUENCE {
    TransportChannelIdentity,
    INTEGER (1..512),
    INTEGER (1..512),
    INTEGER (1..512)
}

QualityReportingQuantity ::=
    dl-TransChBLER
    bler-dl-TransChIdList
    modeSpecificInfo
        fdd
        tdd
        sir-TFCS-List
}
SEQUENCE {
    BOOLEAN,
    BLER-TransChIdList
    CHOICE {
        NULL,
        SEQUENCE {
            SIR-TFCS-List
        }
    }
} OPTIONAL,
OPTIONAL

QualityType ::=
ENUMERATED {
    std-10, std-50, cpich-Ec-N0 }

RAT-Type ::=
ENUMERATED {
    gsm, is2000 }

ReferenceCellPosition ::=
    ellipsoidPoint
    ellipsoidPointWithAltitude
}
CHOICE {
    EllipsoidPoint,
    EllipsoidPointAltitude
}

ReferenceCellRelation ::=
ENUMERATED {
    first-12-second-3,
    first-13-second-2,
    first-1-second-23 }

-- As defined in 23.032 (2D with 24bits for each coordinate)
ReferenceLocationforSIB ::=
    ellipsoidPoint
}
SEQUENCE {
    EllipsoidPoint
}

ReferenceQuality ::=
ENUMERATED {
    m0-19, m20-39, m40-79,
    m80-159, m160-319, m320-639,
    m640-1319, m1320Plus }

-- Actual value = IE value * 10
ReferenceQuality10 ::=
INTEGER (1..32)

-- Actual value = IE value * 50
ReferenceQuality50 ::=
INTEGER (1..32)

ReferenceSFN ::=
INTEGER (0..4095)

-- Actual value = IE value * 512
ReferenceTimeDifferenceToCell ::=
    -- Actual value = IE value * 40
    accuracy40
    -- Actual value = IE value * 256
    accuracy256
    -- Actual value = IE value * 2560
    accuracy2560
}
CHOICE {
    INTEGER (0..960),
    INTEGER (0..150),
    INTEGER (0..15)
}

RemovedInterFreqCellList ::=
CHOICE {

```

```

removeAllInterFreqCells          NULL,
removeSomeInterFreqCells        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                InterFreqCellID,
removeNoInterFreqCells          NULL
}

RemovedInterRATCellList ::= CHOICE {
    removeAllInterRATCells      NULL,
    removeSomeInterRATCells    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                InterRATCellID,
    removeNoInterRATCells      NULL
}

RemovedIntraFreqCellList ::= CHOICE {
    removeAllIntraFreqCells     NULL,
    removeSomeIntraFreqCells   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                IntraFreqCellID,
    removeNoIntraFreqCells     NULL
}

ReplacementActivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::= ENUMERATED {
    notApplicable, t1, t2,
    t3, t4, t5, t6, t7 }

ReportingAmount ::= ENUMERATED {
    ra1, ra2, ra4, ra8, ra16, ra32,
    ra64, ra-Infinity }

ReportingCellStatus ::= CHOICE{
    withinActiveSet              MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq   MaxNumberOfReportingCellsType1,
    withinActiveAndOrMonitoredUsedFreq MaxNumberOfReportingCellsType1,
    withinDetectedSetUsedFreq   MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrDetectedUsedFreq MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet    MaxNumberOfReportingCellsType3,
    allActivePlusDetectedSet     MaxNumberOfReportingCellsType3,
    allActivePlusMonitoredAndOrDetectedSet MaxNumberOfReportingCellsType3,
    withinVirtualActSet          MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrActiveSetNonUsedFreq MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet  MaxNumberOfReportingCellsType2,
    withinActSetAndOrMonitoredUsedFreqOrMonitoredNonUsedFreq MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::= SEQUENCE {
    reportingCellStatus          ReportingCellStatus          OPTIONAL
}

ReportingInfoForCellDCH ::= SEQUENCE {
    intraFreqReportingQuantity  IntraFreqReportingQuantity,
    measurementReportingMode    MeasurementReportingMode,
    reportCriteria              CellDCH-ReportCriteria
}

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)

```

```

RL-AdditionInfoList ::=          SEQUENCE (SIZE (1..maxRL)) OF
                                  PrimaryCPICH-Info

RL-InformationLists ::=          SEQUENCE {
    rl-AdditionInfoList          RL-AdditionInfoList          OPTIONAL,
    rl-RemovalInfoList          RL-RemovalInfoList          OPTIONAL
}

RL-RemovalInfoList ::=          SEQUENCE (SIZE (1..maxRL)) OF
                                  PrimaryCPICH-Info

RLC-BuffersPayload ::=          ENUMERATED {
    p10, p14, p18, p116, p132, p164, p1128,
    p1256, p1512, p11024, p12k, p14k,
    p18k, p116k, p132k, p164k, p1128k,
    p1256k, p1512k, p11024k }

RRC ::=                          INTEGER (-127..127)

SatelliteStatus ::=            ENUMERATED {
    ns-NN-U,
    es-SN,
    es-NN-U,
    es-NN-C }

SatID ::=                       INTEGER (0..63)

SFN-SFN-ObsTimeDifference ::=   CHOICE {
    type1                        SFN-SFN-ObsTimeDifference1,
    -- Actual value for type2 = IE value * 0.0625 - 1280
    type2                        SFN-SFN-ObsTimeDifference2
}

SFN-SFN-ObsTimeDifference1 ::=  INTEGER (0..9830399)

SFN-SFN-ObsTimeDifference2 ::=  INTEGER (0..40961)

SFN-SFN-OTD-Type ::=           ENUMERATED {
    noReport,
    type1,
    type2 }

SIR ::=                         INTEGER (-10..200..63)

SIR-MeasurementList ::=        SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                  SIR-MeasurementResults

SIR-MeasurementResults ::=      SEQUENCE {
    tfcs-ID                      TFCS-IdentityPlain,
    sir-TimeslotList             SIR-TimeslotList
}

SIR-TFCS ::=                   TFCS-IdentityPlain

SIR-TFCS-List ::=             SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                  SIR-TFCS

SIR-TimeslotList ::=          SEQUENCE (SIZE (1..maxTS)) OF
                                  SIR

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=         SEQUENCE {
    reserved1                    BIT STRING (SIZE (23)),
    reserved2                    BIT STRING (SIZE (24)),
    reserved3                    BIT STRING (SIZE (24)),
    reserved4                    BIT STRING (SIZE (16))
}

T-CRMax ::=                   CHOICE {
    notUsed                      NULL,
    t30                          N-CR-T-CRMaxHyst,
    t60                          N-CR-T-CRMaxHyst,
    t120                         N-CR-T-CRMaxHyst,
    t180                         N-CR-T-CRMaxHyst,
    t240                         N-CR-T-CRMaxHyst
}

```

```

}

T-CRMaxHyst ::= ENUMERATED {
    notUsed, t10, t20, t30,
    t40, t50, t60, t70 }

TemporaryOffset ::= ENUMERATED {
    to10, to20, to30, to40, to50,
    to60, to70, infinite }

TemporaryOffsetList ::= SEQUENCE {
    temporaryOffset1 TemporaryOffset,
    temporaryOffset2 TemporaryOffset
}

Threshold ::= INTEGER (-115..0)

ThresholdPositionChange ::= ENUMERATED {
    pc10, pc20, pc30, pc40, pc50,
    pc100, pc200, pc300, pc500,
    pc1000, pc2000, pc5000, pc10000,
    pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::= ENUMERATED {
    ms1, ms2, ms3, ms5, ms10,
    ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::= ENUMERATED {
    c0-25, c0-5, c1, c2, c3, c4, c5,
    c10, c20, c50, c100, c200, c500,
    c1000, c2000, c5000 }

ThresholdUsedFrequency ::= INTEGER (-115..165)

-- Actual value = IE value * 20.
TimeInterval ::= INTEGER (1..13)

TimeslotInfo ::= SEQUENCE {
    timeslotNumber TimeslotNumber,
    burstType BurstType
}

TimeslotInfoList ::= SEQUENCE (SIZE (1..maxTS)) OF TimeslotInfo

TimeslotISCP ::= INTEGER (-115..-25)(0..91)

TimeslotISCP-List ::= SEQUENCE (SIZE (1..maxTS)) OF TimeslotISCP

TimeslotListWithISCP ::= SEQUENCE (SIZE (1..maxTS)) OF TimeslotWithISCP

TimeslotWithISCP ::= SEQUENCE {
    timeslot TimeslotNumber,
    timeslotISCP TimeslotISCP
}

TimeToTrigger ::= ENUMERATED {
    ttt0, ttt10, ttt20, ttt40, ttt60,
    ttt80, ttt100, ttt120, ttt160,
    ttt200, ttt240, ttt320, ttt640,
    ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::= SEQUENCE {
    eventID TrafficVolumeEventType,
    reportingThreshold TrafficVolumeThreshold,
    timeToTrigger TimeToTrigger OPTIONAL,
    pendingTimeAfterTrigger PendingTimeAfterTrigger OPTIONAL,
    tx-InterruptionAfterTrigger TX-InterruptionAfterTrigger OPTIONAL
}

TrafficVolumeEventResults ::= SEQUENCE {
    ul-transportChannelCausingEvent TransportChannelIdentity,

```



```

    trafficVolumeEventIdentity      TrafficVolumeEventType
}

TrafficVolumeEventType ::=          ENUMERATED {
    e4a,
    e4b }

TrafficVolumeMeasQuantity ::=      CHOICE {
    rlc-BufferPayload              NULL,
    averageRLC-BufferPayload       TimeInterval,
    varianceOfRLC-BufferPayload    TimeInterval
}

TrafficVolumeMeasSysInfo ::=       SEQUENCE {
    trafficVolumeMeasurementID      MeasurementIdentity          DEFAULT 4,
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity       TrafficVolumeMeasQuantity    OPTIONAL,
    trafficVolumeReportingQuantity   TrafficVolumeReportingQuantity OPTIONAL,
    trafficVolumeMeasRepCriteria     TrafficVolumeReportingCriteria OPTIONAL,
    measurementValidity              MeasurementValidity          OPTIONAL,
    measurementReportingMode         MeasurementReportingMode,
    reportCriteriaSysInf             TrafficVolumeReportCriteriaSysInfo
}

TrafficVolumeMeasuredResults ::=    SEQUENCE {
    rb-Identity                     RB-Identity,
    rlc-BuffersPayload               RLC-BuffersPayload          OPTIONAL,
    averageRLC-BufferPayload         AverageRLC-BufferPayload     OPTIONAL,
    varianceOfRLC-BufferPayload      VarianceOfRLC-BufferPayload OPTIONAL
}

TrafficVolumeMeasuredResultsList ::= SEQUENCE (SIZE (1..maxRB)) OF
    TrafficVolumeMeasuredResults

TrafficVolumeMeasurement ::=        SEQUENCE {
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity         TrafficVolumeMeasQuantity    OPTIONAL,
    trafficVolumeReportingQuantity     TrafficVolumeReportingQuantity OPTIONAL,
    measurementValidity               MeasurementValidity          OPTIONAL,
    reportCriteria                     TrafficVolumeReportCriteria
}

TrafficVolumeMeasurementObjectList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransportChannelIdentity

TrafficVolumeReportCriteria ::=      CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                        NULL
}

TrafficVolumeReportCriteriaSysInfo ::= CHOICE {
    trafficVolumeReportingCriteria    TrafficVolumeReportingCriteria,
    periodicalReportingCriteria       PeriodicalReportingCriteria
}

TrafficVolumeReportingCriteria ::=   SEQUENCE {
    transChCriteriaList               TransChCriteriaList          OPTIONAL
}

TrafficVolumeReportingQuantity ::=  SEQUENCE {
    rlc-RB-BufferPayload              BOOLEAN,
    rlc-RB-BufferPayloadAverage       BOOLEAN,
    rlc-RB-BufferPayloadVariance      BOOLEAN
}

TrafficVolumeThreshold ::=          ENUMERATED {
    th8, th16, th32, th64, th128,
    th256, th512, th1024, th2k, th3k,
    th4k, th6k, th8k, th12k, th16k,
    th24k, th32k, th48k, th64k, th96k,
    th128k, th192k, th256k, th384k,
    th512k, th768k }

TransChCriteria ::=                 SEQUENCE {
    ul-transportChannelID             TransportChannelIdentity      OPTIONAL,
    eventSpecificParameters           SEQUENCE (SIZE (1..maxMeasParEvent)) OF
}

```

```

}
TrafficVolumeEventParam OPTIONAL
}
TransChCriteriaList ::= SEQUENCE (SIZE (1..maxTrCH)) OF
    TransChCriteria
TransferMode ::= ENUMERATED {
    acknowledgedModeRLC,
    unacknowledgedModeRLC }
TransmittedPowerThreshold ::= INTEGER (-50..33)
TriggeringCondition1 ::= ENUMERATED {
    activeSetCellsOnly,
    monitoredSetCellsOnly,
    activeSetAndMonitoredSetCells }
TriggeringCondition2 ::= ENUMERATED {
    activeSetCellsOnly,
    monitoredSetCellsOnly,
    activeSetAndMonitoredSetCells,
    detectedSetCellsOnly,
    detectedSetAndMonitoredSetCells }
TX-InterruptionAfterTrigger ::= ENUMERATED {
    txiat0-25, txiat0-5, txiat1,
    txiat2, txiat4, txiat8, txiat16 }
UDRE ::= ENUMERATED {
    lessThan1,
    between1-and-4,
    between4-and-8,
    over8 }
UE-6AB-Event ::= SEQUENCE {
    timeToTrigger TimeToTrigger,
    transmittedPowerThreshold TransmittedPowerThreshold
}
UE-6FG-Event ::= SEQUENCE {
    timeToTrigger TimeToTrigger,
    ue-RX-TX-TimeDifferenceThreshold UE-RX-TX-TimeDifferenceThreshold
}
UE-AutonomousUpdateMode ::= CHOICE {
    on NULL,
    onWithNoReporting NULL,
    off RL-InformationLists
}
UE-InternalEventParam ::= CHOICE {
    event6a UE-6AB-Event,
    event6b UE-6AB-Event,
    event6c TimeToTrigger,
    event6d TimeToTrigger,
    event6e TimeToTrigger,
    event6f UE-6FG-Event,
    event6g UE-6FG-Event
}
UE-InternalEventParamList ::= SEQUENCE (SIZE (1..maxMeasEvent)) OF
    UE-InternalEventParam
UE-InternalEventResults ::= CHOICE {
    event6a NULL,
    event6b NULL,
    event6c NULL,
    event6d NULL,
    event6e NULL,
    event6f PrimaryCPICH-Info,
    event6g PrimaryCPICH-Info
}
UE-InternalMeasQuantity ::= SEQUENCE {
    measurementQuantity UE-MeasurementQuantity,
    filterCoefficient FilterCoefficient
}
DEFAULT fcl

```

```

UE-InternalMeasuredResults ::= SEQUENCE {
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-TransmittedPowerFDD UE-TransmittedPower OPTIONAL,
            ue-RX-TX-ReportEntryList UE-RX-TX-ReportEntryList OPTIONAL
        },
        tdd SEQUENCE {
            ue-TransmittedPowerTDD-List UE-TransmittedPowerTDD-List OPTIONAL,
            appliedTA UL-TimingAdvance OPTIONAL
        }
    }
}

UE-InternalMeasurement ::= SEQUENCE {
    ue-InternalMeasQuantity UE-InternalMeasQuantity OPTIONAL,
    ue-InternalReportingQuantity UE-InternalReportingQuantity OPTIONAL,
    reportCriteria UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::= SEQUENCE {
    ue-InternalMeasurementID MeasurementIdentity DEFAULT 5,
    ue-InternalMeasQuantity UE-InternalMeasQuantity
}

UE-InternalReportCriteria ::= CHOICE {
    ue-InternalReportingCriteria UE-InternalReportingCriteria,
    periodicalReportingCriteria PeriodicalReportingCriteria,
    noReporting NULL
}

UE-InternalReportingCriteria ::= SEQUENCE {
    ue-InternalEventParamList UE-InternalEventParamList OPTIONAL
}

UE-InternalReportingQuantity ::= SEQUENCE {
    ue-TransmittedPower BOOLEAN,
    modeSpecificInfo CHOICE {
        fdd SEQUENCE {
            ue-RX-TX-TimeDifferece BOOLEAN
        },
        tdd SEQUENCE {
            appliedTA BOOLEAN
        }
    }
}

-- TABULAR: For TDD only the first two values are used.
UE-MeasurementQuantity ::= ENUMERATED {
    ue-TransmittedPower,
    ultra-Carrier-RSSI,
    ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::= SEQUENCE {
    primaryCPICH-Info PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1 UE-RX-TX-TimeDifferenceType1
}

UE-RX-TX-ReportEntryList ::= SEQUENCE (SIZE (1..maxRL)) OF
    UE-RX-TX-ReportEntry

UE-RX-TX-TimeDifferenceType1 ::= INTEGER (768..1280)

-- Actual value = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::= INTEGER (0..8191)

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

UE-TransmittedPower ::= INTEGER (-50..330..104)

UE-TransmittedPowerTDD-List ::= SEQUENCE (SIZE (1..maxTS)) OF
    UE-TransmittedPower

UP-Accuracy ::= BIT STRING (SIZE (7))

-- For sfID=0 (sf4), pageNo=18, and sfID=0 & sfID=1 (sf4 & sf5), pageNo=25,
-- the IE fields for word3 - word110 are the same as UP-GPS-IonosphericModel
-- and UP-GPS-UTC-Model. For the rest of the pages, they are the same as
-- UP-GPS-Almanac.

```

```

UP-Alma-SIB-Data ::=
    sfID
    dataID
    pageNo
    word3
    word4
    word5
    word6
    word7
    word8
    word9
    word10
}

SEQUENCE {
    INTEGER (0..1),
    INTEGER (0..3),
    INTEGER (0..63),
    BIT STRING (SIZE (16)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (24)),
    BIT STRING (SIZE (22))
}

UP-Alma-SIB-DataList ::=
    SEQUENCE (SIZE (1..3)) OF
        UP-Alma-SIB-Data

UP-CipherParameters ::=
    cipheringKeyFlag
    cipheringSerialNumber
}

SEQUENCE {
    BIT STRING (SIZE (1)),
    INTEGER (0..65535)
}

UP-DGPS-SIB-Data ::=
    nodeBClockDrift
    referenceLocationforSIB
    referenceSFN
    referenceGPS-TOW
    statusHealth
    dgps-InformationList
}

SEQUENCE {
    NodeB-ClockDrift
    ReferenceLocationforSIB,
    ReferenceSFN
    GPS-TOW-lusec,
    DiffCorrectionStatus,
    DGPS-InformationList
}

OPTIONAL,
OPTIONAL,

UP-Ephe-SIB-Data ::=
    transmissionTOW
    satID
    tlmMessage
    tlmRevd
    how
    wn
    navModel
}

SEQUENCE {
    INTEGER (0..1048575),
    SatID,
    BIT STRING (SIZE (14)),
    BIT STRING (SIZE (2)),
    BIT STRING (SIZE (22)),
    BIT STRING (SIZE (10)),
    NavModel
}

UP-Error ::=
    errorReason
    additionalAssistanceData
}

SEQUENCE {
    UP-ErrorCause,
    AdditionalAssistanceData
}

UP-ErrorCause ::=
    notEnoughOTDOA-Cells,
    notEnoughGPS-Satellites,
    assistanceDataMissing,
    methodNotSupported,
    undefinedError,
    requestDeniedByUser,
    notProcessedAndTimeout
}

ENUMERATED {
}

UP-EventID ::=
    e7a, e7b, e7c
}

ENUMERATED {
}

UP-EventParam ::=
    reportingAmount
    reportFirstFix
    measurementInterval
    eventSpecificInfo
}

SEQUENCE {
    ReportingAmount,
    BOOLEAN,
    UP-MeasurementInterval,
    UP-EventSpecificInfo
}

UP-EventParamList ::=
    SEQUENCE (SIZE (1..maxMeasEvent)) OF
        UP-EventParam

UP-EventSpecificInfo ::=
    e7a
    e7b
    e7c
}

CHOICE {
    ThresholdPositionChange,
    ThresholdSFN-SFN-Change,
    ThresholdSFN-GPS-TOW
}

UP-GPS-AcquisitionAssistance ::=
    referenceTime
    utran-ReferenceTime
    gps-ReferenceTimeOnly
}

SEQUENCE {
    CHOICE {
        UTRAN-ReferenceTime,
        INTEGER (0..604799999)
    }
}

```

```

    },
    satelliteInformationList      AcquisitionSatInfoList
}

UP-GPS-Almanac ::=
    wn-a                          BIT STRING (SIZE (8)),
    almanacSatInfoList           AlmanacSatInfoList
}

UP-GPS-AssistanceData ::=
    up-GPS-ReferenceTime         UP-GPS-ReferenceTime           OPTIONAL,
    up-GPS-ReferenceLocation     EllipsoidPointAltitude       OPTIONAL,
    up-GPS-DGPS-Corrections      UP-GPS-DGPS-Corrections       OPTIONAL,
    up-GPS-NavigationModel       UP-GPS-NavigationModel       OPTIONAL,
    up-GPS-IonosphericModel      UP-GPS-IonosphericModel      OPTIONAL,
    up-GPS-UTC-Model             UP-GPS-UTC-Model             OPTIONAL,
    up-GPS-Almanac               UP-GPS-Almanac               OPTIONAL,
    up-GPS-AcquisitionAssistance UP-GPS-AcquisitionAssistance OPTIONAL,
    up-GPS-Real-timeIntegrity     BadSatList                 OPTIONAL
}

UP-Cipher-GPS-Data-Indicator ::=
    up-CipherParameters          UP-CipherParameters          OPTIONAL
}

UP-GPS-DGPS-Corrections ::=
    gps-TOW                      INTEGER (0..604799),
    statusHealth                 DiffCorrectionStatus,
    dgps-CorrectionSatInfoList  DGPS-CorrectionSatInfoList
}

UP-GPS-IonosphericModel ::=
    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))
}

UP-GPS-Measurement ::=
    referenceSFN                 ReferenceSFN                OPTIONAL,
    gps-TOW-lmsec               GPS-TOW-lmsec,
    gps-TOW-rem-usec            GPS-TOW-rem-usec            OPTIONAL,
    gps-MeasurementParamList     GPS-MeasurementParamList
}

UP-GPS-NavigationModel ::=
    n-SAT                       INTEGER (1..16),
    navigationModelSatInfoList  NavigationModelSatInfoList
}

UP-GPS-ReferenceTime ::=
    gps-Week                    INTEGER (0..1023),
    gps-TOW                     GPS-TOW-lusec,
    sfn                         INTEGER (0..4095),
    gps-TOW-AssistList          GPS-TOW-AssistList          OPTIONAL
}

UP-GPS-UTC-Model ::=
    al                           BIT STRING (SIZE (24)),
    a0                           BIT STRING (SIZE (32)),
    t-ot                         BIT STRING (SIZE (8)),
    wn-t                         BIT STRING (SIZE (8)),
    delta-t-LS                  BIT STRING (SIZE (8)),
    wn-lsf                      BIT STRING (SIZE (8)),
    dn                           BIT STRING (SIZE (8)),
    delta-t-LSF                 BIT STRING (SIZE (8))
}

UP-IPDL-Parameters ::=
    ip-Spacing                   IP-Spacing,
    ip-Length                    IP-Length,
    ip-Offset                    INTEGER (0..9),
    seed                        INTEGER (0..63),
    burstModeParameters          BurstModeParameters
}

```

```

}

UP-MeasuredResults ::=
    up-MultipleSets          SEQUENCE {
        up-MultipleSets          OPTIONAL,
        up-ReferenceCellIdentity PrimaryCPICH-Info          OPTIONAL,
        up-OTDOA-Measurement    UP-OTDOA-Measurement        OPTIONAL,
        up-Position              UP-Position                OPTIONAL,
        up-GPS-Measurement       UP-GPS-Measurement         OPTIONAL,
        up-Error                 UP-Error                   OPTIONAL
    }

UP-Measurement ::=
    up-ReportingQuantity      SEQUENCE {
        up-ReportingQuantity,
        reportCriteria         UP-ReportCriteria,
        up-OTDOA-AssistanceData UP-OTDOA-AssistanceData    OPTIONAL,
        up-GPS-AssistanceData  UP-GPS-AssistanceData    OPTIONAL
    }

UP-MeasurementEventResults ::=
    event7a                   CHOICE {
        event7a                UP-Position,
        event7b                UP-OTDOA-Measurement,
        event7c                UP-GPS-Measurement
    }

UP-MeasurementInterval ::=
    ENUMERATED {
        e5, e15, e60, e300,
        e900, e1800, e3600, e7200 }

UP-MethodType ::=
    ENUMERATED {
        ue-Assisted,
        ue-Based,
        ue-BasedPreferred,
        ue-AssistedPreferred }

UP-MultipleSets ::=
    numberOfOTDOA-IPDL-GPS-Sets SEQUENCE {
        numberOfOTDOA-IPDL-GPS-Sets INTEGER (2..3),
        numberOfReferenceCells      INTEGER (1..3),
        referenceCellRelation        ReferenceCellRelation
    }

UP-OTDOA-AssistanceData ::= SEQUENCE {
    up-OTDOA-ReferenceCell          UP-OTDOA-ReferenceCell          OPTIONAL,
    up-OTDOA-MeasurementAssistDataList UP-OTDOA-MeasurementAssistDataList OPTIONAL,
    up-IPDL-Parameters              UP-IPDL-Parameters              OPTIONAL
}

UP-OTDOA-AssistanceSIB ::= SEQUENCE {
    up-CipherParameters              UP-CipherParameters              OPTIONAL,
    searchWindowSize                 OTDOA-SearchWindowSize,
    referenceCellPosition            ReferenceCellPosition,
    up-IPDL-Parameters              UP-IPDL-Parameters              OPTIONAL,
    cellToMeasureInfoList           CellToMeasureInfoList
}

UP-OTDOA-Measurement ::= SEQUENCE {
    sfn                              INTEGER (0..4095),
    ue-RX-TX-TimeDifferenceType2     UE-RX-TX-TimeDifferenceType2,
    qualityChoice                    CHOICE {
        std-10                      ReferenceQuality10,
        std-50                      ReferenceQuality50,
        cpich-EcN0                  CPICH-Ec-N0-OTDOA,
        defaultQuality              ReferenceQuality
    },
    neighbourList                    NeighbourList                    OPTIONAL
}

UP-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
}

UP-OTDOA-MeasurementAssistDataList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF

```

UP-OTDOA-MeasurementAssistData

```

UP-OTDOA-ReferenceCell ::=          SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info,
    frequencyInfo                     FrequencyInfo                OPTIONAL,
    cellPosition                      ReferenceCellPosition        OPTIONAL
}

UP-Position ::=                     SEQUENCE {
    referenceSFN                      ReferenceSFN,
    gps-TOW                           GPS-TOW-lusec,
    positionEstimate                  PositionEstimate
}

UP-ReportCriteria ::=               CHOICE {
    up-ReportingCriteria              UP-EventParamList,
    periodicalReportingCriteria       PeriodicalReportingCriteria,
    noReporting                       NULL
}

UP-ReportingQuantity ::=            SEQUENCE {
    methodType                        UP-MethodType,
    positioningMethod                 PositioningMethod,
    responseTime                      UP-ResponseTime,
    accuracy                          UP-Accuracy                OPTIONAL,
    gps-TimingOfCellWanted            BOOLEAN,
    multipleSets                      BOOLEAN,
    environmentCharacterisation        EnvironmentCharacterisation  OPTIONAL
}

UP-ResponseTime ::=                 ENUMERATED {
    s1, s2, s4, s8, s16,
    s32, s64, s128 }

| UTRA-CarrierRSSI ::=              INTEGER (-95..300..76)

UTRAN-ReferenceTime ::=             SEQUENCE {
    gps-TOW                           GPS-TOW-lusec,
    sfn                               INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::=     ENUMERATED {
    plv0, plv4, plv8, plv16, plv32, plv64,
    plv128, plv256, plv512, plv1024,
    plv2k, plv4k, plv8k, plv16k }

-- Actual value = IE value * 0.1
W ::=                                INTEGER (0..20)

-- *****
--
--     OTHER INFORMATION ELEMENTS (10.3.8)
--
-- *****

BCC ::=                              INTEGER (0..7)

BCCH-ModificationInfo ::=           SEQUENCE {
    mib-ValueTag                      MIB-ValueTag,
    bcch-ModificationTime              BCCH-ModificationTime        OPTIONAL
}

-- Actual value = IE value * 8
BCCH-ModificationTime ::=           INTEGER (0..511)

BSIC ::=                             SEQUENCE {
    ncc                               NCC,
    bcc                               BCC
}

CBS-DRX-Level1Information ::=       SEQUENCE {
    ctch-AllocationPeriod              INTEGER (1..256),
    cbs-FrameOffset                   INTEGER (0..255)
}

CDMA2000-Message ::=                SEQUENCE {
    msg-Type                           BIT STRING (SIZE (8)),

```

```

    payload                BIT STRING (SIZE (1..512))
}

CDMA2000-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                        CDMA2000-Message

CDMA2000-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumCDMA2000Freqs)) OF
                        FrequencyInfoCDMA2000

CellValueTag ::= INTEGER (1..4)

--Actual value = 2^(IE value)
ExpirationTimerFactor ::= INTEGER (1..8)

FDD-UMTS-Frequency-List ::= SEQUENCE (SIZE (1..maxNumFDDFreqs)) OF
                        FrequencyInfoFDD

FrequencyInfoCDMA2000 ::= SEQUENCE {
    band-Class          BIT STRING (SIZE (5)),
    cdma-Freq          BIT STRING (SIZE(11))
}

GSM-BA-Range ::= SEQUENCE {
    gsmLowRangeUARFCN    UARFCN,
    gsmUpRangeUARFCN    UARFCN
}

GSM-BA-Range-List ::= SEQUENCE (SIZE (1..maxNumGSMFreqRanges)) OF
                        GSM-BA-Range

GSM-Classmark2 ::= OCTET STRING (SIZE (5))

GSM-Classmark3 ::= OCTET STRING

GSM-MessageList ::= SEQUENCE (SIZE (1..maxInterSysMessages)) OF
                        BIT STRING (SIZE (1..512))

IdentificationOfReveivedMessage ::= SEQUENCE {
    rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    receivedMessageType         ReceivedMessageType
}

InterRAT-ChangeFailureCause ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure      NULL,
    protocolError                ProtocolErrorInformation,
    unspecified                  NULL,
    spare1                       NULL,
    spare2                       NULL,
    spare3                       NULL
}

InterRAT-UE-RadioAccessCapability ::= CHOICE {
    gsm                          SEQUENCE {
        gsm-Classmark2          GSM-Classmark2,
        gsm-Classmark3          GSM-Classmark3
    },
    cdma2000                     SEQUENCE {
        cdma2000-MessageList    CDMA2000-MessageList
    }
}

InterRAT-UE-RadioAccessCapabilityList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
                        InterRAT-UE-RadioAccessCapability

InterRAT-HO-Failure ::= SEQUENCE {
    interRAT-HO-FailureCause    InterRAT-HO-FailureCause OPTIONAL,
    interRATMessage             InterRATMessage             OPTIONAL
}

InterRAT-HO-FailureCause ::= CHOICE {
    configurationUnacceptable    NULL,
    physicalChannelFailure      NULL,
    protocolError                ProtocolErrorInformation,
    interRAT-ProtocolError      NULL,
    unspecified                  NULL,
    spare1                       NULL,
    spare2                       NULL,
}

```



```

    spare3          NULL,
    spare4          NULL
}

InterRATMessage ::=          CHOICE {
    gsm              SEQUENCE {
        gsm-MessageList    GSM-MessageList
    },
    cdma2000         SEQUENCE {
        cdma2000-MessageList    CDMA2000-MessageList
    }
}

InterRATMessageList ::=          SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                InterRATMessage

MasterInformationBlock ::=          SEQUENCE {
    mib-ValueTag      MIB-ValueTag,
    plmn-Type         PLMN-Type,
    -- TABULAR: The PLMN identity and ANSI-41 core network information
    -- are included in PLMN-Type.
    sibSb-ReferenceList    SIBSb-ReferenceList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions    SEQUENCE {}                                OPTIONAL
}

MIB-ValueTag ::=          INTEGER (1..8)

NCC ::=          INTEGER (0..7)

PLMN-ValueTag ::=          INTEGER (1..256)

PredefinedConfigIdentityAndValueTag ::= SEQUENCE {
    predefinedConfigIdentity    PredefinedConfigIdentity,
    predefinedConfigValueTag    PredefinedConfigValueTag    OPTIONAL
}

ProtocolErrorInformation ::=          SEQUENCE {
    diagnosticsType          CHOICE {
        type1                SEQUENCE {
            protocolErrorCause    ProtocolErrorCause
        },
        spare                NULL
    }
}

ReceivedMessageType ::=          ENUMERATED {
    activeSetUpdate,
    cellUpdateConfirm,
    counterCheck,
    downlinkDirectTransfer,
    interRATHandoverCommand,
    measurementControl,
    pagingType2,
    physicalChannelReconfiguration,
    physicalSharedChannelAllocation,
    radioBearerReconfiguration,
    radioBearerRelease,
    radioBearerSetup,
    rrcConnectionRelease,
    rrcConnectionReject,
    rrcConnectionSetup,
    securityModeCommand,
    signallingConnectionRelease,
    transportChannelReconfiguration,
    transportFormatCombinationControl,
    ueCapabilityEnquiry,
    ueCapabilityInformationConfirm,
    uplinkPhysicalChannelControl,
    uraUpdateConfirm,
    utranMobilityInformation,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7
}

Rplmn-Information ::=          SEQUENCE {
                                gsm-BA-Range-List    GSM-BA-Range-List    OPTIONAL,

```

```

OPTIONAL,
OPTIONAL,
List OPTIONAL
}

SchedulingInformation ::=
    SEQUENCE {
        scheduling
            SEQUENCE {
                segCount          SegCount          DEFAULT 1,
                sib-Pos           CHOICE {
                    -- The element name indicates the repetition period and the value
                    -- (multiplied by two) indicates the position of the first segment.
                    rep4           INTEGER (0..1),
                    rep8           INTEGER (0..3),
                    rep16          INTEGER (0..7),
                    rep32          INTEGER (0..15),
                    rep64          INTEGER (0..31),
                    rep128         INTEGER (0..63),
                    rep256         INTEGER (0..127),
                    rep512         INTEGER (0..255),
                    rep1024        INTEGER (0..511),
                    rep2048        INTEGER (0..1023),
                    rep4096        INTEGER (0..2047)
                },
                sib-PosOffsetInfo  SibOFF-List          OPTIONAL
            }
    }

SchedulingInformationSIB ::=
    SEQUENCE {
        sib-Type
        scheduling
    }

SchedulingInformationSIBSb ::=
    SEQUENCE {
        sibSb-Type
        scheduling
    }

SegCount ::=
    INTEGER (1..16)

SegmentIndex ::=
    INTEGER (1..15)

-- Actual value = 2 * IE value
SFN-Prime ::=
    INTEGER (0..2047)

SIB-Data-fixed ::=
    BIT STRING (SIZE (222))

SIB-Data-variable ::=
    BIT STRING (SIZE (1..214))

SIB-ReferenceList ::=
    SEQUENCE (SIZE (1..maxSIB)) OF
        SchedulingInformationSIB

SIBSb-ReferenceList ::=
    SEQUENCE (SIZE (1..maxSIB)) OF
        SchedulingInformationSIBSb

SIB-ReferenceListFACH ::=
    SEQUENCE (SIZE (1..maxSIB-FACH)) OF
        SchedulingInformationSIB

SIB-Type ::=
    ENUMERATED {
        masterInformationBlock,
        systemInformationBlockType1,
        systemInformationBlockType2,
        systemInformationBlockType3,
        systemInformationBlockType4,
        systemInformationBlockType5,
        systemInformationBlockType6,
        systemInformationBlockType7,
        systemInformationBlockType8,
        systemInformationBlockType9,
        systemInformationBlockType10,
        systemInformationBlockType11,
        systemInformationBlockType12,
        systemInformationBlockType13,
        systemInformationBlockType13-1,
    }

```

```

systemInformationBlockType13-2,
systemInformationBlockType13-3,
systemInformationBlockType13-4,
systemInformationBlockType14,
systemInformationBlockType15,
systemInformationBlockType15-1,
systemInformationBlockType15-2,
systemInformationBlockType15-3,
systemInformationBlockType16,
systemInformationBlockType17,
spare1, spare2, spare3, spare4,
spare5, spare6, spare7 }

SIB-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
    sysInfoType17
}

CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    PredefinedConfigIdentityAndValueTag,
    NULL
}

SIBSb-TypeAndTag ::=
    sysInfoType1
    sysInfoType2
    sysInfoType3
    sysInfoType4
    sysInfoType5
    sysInfoType6
    sysInfoType7
    sysInfoType8
    sysInfoType9
    sysInfoType10
    sysInfoType11
    sysInfoType12
    sysInfoType13
    sysInfoType13-1
    sysInfoType13-2
    sysInfoType13-3
    sysInfoType13-4
    sysInfoType14
    sysInfoType15
    sysInfoType16
    sysInfoType17
    sysInfoTypeSB1
    sysInfoTypeSB2
}

CHOICE {
    PLMN-ValueTag,
    PLMN-ValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    NULL,
    CellValueTag,
    NULL,
    NULL,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    CellValueTag,
    PredefinedConfigIdentityAndValueTag,
    NULL,
    CellValueTag,
    CellValueTag
}

SibOFF ::=
    ENUMERATED {
        so2, so4, so6, so8, so10,
        so12, so14, so16, so18,
        so20, so22, so24, so26,
        so28, so30, so32 }

SibOFF-List ::=
    SEQUENCE (SIZE (1..15)) OF
        SibOFF

SysInfoType1 ::=
    SEQUENCE {
        -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList            CN-DomainSysInfoList,
        -- User equipment IEs
        ue-ConnTimersAndConstants        UE-ConnTimersAndConstants,

```

```

        ue-IdleTimersAndConstants      UE-IdleTimersAndConstants,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType2 ::=                      SEQUENCE {
-- UTRAN mobility IEs
    ura-IdentityList                  URA-IdentityList,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType3 ::=                      SEQUENCE {
    sib4indicator                      BOOLEAN,
-- UTRAN mobility IEs
    cellIdentity                       CellIdentity,
    cellSelectReselectInfo             CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction              CellAccessRestriction,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType4 ::=                      SEQUENCE {
-- UTRAN mobility IEs
    cellIdentity                       CellIdentity,
    cellSelectReselectInfo             CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction              CellAccessRestriction,
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType5 ::=                      SEQUENCE {
    sib6indicator                      BOOLEAN,
-- Physical channel IEs
    pich-PowerOffset                  PICH-PowerOffset,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            aich-PowerOffset            AICH-PowerOffset
        },
        tdd                            SEQUENCE {
            pusch-SysInfoList-SFN       PUSCH-SysInfoList-SFN        OPTIONAL,
            pdsch-SysInfoList-SFN       PDSCH-SysInfoList-SFN        OPTIONAL,
            midambleConfiguration        MidambleConfiguration        OPTIONAL,
            openLoopPowerControl-TDD     OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info                  PrimaryCCPCH-Info                OPTIONAL,
    prach-SystemInformationList         PRACH-SystemInformationList,
    sccpch-SystemInformationList        SCCPCH-SystemInformationList,
    cbs-DRX-Level1Information           CBS-DRX-Level1Information        OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}
}

SysInfoType6 ::=                      SEQUENCE {
-- Physical channel IEs
    pich-PowerOffset                  PICH-PowerOffset,
    modeSpecificInfo                  CHOICE {
        fdd                            SEQUENCE {
            aich-PowerOffset            AICH-PowerOffset,
            csich-PowerOffset           CSICH-PowerOffset            OPTIONAL
        },
        tdd                            SEQUENCE {
            pusch-SysInfoList-SFN       PUSCH-SysInfoList-SFN        OPTIONAL,
            pdsch-SysInfoList-SFN       PDSCH-SysInfoList-SFN        OPTIONAL,
            midambleConfiguration        MidambleConfiguration        OPTIONAL,
            openLoopPowerControl-TDD     OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info                  PrimaryCCPCH-Info                OPTIONAL,
    prach-SystemInformationList         PRACH-SystemInformationList        OPTIONAL,
    sccpch-SystemInformationList        SCCPCH-SystemInformationList        OPTIONAL,
    cbs-DRX-Level1Information           CBS-DRX-Level1Information        OPTIONAL,
-- Conditional on any of the CTCH indicator IEs in
-- sCCPCH-SystemInformationList
-- Extension mechanism for non- release99 information
}

```

```

        nonCriticalExtensions          SEQUENCE {}
    }
SysInfoType7 ::=
    -- Physical channel IEs
    modeSpecificInfo                   CHOICE {
        fdd                             SEQUENCE {
            ul-Interference              UL-Interference
        },
        tdd                             NULL
    },
    prach-Information-SIB5-List         DynamicPersistenceLevelList,
    prach-Information-SIB6-List         DynamicPersistenceLevelList     OPTIONAL,
    expirationTimeFactor                ExpirationTimerFactor           OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType8 ::=
    -- User equipment IEs
    cpch-Parameters                     CPCH-Parameters,
    -- Physical channel IEs
    cpch-SetInfoList                    CPCH-SetInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType9 ::=
    -- Physical channel IEs
    cpch-PersistenceLevelsList          CPCH-PersistenceLevelsList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType10 ::=
    -- User equipment IEs
    drac-SysInfoList                    DRAC-SysInfoList,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType11 ::=
    sib12indicator                       BOOLEAN,
    -- Measurement IEs
    fach-MeasurementOccasionInfo         FACH-MeasurementOccasionInfo     OPTIONAL,
    measurementControlSysInfo            MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType12 ::=
    -- Measurement IEs
    fach-MeasurementOccasionInfo         FACH-MeasurementOccasionInfo     OPTIONAL,
    measurementControlSysInfo            MeasurementControlSysInfo,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType13 ::=
    -- Core network IEs
    cn-DomainSysInfoList                 CN-DomainSysInfoList,
    -- User equipment IEs
    ue-IdleTimersAndConstants            UE-IdleTimersAndConstants         OPTIONAL,
    capabilityUpdateRequirement          CapabilityUpdateRequirement        OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType13-1 ::=
    -- ANSI-41 IEs
    ansi-41-RAND-Information              ANSI-41-RAND-Information,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                SEQUENCE {}
}

SysInfoType13-2 ::=
    -- ANSI-41 IEs
    ansi-41-UserZoneID-Information       ANSI-41-UserZoneID-Information,

```

```

-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13-3 ::=
-- ANSI-41 IEs
ansi-41-PrivateNeighbourListInfo ANSI-41-PrivateNeighbourListInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType13-4 ::=
-- ANSI-41 IEs
ansi-41-GlobalServiceRedirectInfo
ANSI-41-GlobalServiceRedirectInfo,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType14 ::=
-- Physical channel IEs
individualTS-InterferenceList  IndividualTS-InterferenceList,
expirationTimeFactor            ExpirationTimerFactor            OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType15 ::=
-- Measurement IEs
up-GPS-Assistance                UP-Cipher-GPS-Data-Indicator    OPTIONAL,
up-OTDOA-Assistance              UP-OTDOA-AssistanceSIB    OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType15-1 ::=
-- DGPS corrections
up-DGPS-SIB-Data                 UP-DGPS-SIB-Data
}

SysInfoType15-2 ::=
-- Ephemeris and clock corrections
up-Ephe-SIB-Data                 UP-Ephe-SIB-Data
}

SysInfoType15-3 ::=
-- Almanac and other data
transmissionTOW                  INTEGER (0..1048575),
satMask                          BIT STRING (SIZE (1..32)),
lsbTOW                           BIT STRING (SIZE (8)),
up-Alma-SIB-DataList             UP-Alma-SIB-DataList
}

SysInfoType16 ::=
-- Radio bearer IEs
preDefinedRadioConfiguration    PreDefRadioConfiguration,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoType17 ::=
-- Physical channel IEs
pusch-SysInfoList                PUSCH-SysInfoList        OPTIONAL,
pdsch-SysInfoList                PDSCH-SysInfoList        OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoTypeSB1 ::=
-- Other IEs
sib-ReferenceList                SIB-ReferenceList        OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions          SEQUENCE {}
}

SysInfoTypeSB2 ::=
-- Other IEs
sib-ReferenceList                SIB-ReferenceList        OPTIONAL,

```

```

-- Extension mechanism for non- release99 information
    nonCriticalExtensions          SEQUENCE {}
}
TDD-UMTS-Frequency-List ::=
    SEQUENCE (SIZE (1..maxNumTDDFreqs)) OF
        FrequencyInfoTDD

-- *****
--
--      ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- *****

ANSI-41-GlobalServiceRedirectInfo ::= ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::= ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::= ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::= ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::= BIT STRING (SIZE (1..2048))

Min-P-REV ::= BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::= ANSI-41-NAS-Parameter
NID ::= BIT STRING (SIZE (16))

P-REV ::= BIT STRING (SIZE (8))

SID ::= BIT STRING (SIZE (15))

END

```

11.4 Constant definitions

```
Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```

hipDSCHidentities          INTEGER ::= 64
hipUSCHidentities          INTEGER ::= 64
hiRM                        INTEGER ::= 256
maxAC                       INTEGER ::= 16
maxAdditionalMeas           INTEGER ::= 4
maxASC                      INTEGER ::= 8
maxASCmap                   INTEGER ::= 7
maxASCpersist              INTEGER ::= 6
maxCCTrCH                   INTEGER ::= 8
maxCellMeas                 INTEGER ::= 32
maxCellMeas-1              INTEGER ::= 31
maxCNdomains                INTEGER ::= 4
maxCPCHsets                 INTEGER ::= 16
maxDPCH-DLchan              INTEGER ::= 8
maxDPCHcodesPerTS          INTEGER ::= 16
-- **TODO**
maxDPDCH-UL                 INTEGER ::= 6
maxDRACclasses              INTEGER ::= 8
-- **TODO**
maxFACH                     INTEGER ::= 8
maxFreq                     INTEGER ::= 8
maxFrequencybands           INTEGER ::= 4
maxInterSysMessages         INTEGER ::= 4
maxLoCHperRLC               INTEGER ::= 2
maxMeasEvent                INTEGER ::= 8
maxMeasIntervals            INTEGER ::= 3
maxMeasParEvent             INTEGER ::= 2
maxNumCDMA2000Freqs         INTEGER ::= 8
maxNumGSMFreqRanges         INTEGER ::= 32
maxNumFDDFreqs              INTEGER ::= 8
maxNumTDDFreqs              INTEGER ::= 8
maxNoOfMeas                 INTEGER ::= 16
maxOtherRAT                 INTEGER ::= 15
maxPage1                    INTEGER ::= 8
maxPCPCH-APsig              INTEGER ::= 16
maxPCPCH-APsubCh            INTEGER ::= 12
maxPCPCH-CDsig              INTEGER ::= 16
maxPCPCH-CDsubCh            INTEGER ::= 12
maxPCPCH-SF                  INTEGER ::= 7
maxPCPCHs                   INTEGER ::= 64
maxPDCPAlgoType             INTEGER ::= 8
maxPDSCH                    INTEGER ::= 8

```

```

maxPDSCH-TFCIgroups      INTEGER ::= 256
maxPRACH                  INTEGER ::= 16
maxPredefConfig           INTEGER ::= 16
maxPUSCH                  INTEGER ::= 8
maxRABsetup               INTEGER ::= 16
maxRAT                    INTEGER ::= 16
maxRB                     INTEGER ::= 32
maxRBallRABs              INTEGER ::= 27
maxRBMuxOptions           INTEGER ::= 8
maxRBperRAB               INTEGER ::= 8
maxReportedGSMCells       INTEGER ::= 6
maxRL                      INTEGER ::= 8
maxRL-1                   INTEGER ::= 7
maxSat                    INTEGER ::= 16
maxSCCPCH                 INTEGER ::= 16
maxSIB                     INTEGER ::= 32
-- **TODO**
maxSIB-FACH                INTEGER ::= 8
maxSIBperMsg              INTEGER ::= 16
maxSig                     INTEGER ::= 16
maxSRBsetup               INTEGER ::= 8
maxSubCh                  INTEGER ::= 12
maxSystemCapability        INTEGER ::= 16
maxTF                      INTEGER ::= 32
maxTF-CPCH                INTEGER ::= 16
maxTFC                    INTEGER ::= 1024
maxTFCl-2-Combs           INTEGER ::= 512
maxTGPS                   INTEGER ::= 6
maxTrCH                   INTEGER ::= 32
maxTrCHpreconf            INTEGER ::= 16
maxTS                      INTEGER ::= 14
maxTS-1                   INTEGER ::= 13
maxURA                    INTEGER ::= 8

```

END

11.5 RRC information between network nodes

Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    HandoverToUTRANCommand-r3,
    MeasurementReport,
    PhysicalChannelReconfiguration-r3,
    RadioBearerReconfiguration-r3,
    RadioBearerRelease-r3,
    RadioBearerSetup-r3,
    TransportChannelReconfiguration-r3,
    UECapabilityInformation

```

FROM PDU-definitions

```

-- Core Network IEs :
    CN-DomainInformationList,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    C-RNTI,
    RRC-MessageSequenceNumber,
    START-Value,
    STARTList,
    U-RNTI,
    UE-RadioAccessCapability,
-- Radio Bearer IEs :
    PDCP-InfoReconfig,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RB-Identity,
    RB-MappingInfo,
    RLC-Info,
    RLC-SequenceNumber,
    SRB-InformationSetupList,
-- Transport Channel IEs :

```



```

    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-AddReconfTransChInfoList,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    AdditionalMeasurementID-List,
-- Other IEs :
    InterRATMessage
FROM InformationElements

    maxNoOfMeas,
    maxPredefConfig,
    maxRABsetup,
    maxRB,
    maxSRBsetup,
    maxTrCH
FROM Constant-definitions;

-- RRC information transferred between network nodes,
-- per group of information transfers having same endpoint
-- Alike class definitions for RRC PDUs

-- *****
--
-- RRC information, to target RNC
--
-- *****

-- *****
--
-- RRC information, target RNC to source RNC
--
-- *****

T-RNC-ToSRNC-Container ::= SEQUENCE {
    message          T-RNC-ToSRNC-ContainerType
}

T-RNC-ToSRNC-ContainerType ::= CHOICE {
    radioBearerSetup          RadioBearerSetup-r3,
    radioBearerReconfiguration RadioBearerReconfiguration-r3,
    radioBearerRelease        RadioBearerRelease-r3,
    transportChannelReconfiguration TransportChannelReconfiguration-r3,
    physicalChannelReconfiguration PhysicalChannelReconfiguration-r3,
    extension                  NULL
}

-- *****
--
-- RRC information, target RNC to source RAT
--
-- *****

-- Container definitions, alike PDU definitions
-- RRC Container definition, to target RNC

-- *****
--
-- SRNC Relocation information
--
-- *****

SRNC-RelocationInfo ::= SEQUENCE {
    -- Non-RRC IEs
    stateOfRRC                StateOfRRC,
    stateOfRRC-Procedure       StateOfRRC-Procedure,
    cipheringStatus            CipheringStatus,
    calculationTimeForCiphering CalculationTimeForCiphering OPTIONAL,
    cipheringInfoPerRB-List    CipheringInfoPerRB-List OPTIONAL,
    integrityProtectionStatus  IntegrityProtectionStatus,
    srb-SpecificIntegrityProtInfo SRB-SpecificIntegrityProtInfoList,
    implementationSpecificParams ImplementationSpecificParams OPTIONAL,

```

```

-- User equipment IEs
  u-RNTI                U-RNTI,
  c-RNTI                C-RNTI                                OPTIONAL,
  ue-RadioAccessCapability UE-RadioAccessCapability,
-- Other IEs
  interRATMessage      InterRATMessage                        OPTIONAL,
-- UTRAN mobility IEs
  ura-Identity         URA-Identity                          OPTIONAL,
-- Core network IEs
  cn-CommonGSM-MAP-NAS-SysInfo NAS-SystemInformationGSM-MAP,
  cn-DomainInformationList CN-DomainInformationList          OPTIONAL,
-- Measurement IEs
  ongoingMeasRepList   OngoingMeasRepList                  OPTIONAL,
-- Radio bearer IEs
  preConfigStatusInfo PreConfigStatusInfo,
  srb-InformationList  SRB-InformationSetupList,
  rab-InformationList  RAB-InformationSetupList              OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo UL-CommonTransChInfo                OPTIONAL,
  ul-TransChInfoList  UL-AddReconfTransChInfoList          OPTIONAL,
  modeSpecificInfo    CHOICE {
    fdd                SEQUENCE {
      cpch-SetID      CPCH-SetID                            OPTIONAL,
      transChDRAC-Info DRAC-StaticInformationList          OPTIONAL,
    },
    tdd                NULL
  },
  dl-CommonTransChInfo DL-CommonTransChInfo                OPTIONAL,
  dl-TransChInfoList  DL-AddReconfTransChInfoList          OPTIONAL,
-- Measurement report
  measurementReport    MeasurementReport                    OPTIONAL
}

-- RRC Container definition, target RNC to source RNC
-- Nothing new, only re-using RRC PDUs
--
-- RRC Container definition, target RNC to source system
-- Nothing new, re-using RRC PDUs (HandoverToUTRANCommand)

-- IE definitions
CalculationTimeForCiphering ::= SEQUENCE {
  cell-Id      CellIdentity,
  sfn          INTEGER (0..4095)
}

CipheringInfoPerRB ::= SEQUENCE {
  dl-START     START-Value,
  ul-START     START-Value
}

-- TABULAR: Multiplicity value numberOfRadioBearers has been replaced
-- with maxRB.
CipheringInfoPerRB-List ::= SEQUENCE (SIZE (1..maxRB)) OF
  CipheringInfoPerRB

CipheringStatus ::= ENUMERATED {
  started, notStarted }

ImplementationSpecificParams ::= BIT STRING (SIZE (1..512))

IntegrityProtectionStatus ::= ENUMERATED {
  started, notStarted }

MeasurementCommandWithType ::= CHOICE {
  setup      MeasurementType,
  modify     NULL,
  release    NULL
}

OngoingMeasRep ::= SEQUENCE {
  measurementIdentity      MeasurementIdentity,
  measurementCommandWithType MeasurementCommandWithType,
  -- TABULAR: The CHOICE Measurement in the tabular description is included
  -- in the IE above.
  measurementReportingMode MeasurementReportingMode          OPTIONAL,
  additionalMeasurementID-List AdditionalMeasurementID-List    OPTIONAL
}

```

```

}
OngoingMeasRepList ::= SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                        OngoingMeasRep
PreConfigStatusInfo ::= SEQUENCE (SIZE (1..maxPredefConfig)) OF
                        PredefinedConfigValueTag
SRB-SpecificIntegrityProtInfo ::= SEQUENCE {
    rb-Identity          RB-Identity                               OPTIONAL,
    ul-RRC-HFN          BIT STRING (SIZE (28)),
    dl-RRC-HFN          BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber RRC-MessageSequenceNumber
}
SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo
StateOfRRC ::= ENUMERATED {
    cell-DCH, cell-FACH,
    cell-PCH, ura-PCH }
StateOfRRC-Procedure ::= ENUMERATED {
    awaitNoRRC-Message,
    awaitRRC-ConnectionRe-establishmentComplete,
    awaitRB-SetupComplete,
    awaitRB-ReconfigurationComplete,
    awaitTransportCH-ReconfigurationComplete,
    awaitPhysicalCH-ReconfigurationComplete,
    awaitActiveSetUpdateComplete,
    awaitHandoverComplete,
    sendCellUpdateConfirm,
    sendUraUpdateConfirm,
    sendRrcConnectionReestablishment,
    otherStates }
END

```

13.4.x CELL INFO LIST

This variable contains cell information on intra-frequency, inter-frequency and inter-RAT cells, as received in messages System Information Block Type 11, System Information Block Type 12, and MEASUREMENT CONTROL.

The first position in Intra-frequency cell info list corresponds to Intra-frequency cell id), the second to Intra-frequency cell id 1, etc.

The first position in Inter-frequency cell info list corresponds to Inter-frequency cell id), the second to Inter-frequency cell id 1, etc.

The first position in Inter-RAT cell info list corresponds to Intra-frequency cell id), the second to Inter-RAT cell id 1, etc.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Intra-frequency cell info</u>	<u>MP</u>	<u>1..<maxCellMeas></u>		
> <u>CHOICE position status</u>	<u>MP</u>			
>> <u>Occupied</u>				
>>> <u>Cell info</u>	<u>MP</u>		<u>Cell info 10.3.7.2</u>	
>> <u>Vacant</u>				<u>No data</u>
<u>Inter-frequency cell info</u>	<u>MP</u>	<u>1..<maxCellMeas></u>		
> <u>CHOICE position status</u>	<u>MP</u>			
>> <u>Occupied</u>				
>>> <u>Frequency info</u>	<u>MP</u>		<u>Frequency info 10.3.6.36</u>	
>>> <u>Cell info</u>	<u>MP</u>		<u>Cell info 10.3.7.2</u>	
>> <u>Vacant</u>				<u>No data</u>
<u>Intra-RAT cell info</u>	<u>MP</u>	<u>1..<maxCellMeas></u>		
> <u>CHOICE position status</u>	<u>MP</u>			
>> <u>Occupied</u>				
>>> <u>CHOICE Radio Access Technology</u>				
>>>> <u>GSM</u>				
>>>>> <u>Cell selection and re-selection info</u>	<u>MP</u>		<u>Cell selection and re-selection info for SIB11/12 10.3.2.4</u>	
>>>>> <u>BSIC</u>	<u>MP</u>		<u>BSIC 10.3.8.2</u>	
>>>>> <u>BCCH ARFCN</u>	<u>MP</u>		<u>Integer (0..1023)</u>	<u>GSM TS 04.18</u>
>>>>> <u>Output power</u>	<u>OP</u>			
>>>>> <u>IS-2000</u>				
>>>>> <u>System specific measurement info</u>			<u>enumerated (frequency, timeslot, colour code, output power, PN offset)</u>	<u>For IS-2000, use fields from TIA/EIA/IS-2000.5, Section 3.7.3.3.2.27, Candidate Frequency Neighbour List Message</u>
>> <u>Vacant</u>				<u>No data</u>

13.4.x CONFIGURATION INCOMPLETE

This variable indicates whether a received measurement control message contains invalid an incomplete measurement configuration.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Configuration incomplete</u>	<u>MP</u>		<u>Boolean</u>	<u>TRUE: An incomplete configuration has been detected</u>

14 Specific functions

14.1 Intra-frequency measurements

14.1.1 Intra-frequency measurement quantities

- 1 Downlink E_c/I_0 (chip energy per total received channel power density).
- 2 Downlink path loss.
- 3 Downlink received signal code power (RSCP) after despreading.
- 4 ISCP measured on Timeslot basis.

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. 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:

$$10 \cdot \text{Log}M_{New} \leq W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} + (R + H_{1a}),$$

For all the other measurement quantities:

$$10 \cdot \text{Log}M_{New} \geq W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} - (R + H_{1a}),$$

The variables in the formula are defined as follows:

M_{New} is the measurement result of the cell entering the reporting range.

M_i is a measurement result of a cell in the active set.

N_A is the number of cells in the current active set.

M_{Best} is the measurement result of the strongest cell in the active set.

W is a parameter sent from UTRAN to UE.

R is the reporting range

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 (R) common to many reporting events and an optional **hysteresis** parameter (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 14.1.5.2). 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.

Event 1A may be used for triggering a measurement report, which includes cells, which the UE has detected without having received a neighbour cell list.

If more than one cell triggers event 1A within the UE internal event evaluation period (defined in [25.133]) and fulfils the reporting criteria after the addition timer has elapsed, the UE shall report all of the triggering cells in the event results. The triggering cells shall be sorted in descending order according to the measured quantity.

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:

$$10 \cdot \text{Log}M_{New} \geq W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} + (R + H_{1a}),$$

For all the other measurement quantities:

$$10 \cdot \text{Log}M_{Old} \leq W \cdot 10 \cdot \text{Log} \left(\sum_{i=1}^{N_A} M_i \right) + (1 - W) \cdot 10 \cdot \text{Log}M_{Best} - (R + H_{1b}),$$

The variables in the formula are defined as follows:

M_{Old} is the measurement result of the cell leaving the reporting range.

M_i is a measurement result of a cell in the active set.

N_A is the number of cells in the current active set.

M_{Best} is the measurement result of the strongest cell in the active set.

W is a parameter sent from UTRAN to UE.

R is the reporting range

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 (R) common to many reporting events and an optional **hysteresis** parameter (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.

If more than one cell triggers event 1B within the UE internal event evaluation period (defined in [25.133]) and fulfils the reporting criteria after the drop timer has elapsed, the UE shall report all of the triggering cells in the event results. The triggering cells shall be sorted in descending order according to the measured quantity.

14.1.2.3 Reporting event 1C: A non-active primary CPICH becomes better than an active primary CPICH

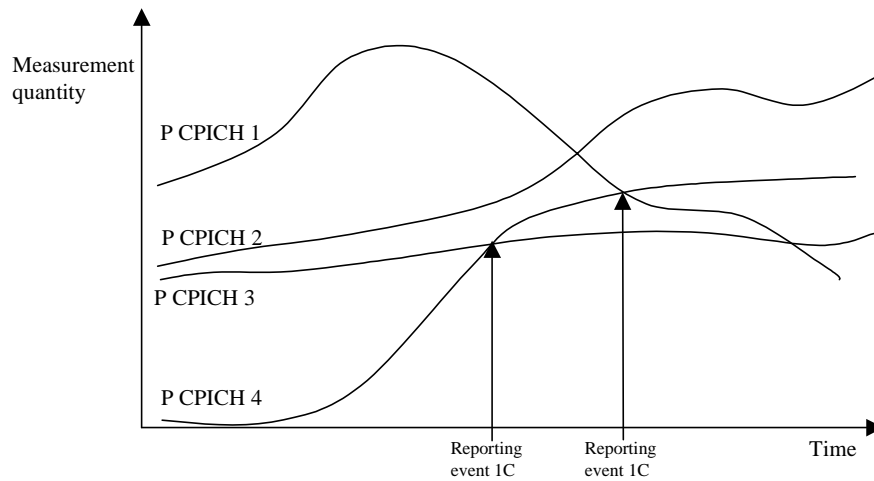


Figure 63: A primary CPICH that is not included in the active set becomes better than a primary CPICH that is in the active set

In this example the cells belonging to primary CPICH 1, 2 and 3 are supposed to be in the active set, but the cell transmitting primary CPICH 4 is not (yet) in the active set.

If a primary CPICH that is not included in the active set becomes better than a primary CPICH that is in the active set, and event 1C has been ordered by UTRAN, this event shall trigger a report to be sent from the UE.

This event may be used for replacing cells in the active set. It is activated if the number of active cells is equal to or greater than a **replacement activation threshold** parameter that UTRAN signals to the UE in the MEASUREMENT CONTROL message. This parameter indicates the minimum number of cells required in the active set for measurement reports triggered by event 1C to be transmitted.

14.1.2.4 Reporting event 1D: Change of best cell

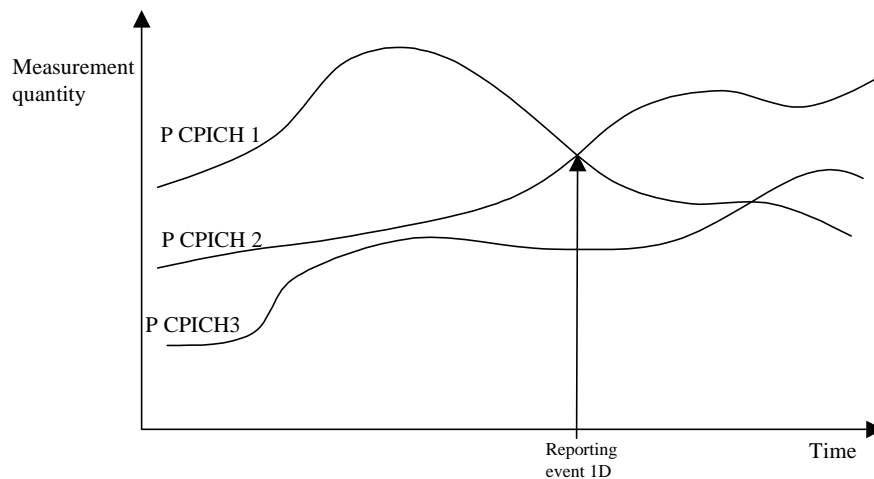


Figure 64: A primary CPICH becomes better than the previously best primary CPICH

If any of the primary CPICHs within the reporting range becomes better than the previously best primary CPICH, and event 1D has been ordered by UTRAN then this event shall trigger a report to be sent from the UE. The corresponding report contains (at least) the new best primary CPICH.

14.1.2.5 Reporting event 1E: A Primary CPICH becomes better than an absolute threshold

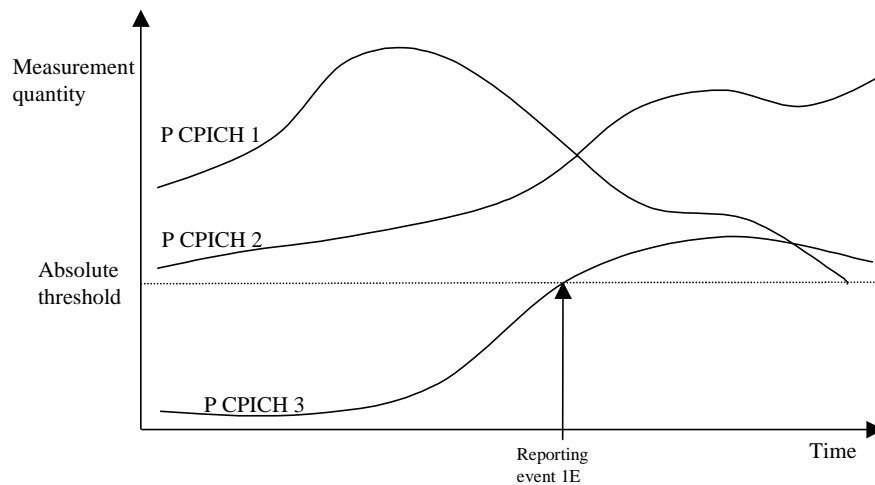


Figure 65: Event-triggered report when a Primary CPICH becomes better than an absolute threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Measurement quantity of a Primary CPICH becomes better than an absolute threshold. The corresponding report contains (at least) the involved Primary CPICH.

Event 1E may be used for triggering a measurement report, which includes cells, which the UE has detected without having received a neighbour cell list.

14.1.2.6 Reporting event 1F: A Primary CPICH becomes worse than an absolute threshold

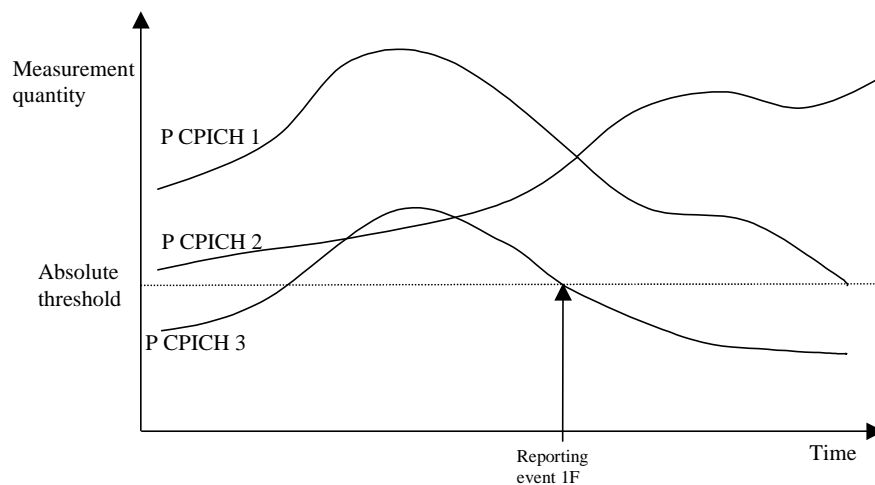


Figure 66: Event-triggered report when a Primary CPICH becomes worse than an absolute threshold

When this event is ordered by the UTRAN in a measurement control message the UE shall send a report when a primary CPICH becomes worse than an absolute threshold. The corresponding report contains (at least) the involved Primary CPICH.

14.1.3 Intra-frequency reporting events for TDD

14.1.3.1 Reporting event 1G: Change of best cell (TDD)

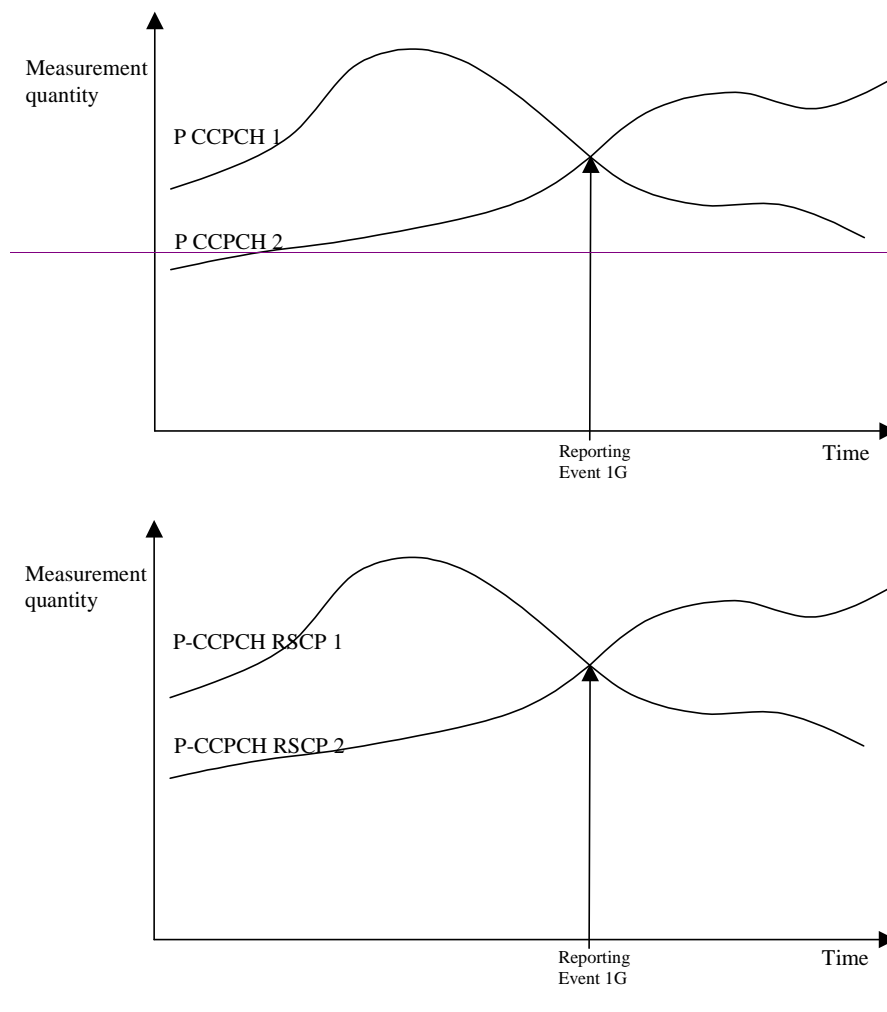


Figure 67: A primary P-CCPCH RSCP becomes better than the previous best primary P-CCPCH RSCP

If any of the monitored primary P-CCPCH RSCPs becomes better than the previously best primary P-CCPCH RSCP, and event 1G has been ordered by UTRAN then this event shall trigger a report to be sent from the UE. The corresponding report contains (at least) the new best primary CCPCH.

Before any evaluation is done, the values are filtered according to sub-clause 8.6.7.2.

Event 1G may be used with a hysteresis parameter (see sub-clause 14.1.5.1) and a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used, the UE shall send a measurement report if the P-CCPCH RSCP of a cell stays continuously better within the given time period.

The hysteresis corresponds always to the best P-CCPCH.

Event 1G may be used with cell-individual-offset for each cell, which is added to the P-CCPCH RSCP measurement before event evaluation.

If more than one cell triggers event 1G within the UE event evaluation period and fulfils the reporting criteria after the time-to-trigger has elapsed, the UE shall send at least the best cell but may report all these cells, sorted in descending order according to the measurement quantity.

14.1.3.2 Reporting event 1H: Timeslot ISCP below a certain threshold (TDD)

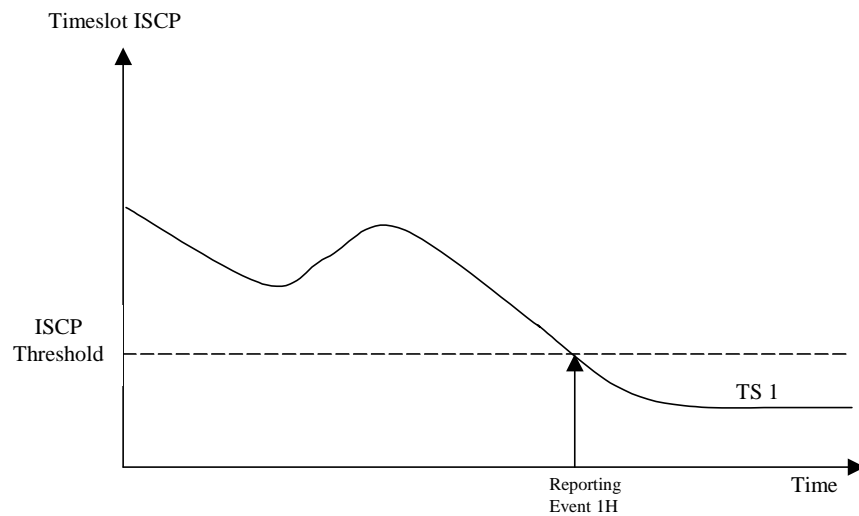


Figure 68: An ISCP value of a timeslot drops below an absolute threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP drops below an absolute threshold.

Event 1H may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously below the threshold for the given time period, before the UE shall send a measurement report.

Event 1H may be used with a cell-individual-offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter is without effect for event 1H.

14.1.3.3 Reporting event 1I: Timeslot ISCP above a certain threshold (TDD)

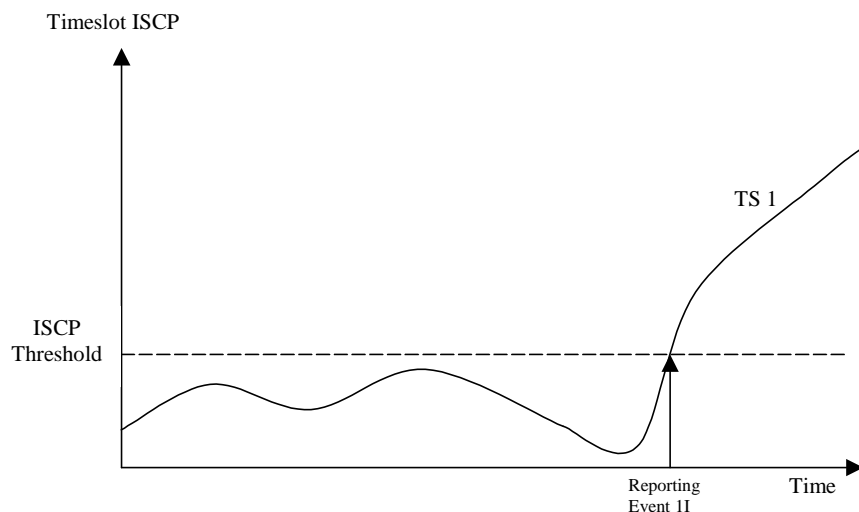


Figure 69: An ISCP value of a timeslot exceeds a certain threshold

When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the Timeslot ISCP exceeds an absolute threshold.

Event 1I may be used with a time-to-trigger parameter (see sub-clause 14.1.5.2). If a time-to-trigger parameter is used a cell must stay continuously above the threshold for the given time period, before the UE shall send a measurement report.

Event 1I may be used with a cell-individual-offset parameter for each cell, which is added to the Timeslot ISCP measurement before event evaluation.

The hysteresis parameter is without effect for event 1I.