TSG-RAN Meeting #12 *RP-010466*
Stockholm, Sweden, 12 - 15 June 2001

Title: **Agreed CRs (Release '99 and Rel-4 category A) to TS 25.331 (5)**

Source: **TSG-RAN WG2**

Agenda item: **8.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
-	-	25.331	840	3	R99	UE Positioning Measurement Accuracy Indication	F	3.6.0	3.7.0
-	-	25.331	841	1	Rel-4	UE Positioning Measurement Accuracy Indication	A	4.0.0	4.1.0
R2-011449	agreed	25.331	842	1	R99	Corrections on OTDOA-IPDL specific burst parameter semantic description	F	3.6.0	3.7.0
R2-011450	agreed	25.331	843		Rel-4	Corrections on OTDOA-IPDL specific burst parameter semantic description	A	4.0.0	4.1.0
R2-011290	agreed	25.331	844	1	R99	Error handling for messages sent from another RAT	F	3.6.0	3.7.0
R2-011291	agreed	25.331	845		Rel-4	Error handling for messages sent from another RAT	A	4.0.0	4.1.0
R2-011292	agreed	25.331	848	2	R99	Needed TFC in the TFCS for TDD	F	3.6.0	3.7.0
R2-011293	agreed	25.331	849		Rel-4	Needed TFC in the TFCS for TDD	A	4.0.0	4.1.0
R2-011159	agreed	25.331	854		R99	Clarification of TFCS selection guidelines	F	3.6.0	3.7.0
R2-011357	agreed	25.331	855		Rel-4	Clarification of TFCS selection guidelines	A	4.0.0	4.1.0
R2-011323	agreed	25.331	860	1	R99	Clarification of Traffic Volume measurements	F	3.6.0	3.7.0
R2-011360	agreed	25.331	861		Rel-4	Clarification of Traffic Volume measurements	A	4.0.0	4.1.0
R2-011299	agreed	25.331	862	1	R99	CFN synchronisation problems at timing re-initialised hard handover	F	3.6.0	3.7.0
R2-011300	agreed	25.331	863		Rel-4	CFN synchronisation problems at timing re-initialised hard handover	A	4.0.0	4.1.0
R2-011452	agreed	25.331	865	2	R99	Corrections on UP Assistance Message Descriptions	F	3.6.0	3.7.0
R2-011453	agreed	25.331	866		Rel-4	Corrections on UP Assistance Message Descriptions	A	4.0.0	4.1.0
R2-011454	agreed	25.331	867	2	R99	Correction on Area Scope of SIB 15.3	F	3.6.0	3.7.0
R2-011455	agreed	25.331	868		Rel-4	Correction on Area Scope of SIB 15.3	A	4.0.0	4.1.0
R2-011301	agreed	25.331	871	1	R99	Correction to AICH power offset	F	3.6.0	3.7.0
R2-011302	agreed	25.331	872		Rel-4	Correction to AICH power offset	A	4.0.0	4.1.0

3GPP TSG-RAN Meeting #12 ***RP-010466***
Stockholm, Sweden, 12-15 June, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 840** ⌘ rev **3** ⌘ Current version: **3.6.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	UE Positioning Measurement Accuracy Indication
Source:	⌘	Qualcomm
Work item code:	⌘	***Date:*** ⌘ 2001-06-12
Category:	⌘	**F** ***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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: ⌘ Conditions for reporting the SFN/GPS timing relationship info in 10.3.7.93 are incorrect. The optional reporting of the "Reference SFN" in 10.3.7.93 makes sense when the UTRAN also requests reporting of "GPS TOW usec". Thus this "Reference SFN" is changed from optional to conditional upon request.

Conditions for reporting the SFN/GPS timing relationship info in 10.3.7.109 are incorrect. The mandatory reporting of the "Reference SFN" in 10.3.7.109 is changed to conditional upon request so that it is only returned when "GPS TOW msec" and "GPS TOW usec" are requested and returned.

Summary of change: ⌘ Tabular: "UE positioning GPS measured results, 10.3.7.93"

- "Reference SFN" changed from optional to conditional upon request

Tabular: "UE positioning GPS position estimate info, 10.3.7.109"

- "Reference SFN" changed from mandatory to conditional upon request

ASN.1:

- "UE-Positioning-PositionEstimateInfo"
  - "referenceSFN" changed from mandatory to optional

Backwards Compatability Analysis:

- Proposed changes are backward compatible.
  1 and 2. Correction to a function where rules were missing.
  Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:	⌘	Partial combinations of SFN/GPS timing parameters with little or no utility will be possible to report.

Clauses affected:	⌘	10.3.7.93, 10.3.7.109, 11.3		
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

… <NEXT MODIFIED SECTION> …

10.3.7.93 UE positioning GPS measured results

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	CV-*Capability and request*~~OP~~		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	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_o	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the UE positioning reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	P < 0.5
1	001	000	0.5625	0.5 <= P < 0.5625
I	X	Y	$0.5 * (1 + x/8) * 2^y$	x_{i-1} <= P < x_i
62	110	111	112	104 <= P < 112
63	111	111	--	112 <= P

… <NEXT MODIFIED SECTION> …

10.3.7.109 UE positioning position estimate info

The purpose of this IE is to provide the position estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	~~MP~~ CV-*Capability and request*		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.
CHOICE *Position estimate*	MP			
>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	

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

… <NEXT MODIFIED SECTION> …

11.3 Information element definitions

… …

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


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

AlmanacSatInfo ::=                  SEQUENCE {
    dataID                              INTEGER (0..3),
    satID                               SatID,
    e                                   BIT STRING (SIZE (16)),
    t-oa                                BIT STRING (SIZE (8)),
    deltaI                              BIT STRING (SIZE (16)),
    omegaDot                            BIT STRING (SIZE (16)),
    satHealth                           BIT STRING (SIZE (8)),
    a-Sqrt                              BIT STRING (SIZE (24)),
    omega0                              BIT STRING (SIZE (24)),
    m0                                  BIT STRING (SIZE (24)),
    omega                               BIT STRING (SIZE (24)),
    af0                                 BIT STRING (SIZE (11)),
    af1                                 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=              SEQUENCE (SIZE (1..maxSat)) OF
                                        AlmanacSatInfo

AverageRLC-BufferPayload ::=        ENUMERATED {
                                        pla0, pla4, pla8, pla16, pla32,
                                        pla64, pla128, pla256, pla512,
                                        pla1024, pla2k, pla4k, pla8k, pla16k,
                                        pla32k, pla64k, pla128k, pla256k,
                                        pla512k, pla1024k }

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

BadSatList ::=                      SEQUENCE (SIZE (1..maxSat)) OF
                                        INTEGER (0..63)

Band-Indicator ::=                  ENUMERATED {
                                        dcs1800BandUsed, pcs1900BandUsed }

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

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

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

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

BSIC-VerificationRequired ::=       ENUMERATED {
                                        required, notRequired }

BSICReported ::=                    CHOICE {
    verifiedBSIC                        INTEGER (0..maxCellMeas),
    nonVerifiedBSIC                     BCCH-ARFCN
}

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

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

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


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

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

CellInfoSI-ECN0 ::=                 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,
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            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,
            readSFN-Indicator                   BOOLEAN
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

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

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

CellsForInterFreqMeasList ::=       SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        InterFreqCellID
CellsForInterRATMeasList ::=            SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        InterRATCellID
CellsForIntraFreqMeasList ::=       SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        IntraFreqCellID

CellSynchronisationInfo ::=         SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            countC-SFN-Frame-difference         CountC-SFN-Frame-difference     OPTIONAL,
            tm                                  INTEGER(0..38399)
        },
        tdd                                 SEQUENCE {
            countC-SFN-Frame-difference         CountC-SFN-Frame-difference     OPTIONAL
        }
    }
}

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 (0..50)

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

CPICH-RSCP ::=                      INTEGER (0..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            OPTIONAL,
    deltaRRC3                           DeltaRRC            OPTIONAL
}

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

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

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

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

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

EllipsoidPoint ::=                  SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607)
}


EllipsoidPointAltitude ::=          SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607),
    altitudeDirection   ENUMERATED {height, depth},
    altitude            INTEGER (0..16383)
}


EllipsoidPointAltitudeEllipsoide ::=    SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    altitudeDirection       ENUMERATED {height, depth},
    altitude                INTEGER (0..16383),
    uncertaintySemiMajor    INTEGER (0..127),
    uncertaintySemiMinor    INTEGER (0..127),
    orientationMajorAxis    INTEGER (0..89),
    uncertaintyAltitude     INTEGER (0..127),
    confidence              INTEGER (0..100)
}


EllipsoidPointUncertCircle ::=      SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
```

```
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    uncertaintyCode         INTEGER (0..127)
}


EllipsoidPointUncertEllipse ::=     SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    uncertaintySemiMajor    INTEGER (0..127),
    uncertaintySemiMinor    INTEGER (0..127),
    orientationMajorAxis    INTEGER (0..89),
    confidence              INTEGER (0..100)
}


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

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,
    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 {
    thresholdOtherSystem                Threshold,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL

}

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

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

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

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

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

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

ExtraDopplerInfo ::=                SEQUENCE {
    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-Assist ::=                  SEQUENCE {
    satID                               SatID,
    tlm-Message                         BIT STRING (SIZE (14)),
    tlm-Reserved                        BIT STRING (SIZE (2)),
    antiSpoof                           BOOLEAN,
    alert                               BOOLEAN
}

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

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

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

HCS-CellReselectInformation-ECN0 ::=        SEQUENCE {
    penaltyTime                             PenaltyTime-ECN0
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    hcs-CellReselectInformation             HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECN0 ::= SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    hcs-CellReselectInformation             HCS-CellReselectInformation-ECN0
}

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

HCS-ServingCellInformation ::=      SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    t-CR-Max                                T-CRMax                                 OPTIONAL
}

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

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

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

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

InterFreqCellInfoSI-List-HCS-RSCP ::=       SEQUENCE {
    removedInterFreqCellList                RemovedInterFreqCellList                OPTIONAL,
    newInterFreqCellList                    NewInterFreqCellSI-List-HCS-RSCP        OPTIONAL
}
InterFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedInterFreqCellList                RemovedInterFreqCellList                OPTIONAL,
    newInterFreqCellList                    NewInterFreqCellSI-List-HCS-ECN0        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-ECN0 ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-ECN0       OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-RSCP   OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECN0 ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-ECN0   OPTIONAL
}

InterFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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,
            band-Indicator                      Band-Indicator,
            bcch-ARFCN                          BCCH-ARFCN,
            ncMode                              NC-Mode             OPTIONAL
        },
        is-2000                             NULL,
        spare                               NULL
    }
}

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

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

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

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 fc1,
            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-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-ECN0
}

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

IntraFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-HCS-ECN0
}

IntraFreqEvent ::=                  CHOICE {
    e1a                                 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 fc1,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

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

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

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,
    ue-positioning-MeasuredResults                  UE-Positioning-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    {
            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,
    ue-positioning-Measurement                  UE-Positioning-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

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

MonitoredCellRACH-List ::=          SEQUENCE (SIZE (1..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
            }                                                           OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersID                    CellParametersID,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP
        }
    }
}

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

N-CR-T-CRMaxHyst ::=                SEQUENCE {
    n-CR                                INTEGER (1..16)                     DEFAULT 8,
    t-CRMaxHyst                         T-CRMaxHyst
}

NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    navModel                            NavModel        OPTIONAL
}

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)),
    sf1Revd                             SubFrame1Reserved,
    t-GD                                BIT STRING (SIZE (8)),
    t-oc                                BIT STRING (SIZE (16)),
    af2                                 BIT STRING (SIZE (8)),
    af1                                 BIT STRING (SIZE (16)),
    af0                                 BIT STRING (SIZE (22)),
    c-rs                                BIT STRING (SIZE (16)),
    delta-n                             BIT STRING (SIZE (16)),
    m0                                  BIT STRING (SIZE (32)),
    c-uc                                BIT STRING (SIZE (16)),
    e                                   BIT STRING (SIZE (32)),
    c-us                                BIT STRING (SIZE (16)),
    a-Sqrt                              BIT STRING (SIZE (32)),
    t-oe                                BIT STRING (SIZE (16)),
    fitInterval                         BIT STRING (SIZE (1)),
    aodo                                BIT STRING (SIZE (5)),
    c-ic                                BIT STRING (SIZE (16)),
    omega0                              BIT STRING (SIZE (32)),
    c-is                                BIT STRING (SIZE (16)),
    i0                                  BIT STRING (SIZE (32)),
    c-rc                                BIT STRING (SIZE (16)),
    omega                               BIT STRING (SIZE (32)),
    omegaDot                            BIT STRING (SIZE (24)),
    iDot                                BIT STRING (SIZE (14))
}
NC-Mode::=                          BIT STRING (SIZE (3))

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

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,
            interRATCellIndividualOffset        InterRATCellIndividualOffset,
            bsic                                BSIC,
            band-Indicator                      Band-Indicator,
            bcch-ARFCN                          BCCH-ARFCN,
            gsm-OutputPower                     GSM-OutputPower             OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo             IS-2000SpecificMeasInfo
        },
        spare1                              NULL,
        spare2                              NULL
    }
}

NewInterRATCell-HCS ::=             SEQUENCE {
    interRATCellID                      InterRATCellID              OPTIONAL,
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL,
            interRATCellIndividualOffset        InterRATCellIndividualOffset,
            bsic                                BSIC,
            band-Indicator                      Band-Indicator,
            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 ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffset,
    pt20                                TemporaryOffset,
    pt30                                TemporaryOffset,
    pt40                                TemporaryOffset,
    pt50                                TemporaryOffset,
    pt60                                TemporaryOffset
}

PenaltyTime-ECN0 ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffsetList,
    pt20                                TemporaryOffsetList,
    pt30                                TemporaryOffsetList,
    pt40                                TemporaryOffsetList,
    pt50                                TemporaryOffsetList,
    pt60                                TemporaryOffsetList
}

PendingTimeAfterTrigger ::=         ENUMERATED {
                                        ptat0-25, ptat0-5, ptat1,
                                        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=        ENUMERATED {
                                        periodical,
                                        eventTrigger }

PeriodicalReportingCriteria ::=     SEQUENCE {
    reportingAmount                     ReportingAmount                 DEFAULT ra-Infinity,
    reportingInterval                   ReportingIntervalLong
}

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
```

```
}

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

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

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

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

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

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

PRC ::=                             INTEGER (-2047..2047)


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

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

Q-OffsetS-N ::=                     INTEGER (-50..50)

Q-QualMin ::=                       INTEGER (-24..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=                      INTEGER (-58..-13)

QualityEventResults ::=             SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

QualityMeasuredResults ::=          SEQUENCE {
    blerMeasurementResultsList          BLER-MeasurementResultsList         OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            sir-MeasurementResults              SIR-MeasurementList         OPTIONAL
        }
    }
}

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

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

QualityReportingCriteria ::=        SEQUENCE (SIZE (1..maxTrCH)) OF
                                        QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::=  SEQUENCE {
```

```
    transportChannelIdentity            TransportChannelIdentity,
    totalCRC                            INTEGER (1..512),
    badCRC                              INTEGER (1..512),
    pendingAfterTrigger                 INTEGER (1..512)
}

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

QualityType ::=                     ENUMERATED {
                                        std-10, std-50, 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
ReferenceLocation ::=           SEQUENCE {
    ellipsoidPointAltitudeEllipsoide        EllipsoidPointAltitudeEllipsoide
}

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, 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 {
                                        pl0, pl4, pl8, pl16, pl32, pl64, pl128,
                                        pl256, pl512, pl1024, pl2k, pl4k,
                                        pl8k, pl16k, pl32k, pl64k, pl128k,
                                        pl256k, pl512k, pl1024k }
```

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

SatData ::=                         SEQUENCE{
    satID                               SatID,
    iode                                IODE
}

SatDataList ::=                     SEQUENCE (SIZE (0..maxSat)) OF
                                        SatData

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

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 }

SFN-SFN-RelTimeDifference1 ::=      INTEGER (0..9830399)

SFN-TOW-Uncertainty ::=             ENUMERATED {
                                        lessThan10,
                                        moreThan10 }

SIR ::=                             INTEGER (0..63)


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


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

SIR-TFCS ::=                        TFCS-IdentityPlain


SIR-TFCS-List ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        SIR-TFCS

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

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=               SEQUENCE {
    reserved1                           BIT STRING (SIZE (23)),
    reserved2                           BIT STRING (SIZE (24)),
    reserved3                           BIT STRING (SIZE (24)),
    reserved4                           BIT STRING (SIZE (16))
}

T-CRMax ::=                         CHOICE {
    notUsed                             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 (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, tt320, ttt640,
                                        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=         SEQUENCE {
    eventID                             TrafficVolumeEventType,
    reportingThreshold                  TrafficVolumeThreshold,
    timeToTrigger                       TimeToTrigger                       OPTIONAL,
    pendingTimeAfterTrigger             PendingTimeAfterTrigger             OPTIONAL,
    tx-InterruptionAfterTrigger         TX-InterruptionAfterTrigger         OPTIONAL
}

TrafficVolumeEventResults ::=       SEQUENCE {
    ul-transportChannelCausingEvent     UL-TrCH-Identity,
    trafficVolumeEventIdentity          TrafficVolumeEventType
}
```

```
TrafficVolumeEventType ::=          ENUMERATED {
                                        e4a,
                                        e4b }

TrafficVolumeMeasQuantity ::=       CHOICE {
    rlc-BufferPayload                   NULL,
    averageRLC-BufferPayload            TimeInterval,
    varianceOfRLC-BufferPayload         TimeInterval
}

TrafficVolumeMeasSysInfo ::=        SEQUENCE {
    trafficVolumeMeasurementID          MeasurementIdentity         DEFAULT 4,
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    trafficVolumeMeasRepCriteria        TrafficVolumeReportingCriteria      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo

}

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

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

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

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

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

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList                 TransChCriteriaList                 OPTIONAL
}

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

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

TransChCriteria ::=                 SEQUENCE {
    ul-transportChannelID               UL-TrCH-Identity                    OPTIONAL,
    eventSpecificParameters             SEQUENCE (SIZE (1..maxMeasParEvent)) OF
                                            TrafficVolumeEventParam         OPTIONAL
}
```

```
TransChCriteriaList ::=         SEQUENCE (SIZE (1..maxTrCH)) OF
                                    TransChCriteria

TransferMode ::=                    ENUMERATED {
                                    acknowledgedModeRLC,
                                    unacknowledgedModeRLC }

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

TriggeringCondition1 ::=            ENUMERATED {
                                    activeSetCellsOnly,
                                    monitoredSetCellsOnly,
                                    activeSetAndMonitoredSetCells }

TriggeringCondition2 ::=            ENUMERATED {
                                    activeSetCellsOnly,
                                    monitoredSetCellsOnly,
                                    activeSetAndMonitoredSetCells,
                                    detectedSetCellsOnly,
                                    detectedSetAndMonitoredSetCells }

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

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

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

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

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

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

UE-InternalEventParamList ::=       SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                    UE-InternalEventParam

UE-InternalEventResults ::=         CHOICE {
    event6a                             NULL,
    event6b                             NULL,
    event6c                             NULL,
    event6d                             NULL,
    event6e                             NULL,
    event6f                             PrimaryCPICH-Info,
    event6g                             PrimaryCPICH-Info
}

UE-InternalMeasQuantity ::=         SEQUENCE {
    measurementQuantity                 UE-MeasurementQuantity,
    filterCoefficient                   FilterCoefficient                   DEFAULT 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 (0..104)

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

UL-TrCH-Identity ::=                    CHOICE{
    dch                                 TransportChannelIdentity,
    rach                                NULL,
    usch                                TransportChannelIdentity
}

UE-Positioning-Accuracy ::=                 BIT STRING (SIZE (7))
```

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

UE-Positioning-Error ::=                        SEQUENCE {
    errorReason                         UE-Positioning-ErrorCause,
    ue-positioning-GPS-additionalAssistanceDataRequest          UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
}

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

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

UE-Positioning-EventParam ::=                   SEQUENCE {
    reportingAmount                     ReportingAmount,
    reportFirstFix                      BOOLEAN,
    measurementInterval                 UE-Positioning-MeasurementInterval,
    eventSpecificInfo                   UE-Positioning-EventSpecificInfo
}

UE-Positioning-EventParamList ::=               SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        UE-Positioning-EventParam

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

UE-Positioning-GPS-AcquisitionAssistance ::=    SEQUENCE {
    referenceTime                       CHOICE {
        utran-ReferenceTime                 UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly               INTEGER (0..604799999)
    },
    satelliteInformationList            AcquisitionSatInfoList
}

UE-Positioning-GPS-AdditionalAssistanceDataRequest ::=      SEQUENCE {
    almanacRequest                      BOOLEAN,
    utcModelRequest                     BOOLEAN,
    ionosphericModelRequest             BOOLEAN,
    navigationModelRequest              BOOLEAN,
    dgpsCorrectionsRequest              BOOLEAN,
    referenceLocationRequest            BOOLEAN,
    referenceTimeRequest                BOOLEAN,
    aquisitionAssistanceRequest         BOOLEAN,
    realTimeIntegrityRequest            BOOLEAN,
    navModelAddDataRequest              UE-Positioning-GPS-NavModelAddDataReq       OPTIONAL
}

UE-Positioning-GPS-Almanac ::=                  SEQUENCE {
    wn-a                                BIT STRING (SIZE (8)),
    almanacSatInfoList                  AlmanacSatInfoList,
    sv-GlobalHealth                     BIT STRING (SIZE (364))             OPTIONAL
}

UE-Positioning-GPS-AssistanceData ::=           SEQUENCE {
    ue-positioning-GPS-ReferenceTime            UE-Positioning-GPS-ReferenceTime
    OPTIONAL,
    ue-positioning-GPS-ReferenceLocation        ReferenceLocation               OPTIONAL,
    ue-positioning-GPS-DGPS-Corrections         UE-Positioning-GPS-DGPS-Corrections
    OPTIONAL,
    ue-positioning-GPS-NavigationModel          UE-Positioning-GPS-NavigationModel
    OPTIONAL,
    ue-positioning-GPS-IonosphericModel         UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
```

```
    ue-positioning-GPS-UTC-Model                UE-Positioning-GPS-UTC-Model
    OPTIONAL,
    ue-positioning-GPS-Almanac                  UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance    UE-Positioning-GPS-AcquisitionAssistance
    OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity       BadSatList                          OPTIONAL
}

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

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

UE-Positioning-GPS-Measurement ::=          SEQUENCE {
    referenceSFN                    ReferenceSFN                    OPTIONAL,
    gps-TOW-1msec                   GPS-TOW-1msec,
    gps-TOW-rem-usec                GPS-TOW-rem-usec                OPTIONAL,
    gps-MeasurementParamList        GPS-MeasurementParamList
}

UE-Positioning-GPS-NavigationModel ::=      SEQUENCE {
    navigationModelSatInfoList      NavigationModelSatInfoList
}

UE-Positioning-GPS-NavModelAddDataReq ::=   SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-Toe                         INTEGER (0..167),
    tToeLimit                       INTEGER (0..10),
    satDataList                     SatDataList
}

UE-Positioning-GPS-ReferenceTime ::=        SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-tow-1msec                   GPS-TOW-1msec,
    gps-tow-rem-usec                GPS-TOW-rem-usec                OPTIONAL,
    sfn                             INTEGER (0..4095),
    sfn-tow-Uncertainty             SFN-TOW-Uncertainty             OPTIONAL,
    nodeBClockDrift                 NodeB-ClockDrift                OPTIONAL,
    gps-TOW-AssistList              GPS-TOW-AssistList              OPTIONAL
}

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

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

UE-Positioning-MeasuredResults ::=          SEQUENCE {
    ue-positioning-MultipleSets                 UE-Positioning-MultipleSets
    OPTIONAL,
    ue-positioning-ReferenceCellIdentity        PrimaryCPICH-Info               OPTIONAL,
```

```
    ue-positioning-OTDOA-Measurement                UE-Positioning-OTDOA-Measurement
    OPTIONAL,
    ue-positioning-PositionEstimateInfo             UE-Positioning-PositionEstimateInfo
        OPTIONAL,
    ue-positioning-GPS-Measurement                  UE-Positioning-GPS-Measurement
    OPTIONAL,
    ue-positioning-Error                            UE-Positioning-Error
    OPTIONAL
}

UE-Positioning-Measurement ::=                  SEQUENCE {
    ue-positioning-ReportingQuantity                UE-Positioning-ReportingQuantity,
    reportCriteria                          UE-Positioning-ReportCriteria,
    ue-positioning-OTDOA-AssistanceData         UE-Positioning-OTDOA-AssistanceData
    OPTIONAL,
    ue-positioning-GPS-AssistanceData               UE-Positioning-GPS-AssistanceData
    OPTIONAL
}

UE-Positioning-MeasurementEventResults ::=      CHOICE {
    event7a                                 UE-Positioning-PositionEstimateInfo,
    event7b                                 UE-Positioning-OTDOA-Measurement,
    event7c                                 UE-Positioning-GPS-Measurement
}

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

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

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

UE-Positioning-OTDOA-AssistanceData ::=     SEQUENCE {
    ue-positioning-OTDOA-ReferenceCellInfo          UE-Positioning-OTDOA-ReferenceCellInfo
    OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList              UE-Positioning-OTDOA-NeighbourCellList
        OPTIONAL
}

UE-Positioning-OTDOA-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
}

UE-Positioning-OTDOA-NeighbourCellInfo  ::= SEQUENCE {
    modeSpecificInfo    CHOICE  {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                       PrimaryCPICH-Info
        },
        tdd                                 SEQUENCE{
            cellAndChannelIdentity                  CellAndChannelIdentity
        }
    },
    frequencyInfo                           FrequencyInfo                       OPTIONAL,
    ue-positioning-IPDL-Paremeters                  UE-Positioning-IPDL-Parameters
    OPTIONAL,
    sfn-SFN-RelTimeDifference               SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                           INTEGER (0..30),
    searchWindowSize                        OTDOA-SearchWindowSize,
    positioningMode     CHOICE{
        ueBased                                 SEQUENCE {
            relativeNorth                       INTEGER (-20000..20000)             OPTIONAL,
```

```
            relativeEast                        INTEGER (-20000..20000)             OPTIONAL,
            relativeAltitude                    INTEGER (-4000..4000)               OPTIONAL,
            fineSFN-SFN                         FineSFN-SFN                         OPTIONAL,
            roundTripTime                       INTEGER (0..32765)                  OPTIONAL
        },
        ueAssisted                              SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        UE-Positioning-OTDOA-NeighbourCellInfo

UE-Positioning-OTDOA-ReferenceCellInfo ::=          SEQUENCE {
    sfn                                 INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd                                     SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                                     SEQUENCE{
            cellAndChannelIdentity              CellAndChannelIdentity
        }
    },
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    positioningMode CHOICE {
        ueBased                                 SEQUENCE {
            cellPosition                                ReferenceCellPosition   OPTIONAL,
            roundTripTime                       INTEGER (0..32765)              OPTIONAL
        },
        ueAssisted                              SEQUENCE {}
    },
    ue-positioning-IPDL-Paremeters              UE-Positioning-IPDL-Parameters  OPTIONAL
}

UE-Positioning-PositionEstimateInfo ::=                 SEQUENCE {
    referenceSFN                        ReferenceSFN        OPTIONAL,
    gps-tow-1msec                       GPS-TOW-1msec       OPTIONAL,
    gps-tow-rem-usec                    GPS-TOW-rem-usec    OPTIONAL,
    positionEstimate                    PositionEstimate
}

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

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

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

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


UTRAN-ReferenceTime ::=             SEQUENCE {
    gps-tow-1msec                       GPS-TOW-1msec,
    gps-tow-rem-usec                    GPS-TOW-rem-usec,   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)
```

3GPP TSG-RAN Meeting #12 ***RP_010466***
Stockholm, Sweden, 12-15 June, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 841** ⌘ rev **1** ⌘ Current version: **4.0.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	UE Positioning Measurement Accuracy Indication
Source:	⌘	Qualcomm
Work item code:	⌘	***Date:*** ⌘ 2001-06-12
Category:	⌘ **F**	***Release:*** ⌘ REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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: ⌘ Conditions for reporting the SFN/GPS timing relationship info in 10.3.7.93 are incorrect. The optional reporting of the "Reference SFN" in 10.3.7.93 makes sense when the UTRAN also requests reporting of "GPS TOW usec". Thus this "Reference SFN" is changed from optional to conditional upon request.

Conditions for reporting the SFN/GPS timing relationship info in 10.3.7.109 are incorrect. The mandatory reporting of the "Reference SFN" in 10.3.7.109 is changed to conditional upon request so that it is only returned when "GPS TOW msec" and "GPS TOW usec" are requested and returned.

Summary of change: ⌘ Tabular: "UE positioning GPS measured results, 10.3.7.93"

- "Reference SFN" changed from optional to conditional upon request

Tabular: "UE positioning GPS position estimate info, 10.3.7.109"

- "Reference SFN" changed from mandatory to conditional upon request

ASN.1:

- "UE-Positioning-PositionEstimateInfo"
  - "referenceSFN" changed from mandatory to optional

Backwards Compatability Analysis:

- Proposed changes are backward compatible.
  1 and 2. Correction to a function where rules were missing.
  Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved:	⌘	Partial combinations of SFN/GPS timing parameters with little utility or no will be possible to report.

Clauses affected:	⌘	10.3.7.93, 10.3.7.109, 11.3		
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

… <NEXT MODIFIED SECTION> …

10.3.7.93 UE positioning GPS measured results

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	CV-*Capability and request*~~OP~~		Integer(0..4095)	The SFN for which the location is valid
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	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_o	MP		Integer(0..63)	the estimate of the carrier-to-noise ratio of the received signal from the particular satellite used in the measurement. It is given in whole dBs. Typical levels observed by UE-based GPS units will be in the range of 20 – 50 dB.
>Doppler	MP		Integer(-32768..32768)	Hz, scale factor 0.2.
>Whole GPS Chips	MP		Integer(0..1023)	Unit in GPS chips
>Fractional GPS Chips	MP		Integer(0..(2^{10}-1))	Scale factor 2^{-10}
>Multipath Indicator	MP		Enumerated(NM, low, medium, high)	See note 1
>Pseudorange RMS Error	MP		Enumerated(range index 0..range index 63)	See note 2

Condition	Explanation
Capability and request	This field is included only if the UE has this capability *and* if it was requested in the UE positioning reporting quantity

NOTE 1: The following table gives the mapping of the multipath indicator field.

Value	Multipath Indication
NM	Not measured
Low	MP error < 5m
Medium	5m < MP error < 43m
High	MP error > 43m

NOTE 2: The following table gives the bitmapping of the Pseudorange RMS Error field.

Range Index	Mantissa	Exponent	Floating-Point value, x_i	Pseudorange value, P
0	000	000	0.5	P < 0.5
1	001	000	0.5625	0.5 <= P < 0.5625
I	X	Y	$0.5 * (1 + x/8) * 2^y$	x_{i-1} <= P < x_i
62	110	111	112	104 <= P < 112
63	111	111	--	112 <= P

… <NEXT MODIFIED SECTION> …

10.3.7.109 UE positioning position estimate info

The purpose of this IE is to provide the position estimate from the UE to the network, if the UE is capable of determining its own position.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Reference SFN	~~MP~~ CV-*Capability and request*		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.
CHOICE *Position estimate*	MP			
>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	

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

… <NEXT MODIFIED SECTION> …

11.3 Information element definitions

… …

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


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

AlmanacSatInfo ::=                  SEQUENCE {
    dataID                              INTEGER (0..3),
    satID                               SatID,
    e                                   BIT STRING (SIZE (16)),
    t-oa                                BIT STRING (SIZE (8)),
    deltaI                              BIT STRING (SIZE (16)),
    omegaDot                            BIT STRING (SIZE (16)),
    satHealth                           BIT STRING (SIZE (8)),
    a-Sqrt                              BIT STRING (SIZE (24)),
    omega0                              BIT STRING (SIZE (24)),
    m0                                  BIT STRING (SIZE (24)),
    omega                               BIT STRING (SIZE (24)),
    af0                                 BIT STRING (SIZE (11)),
    af1                                 BIT STRING (SIZE (11))
}

AlmanacSatInfoList ::=              SEQUENCE (SIZE (1..maxSat)) OF
                                        AlmanacSatInfo

AverageRLC-BufferPayload ::=        ENUMERATED {
                                        pla0, pla4, pla8, pla16, pla32,
                                        pla64, pla128, pla256, pla512,
                                        pla1024, pla2k, pla4k, pla8k, pla16k,
                                        pla32k, pla64k, pla128k, pla256k,
                                        pla512k, pla1024k }

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

BadSatList ::=                      SEQUENCE (SIZE (1..maxSat)) OF
                                        INTEGER (0..63)

Band-Indicator ::=                  ENUMERATED {
                                        dcs1800BandUsed, pcs1900BandUsed }

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

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

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

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

BSIC-VerificationRequired ::=       ENUMERATED {
                                        required, notRequired }

BSICReported ::=                    CHOICE {
    verifiedBSIC                        INTEGER (0..maxCellMeas),
    nonVerifiedBSIC                     BCCH-ARFCN
}

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

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

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


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

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

CellInfoSI-ECN0 ::=                 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-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,
            readSFN-Indicator                   BOOLEAN
        }
    },
    cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

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

CellsForInterFreqMeasList ::=       SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        InterFreqCellID
CellsForInterRATMeasList ::=            SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        InterRATCellID
CellsForIntraFreqMeasList ::=       SEQUENCE (SIZE  (1..maxCellMeas)) OF
                                        IntraFreqCellID

CellSynchronisationInfo ::=         SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            countC-SFN-Frame-difference         CountC-SFN-Frame-difference     OPTIONAL,
            tm                                  INTEGER(0..38399)
        },
        tdd                                 SEQUENCE {
            countC-SFN-Frame-difference         CountC-SFN-Frame-difference     OPTIONAL
        }
    }
}

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 (0..50)

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

CPICH-RSCP ::=                      INTEGER (0..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            OPTIONAL,
    deltaRRC3                           DeltaRRC            OPTIONAL
}

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

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

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

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

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

EllipsoidPoint ::=                  SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607)
}


EllipsoidPointAltitude ::=          SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607),
    altitudeDirection   ENUMERATED {height, depth},
    altitude            INTEGER (0..16383)
}


EllipsoidPointAltitudeEllipsoide ::=    SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    altitudeDirection       ENUMERATED {height, depth},
    altitude                INTEGER (0..16383),
    uncertaintySemiMajor    INTEGER (0..127),
    uncertaintySemiMinor    INTEGER (0..127),
    orientationMajorAxis    INTEGER (0..89),
    uncertaintyAltitude     INTEGER (0..127),
    confidence              INTEGER (0..100)
}


EllipsoidPointUncertCircle ::=      SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
```

```
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    uncertaintyCode         INTEGER (0..127)
}


EllipsoidPointUncertEllipse ::=     SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    uncertaintySemiMajor    INTEGER (0..127),
    uncertaintySemiMinor    INTEGER (0..127),
    orientationMajorAxis    INTEGER (0..89),
    confidence              INTEGER (0..100)
}


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

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,
    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 {
    thresholdOtherSystem                Threshold,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL

}

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

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

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

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

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

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

ExtraDopplerInfo ::=                SEQUENCE {
    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-Assist ::=                  SEQUENCE {
    satID                               SatID,
    tlm-Message                         BIT STRING (SIZE (14)),
    tlm-Reserved                        BIT STRING (SIZE (2)),
    antiSpoof                           BOOLEAN,
    alert                               BOOLEAN
}

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

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

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

HCS-CellReselectInformation-ECN0 ::=        SEQUENCE {
    penaltyTime                             PenaltyTime-ECN0
    -- TABULAR: The default value is "notUsed", temporary offset is nested inside PenaltyTime
}

HCS-NeighbouringCellInformation-RSCP ::= SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    hcs-CellReselectInformation             HCS-CellReselectInformation-RSCP
}

HCS-NeighbouringCellInformation-ECN0 ::= SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    hcs-CellReselectInformation             HCS-CellReselectInformation-ECN0
}

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

HCS-ServingCellInformation ::=      SEQUENCE {
    hcs-PRIO                                HCS-PRIO                                DEFAULT 0,
    q-HCS                                   Q-HCS                                   DEFAULT 0,
    t-CR-Max                                T-CRMax                                 OPTIONAL
}

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

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

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

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

InterFreqCellInfoSI-List-HCS-RSCP ::=       SEQUENCE {
    removedInterFreqCellList                RemovedInterFreqCellList                OPTIONAL,
    newInterFreqCellList                    NewInterFreqCellSI-List-HCS-RSCP        OPTIONAL
}
InterFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedInterFreqCellList                RemovedInterFreqCellList                OPTIONAL,
    newInterFreqCellList                    NewInterFreqCellSI-List-HCS-ECN0        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-ECN0 ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-ECN0       OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-RSCP ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-RSCP   OPTIONAL
}

InterFreqMeasurementSysInfo-HCS-ECN0 ::=        SEQUENCE {
    interFreqCellInfoSI-List            InterFreqCellInfoSI-List-HCS-ECN0   OPTIONAL
}

InterFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria          IntraFreqReportingCriteria,
    interFreqReportingCriteria          InterFreqReportingCriteria,
    periodicalReportingCriteria         PeriodicalWithReportingCellStatus,
    noReporting                         ReportingCellStatusOpt
}

InterFreqReportingCriteria ::=      SEQUENCE {
    interFreqEventList                  InterFreqEventList                  OPTIONAL
}

InterFreqReportingQuantity ::=      SEQUENCE {
    utra-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,
            band-Indicator                      Band-Indicator,
            bcch-ARFCN                          BCCH-ARFCN,
            ncMode                              NC-Mode             OPTIONAL
        },
        is-2000                             NULL,
        spare                               NULL
    }
}

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

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

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

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 fc1,
            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-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-ECN0
}

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

IntraFreqCellInfoSI-List-HCS-ECN0 ::=       SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellSI-List-HCS-ECN0
}

IntraFreqEvent ::=                  CHOICE {
    e1a                                 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 fc1,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

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

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

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,
    ue-positioning-MeasuredResults                  UE-Positioning-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    {
            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,
    ue-positioning-Measurement                  UE-Positioning-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

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

MonitoredCellRACH-List ::=          SEQUENCE (SIZE (1..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
            }                                                           OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersID                    CellParametersID,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP
        }
    }
}

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

N-CR-T-CRMaxHyst ::=                SEQUENCE {
    n-CR                                INTEGER (1..16)                     DEFAULT 8,
    t-CRMaxHyst                         T-CRMaxHyst
}

NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    navModel                            NavModel        OPTIONAL
}

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)),
    sf1Revd                             SubFrame1Reserved,
    t-GD                                BIT STRING (SIZE (8)),
    t-oc                                BIT STRING (SIZE (16)),
    af2                                 BIT STRING (SIZE (8)),
    af1                                 BIT STRING (SIZE (16)),
    af0                                 BIT STRING (SIZE (22)),
    c-rs                                BIT STRING (SIZE (16)),
    delta-n                             BIT STRING (SIZE (16)),
    m0                                  BIT STRING (SIZE (32)),
    c-uc                                BIT STRING (SIZE (16)),
    e                                   BIT STRING (SIZE (32)),
    c-us                                BIT STRING (SIZE (16)),
    a-Sqrt                              BIT STRING (SIZE (32)),
    t-oe                                BIT STRING (SIZE (16)),
    fitInterval                         BIT STRING (SIZE (1)),
    aodo                                BIT STRING (SIZE (5)),
    c-ic                                BIT STRING (SIZE (16)),
    omega0                              BIT STRING (SIZE (32)),
    c-is                                BIT STRING (SIZE (16)),
    i0                                  BIT STRING (SIZE (32)),
    c-rc                                BIT STRING (SIZE (16)),
    omega                               BIT STRING (SIZE (32)),
    omegaDot                            BIT STRING (SIZE (24)),
    iDot                                BIT STRING (SIZE (14))
}
NC-Mode::=                          BIT STRING (SIZE (3))

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

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,
            interRATCellIndividualOffset        InterRATCellIndividualOffset,
            bsic                                BSIC,
            band-Indicator                      Band-Indicator,
            bcch-ARFCN                          BCCH-ARFCN,
            gsm-OutputPower                     GSM-OutputPower             OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo             IS-2000SpecificMeasInfo
        },
        spare1                              NULL,
        spare2                              NULL
    }
}

NewInterRATCell-HCS ::=             SEQUENCE {
    interRATCellID                      InterRATCellID              OPTIONAL,
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            cellSelectionReselectionInfo        CellSelectReselectInfoSIB-11-12     OPTIONAL,
            interRATCellIndividualOffset        InterRATCellIndividualOffset,
            bsic                                BSIC,
            band-Indicator                      Band-Indicator,
            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 ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffset,
    pt20                                TemporaryOffset,
    pt30                                TemporaryOffset,
    pt40                                TemporaryOffset,
    pt50                                TemporaryOffset,
    pt60                                TemporaryOffset
}

PenaltyTime-ECN0 ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffsetList,
    pt20                                TemporaryOffsetList,
    pt30                                TemporaryOffsetList,
    pt40                                TemporaryOffsetList,
    pt50                                TemporaryOffsetList,
    pt60                                TemporaryOffsetList
}

PendingTimeAfterTrigger ::=         ENUMERATED {
                                        ptat0-25, ptat0-5, ptat1,
                                        ptat2, ptat4, ptat8, ptat16 }

PeriodicalOrEventTrigger ::=        ENUMERATED {
                                        periodical,
                                        eventTrigger }

PeriodicalReportingCriteria ::=     SEQUENCE {
    reportingAmount                     ReportingAmount                 DEFAULT ra-Infinity,
    reportingInterval                   ReportingIntervalLong
}

PeriodicalWithReportingCellStatus ::= SEQUENCE {
    periodicalReportingCriteria         PeriodicalReportingCriteria,
    reportingCellStatus                 ReportingCellStatus                 OPTIONAL
```

```
}

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

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

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

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

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

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

PRC ::=                             INTEGER (-2047..2047)


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

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

Q-OffsetS-N ::=                     INTEGER (-50..50)

Q-QualMin ::=                       INTEGER (-24..0)

-- Actual value = (IE value * 2) + 1
Q-RxlevMin ::=                      INTEGER (-58..-13)

QualityEventResults ::=             SEQUENCE (SIZE (1..maxTrCH)) OF
                                        TransportChannelIdentity

QualityMeasuredResults ::=          SEQUENCE {
    blerMeasurementResultsList          BLER-MeasurementResultsList         OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            sir-MeasurementResults              SIR-MeasurementList         OPTIONAL
        }
    }
}

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

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

QualityReportingCriteria ::=        SEQUENCE (SIZE (1..maxTrCH)) OF
                                        QualityReportingCriteriaSingle

QualityReportingCriteriaSingle ::=  SEQUENCE {
```

```
    transportChannelIdentity            TransportChannelIdentity,
    totalCRC                            INTEGER (1..512),
    badCRC                              INTEGER (1..512),
    pendingAfterTrigger                 INTEGER (1..512)
}

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

QualityType ::=                     ENUMERATED {
                                        std-10, std-50, 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
ReferenceLocation ::=           SEQUENCE {
    ellipsoidPointAltitudeEllipsoide        EllipsoidPointAltitudeEllipsoide
}

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, 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 {
                                        pl0, pl4, pl8, pl16, pl32, pl64, pl128,
                                        pl256, pl512, pl1024, pl2k, pl4k,
                                        pl8k, pl16k, pl32k, pl64k, pl128k,
                                        pl256k, pl512k, pl1024k }
```

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

SatData ::=                         SEQUENCE{
    satID                               SatID,
    iode                                IODE
}

SatDataList ::=                     SEQUENCE (SIZE (0..maxSat)) OF
                                        SatData

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

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 }

SFN-SFN-RelTimeDifference1 ::=      INTEGER (0..9830399)

SFN-TOW-Uncertainty ::=             ENUMERATED {
                                        lessThan10,
                                        moreThan10 }

SIR ::=                             INTEGER (0..63)


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


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

SIR-TFCS ::=                        TFCS-IdentityPlain


SIR-TFCS-List ::=                   SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                        SIR-TFCS

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

-- Reserved bits in subframe 1 of the GPS navigation message
SubFrame1Reserved ::=               SEQUENCE {
    reserved1                           BIT STRING (SIZE (23)),
    reserved2                           BIT STRING (SIZE (24)),
    reserved3                           BIT STRING (SIZE (24)),
    reserved4                           BIT STRING (SIZE (16))
}

T-CRMax ::=                         CHOICE {
    notUsed                             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 (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, tt320, ttt640,
                                        ttt1280, ttt2560, ttt5000 }

TrafficVolumeEventParam ::=         SEQUENCE {
    eventID                             TrafficVolumeEventType,
    reportingThreshold                  TrafficVolumeThreshold,
    timeToTrigger                       TimeToTrigger                       OPTIONAL,
    pendingTimeAfterTrigger             PendingTimeAfterTrigger             OPTIONAL,
    tx-InterruptionAfterTrigger         TX-InterruptionAfterTrigger         OPTIONAL
}

TrafficVolumeEventResults ::=       SEQUENCE {
    ul-transportChannelCausingEvent     UL-TrCH-Identity,
    trafficVolumeEventIdentity          TrafficVolumeEventType
}
```

```
TrafficVolumeEventType ::=          ENUMERATED {
                                        e4a,
                                        e4b }

TrafficVolumeMeasQuantity ::=       CHOICE {
    rlc-BufferPayload                   NULL,
    averageRLC-BufferPayload            TimeInterval,
    varianceOfRLC-BufferPayload         TimeInterval
}

TrafficVolumeMeasSysInfo ::=        SEQUENCE {
    trafficVolumeMeasurementID          MeasurementIdentity         DEFAULT 4,
    trafficVolumeMeasurementObjectList  TrafficVolumeMeasurementObjectList  OPTIONAL,
    trafficVolumeMeasQuantity           TrafficVolumeMeasQuantity           OPTIONAL,
    trafficVolumeReportingQuantity      TrafficVolumeReportingQuantity      OPTIONAL,
    trafficVolumeMeasRepCriteria        TrafficVolumeReportingCriteria      OPTIONAL,
    measurementValidity                 MeasurementValidity                 OPTIONAL,
    measurementReportingMode            MeasurementReportingMode,
    reportCriteriaSysInf                TrafficVolumeReportCriteriaSysInfo

}

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

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

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

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

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

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    transChCriteriaList                 TransChCriteriaList                 OPTIONAL
}

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

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

TransChCriteria ::=                 SEQUENCE {
    ul-transportChannelID               UL-TrCH-Identity                    OPTIONAL,
    eventSpecificParameters             SEQUENCE (SIZE (1..maxMeasParEvent)) OF
                                            TrafficVolumeEventParam         OPTIONAL
}
```

```
TransChCriteriaList ::=         SEQUENCE (SIZE (1..maxTrCH)) OF
                                    TransChCriteria

TransferMode ::=                    ENUMERATED {
                                    acknowledgedModeRLC,
                                    unacknowledgedModeRLC }

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

TriggeringCondition1 ::=            ENUMERATED {
                                    activeSetCellsOnly,
                                    monitoredSetCellsOnly,
                                    activeSetAndMonitoredSetCells }

TriggeringCondition2 ::=            ENUMERATED {
                                    activeSetCellsOnly,
                                    monitoredSetCellsOnly,
                                    activeSetAndMonitoredSetCells,
                                    detectedSetCellsOnly,
                                    detectedSetAndMonitoredSetCells }

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

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

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

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

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

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

UE-InternalEventParamList ::=       SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                    UE-InternalEventParam

UE-InternalEventResults ::=         CHOICE {
    event6a                             NULL,
    event6b                             NULL,
    event6c                             NULL,
    event6d                             NULL,
    event6e                             NULL,
    event6f                             PrimaryCPICH-Info,
    event6g                             PrimaryCPICH-Info
}

UE-InternalMeasQuantity ::=         SEQUENCE {
    measurementQuantity                 UE-MeasurementQuantity,
    filterCoefficient                   FilterCoefficient                   DEFAULT 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 (0..104)

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

UL-TrCH-Identity ::=                    CHOICE{
    dch                                 TransportChannelIdentity,
    rach                                NULL,
    usch                                TransportChannelIdentity
}

UE-Positioning-Accuracy ::=                 BIT STRING (SIZE (7))
```

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

UE-Positioning-Error ::=                        SEQUENCE {
    errorReason                         UE-Positioning-ErrorCause,
    ue-positioning-GPS-additionalAssistanceDataRequest          UE-Positioning-GPS-
AdditionalAssistanceDataRequest OPTIONAL
}

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

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

UE-Positioning-EventParam ::=                   SEQUENCE {
    reportingAmount                     ReportingAmount,
    reportFirstFix                      BOOLEAN,
    measurementInterval                 UE-Positioning-MeasurementInterval,
    eventSpecificInfo                   UE-Positioning-EventSpecificInfo
}

UE-Positioning-EventParamList ::=               SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        UE-Positioning-EventParam

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

UE-Positioning-GPS-AcquisitionAssistance ::=    SEQUENCE {
    referenceTime                       CHOICE {
        utran-ReferenceTime                 UTRAN-ReferenceTime,
        gps-ReferenceTimeOnly               INTEGER (0..604799999)
    },
    satelliteInformationList            AcquisitionSatInfoList
}

UE-Positioning-GPS-AdditionalAssistanceDataRequest ::=      SEQUENCE {
    almanacRequest                      BOOLEAN,
    utcModelRequest                     BOOLEAN,
    ionosphericModelRequest             BOOLEAN,
    navigationModelRequest              BOOLEAN,
    dgpsCorrectionsRequest              BOOLEAN,
    referenceLocationRequest            BOOLEAN,
    referenceTimeRequest                BOOLEAN,
    aquisitionAssistanceRequest         BOOLEAN,
    realTimeIntegrityRequest            BOOLEAN,
    navModelAddDataRequest              UE-Positioning-GPS-NavModelAddDataReq       OPTIONAL
}

UE-Positioning-GPS-Almanac ::=                  SEQUENCE {
    wn-a                                BIT STRING (SIZE (8)),
    almanacSatInfoList                  AlmanacSatInfoList,
    sv-GlobalHealth                     BIT STRING (SIZE (364))             OPTIONAL
}

UE-Positioning-GPS-AssistanceData ::=           SEQUENCE {
    ue-positioning-GPS-ReferenceTime            UE-Positioning-GPS-ReferenceTime
    OPTIONAL,
    ue-positioning-GPS-ReferenceLocation        ReferenceLocation               OPTIONAL,
    ue-positioning-GPS-DGPS-Corrections         UE-Positioning-GPS-DGPS-Corrections
    OPTIONAL,
    ue-positioning-GPS-NavigationModel          UE-Positioning-GPS-NavigationModel
    OPTIONAL,
    ue-positioning-GPS-IonosphericModel         UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
```

```
    ue-positioning-GPS-UTC-Model                UE-Positioning-GPS-UTC-Model
    OPTIONAL,
    ue-positioning-GPS-Almanac                  UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance    UE-Positioning-GPS-AcquisitionAssistance
    OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity       BadSatList                          OPTIONAL
}

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

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

UE-Positioning-GPS-Measurement ::=          SEQUENCE {
    referenceSFN                    ReferenceSFN                    OPTIONAL,
    gps-TOW-1msec                   GPS-TOW-1msec,
    gps-TOW-rem-usec                GPS-TOW-rem-usec                OPTIONAL,
    gps-MeasurementParamList        GPS-MeasurementParamList
}

UE-Positioning-GPS-NavigationModel ::=      SEQUENCE {
    navigationModelSatInfoList      NavigationModelSatInfoList
}

UE-Positioning-GPS-NavModelAddDataReq ::=   SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-Toe                         INTEGER (0..167),
    tToeLimit                       INTEGER (0..10),
    satDataList                     SatDataList
}

UE-Positioning-GPS-ReferenceTime ::=        SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-tow-1msec                   GPS-TOW-1msec,
    gps-tow-rem-usec                GPS-TOW-rem-usec                OPTIONAL,
    sfn                             INTEGER (0..4095),
    sfn-tow-Uncertainty             SFN-TOW-Uncertainty             OPTIONAL,
    nodeBClockDrift                 NodeB-ClockDrift                OPTIONAL,
    gps-TOW-AssistList              GPS-TOW-AssistList              OPTIONAL
}

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

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

UE-Positioning-MeasuredResults ::=          SEQUENCE {
    ue-positioning-MultipleSets                 UE-Positioning-MultipleSets
    OPTIONAL,
    ue-positioning-ReferenceCellIdentity        PrimaryCPICH-Info               OPTIONAL,
```

```
    ue-positioning-OTDOA-Measurement                UE-Positioning-OTDOA-Measurement
    OPTIONAL,
    ue-positioning-PositionEstimateInfo             UE-Positioning-PositionEstimateInfo
        OPTIONAL,
    ue-positioning-GPS-Measurement                  UE-Positioning-GPS-Measurement
    OPTIONAL,
    ue-positioning-Error                            UE-Positioning-Error
    OPTIONAL
}

UE-Positioning-Measurement ::=                  SEQUENCE {
    ue-positioning-ReportingQuantity                UE-Positioning-ReportingQuantity,
    reportCriteria                          UE-Positioning-ReportCriteria,
    ue-positioning-OTDOA-AssistanceData         UE-Positioning-OTDOA-AssistanceData
    OPTIONAL,
    ue-positioning-GPS-AssistanceData               UE-Positioning-GPS-AssistanceData
    OPTIONAL
}

UE-Positioning-MeasurementEventResults ::=      CHOICE {
    event7a                                 UE-Positioning-PositionEstimateInfo,
    event7b                                 UE-Positioning-OTDOA-Measurement,
    event7c                                 UE-Positioning-GPS-Measurement
}

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

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

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

UE-Positioning-OTDOA-AssistanceData ::=     SEQUENCE {
    ue-positioning-OTDOA-ReferenceCellInfo          UE-Positioning-OTDOA-ReferenceCellInfo
    OPTIONAL,
    ue-positioning-OTDOA-NeighbourCellList              UE-Positioning-OTDOA-NeighbourCellList
        OPTIONAL
}

UE-Positioning-OTDOA-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
}

UE-Positioning-OTDOA-NeighbourCellInfo  ::= SEQUENCE {
    modeSpecificInfo    CHOICE  {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                       PrimaryCPICH-Info
        },
        tdd                                 SEQUENCE{
            cellAndChannelIdentity                  CellAndChannelIdentity
        }
    },
    frequencyInfo                           FrequencyInfo                       OPTIONAL,
    ue-positioning-IPDL-Paremeters                  UE-Positioning-IPDL-Parameters
    OPTIONAL,
    sfn-SFN-RelTimeDifference               SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                           INTEGER (0..30),
    searchWindowSize                        OTDOA-SearchWindowSize,
    positioningMode     CHOICE{
        ueBased                                 SEQUENCE {
            relativeNorth                       INTEGER (-20000..20000)             OPTIONAL,
```

```
            relativeEast                        INTEGER (-20000..20000)             OPTIONAL,
            relativeAltitude                    INTEGER (-4000..4000)               OPTIONAL,
            fineSFN-SFN                         FineSFN-SFN                         OPTIONAL,
            roundTripTime                       INTEGER (0..32765)                  OPTIONAL
        },
        ueAssisted                              SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        UE-Positioning-OTDOA-NeighbourCellInfo

UE-Positioning-OTDOA-ReferenceCellInfo ::=          SEQUENCE {
    sfn                                 INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd                                     SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                                     SEQUENCE{
            cellAndChannelIdentity              CellAndChannelIdentity
        }
    },
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    positioningMode CHOICE {
        ueBased                                 SEQUENCE {
            cellPosition                                ReferenceCellPosition   OPTIONAL,
            roundTripTime                       INTEGER (0..32765)              OPTIONAL
        },
        ueAssisted                              SEQUENCE {}
    },
    ue-positioning-IPDL-Paremeters              UE-Positioning-IPDL-Parameters  OPTIONAL
}

UE-Positioning-PositionEstimateInfo ::=                 SEQUENCE {
    referenceSFN                        ReferenceSFN        OPTIONAL,
    gps-tow-1msec                       GPS-TOW-1msec       OPTIONAL,
    gps-tow-rem-usec                    GPS-TOW-rem-usec    OPTIONAL,
    positionEstimate                    PositionEstimate
}

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

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

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

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


UTRAN-ReferenceTime ::=             SEQUENCE {
    gps-tow-1msec                       GPS-TOW-1msec,
    gps-tow-rem-usec                    GPS-TOW-rem-usec,   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)
```

3GPP TSG-RAN2 Meeting #20 ***R2-011449***
Pusan, Korea, 21th – 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **842** ⌘ rev **r1** ⌘ Current version: **3.6.0** ⌘

*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 on OTDOA-IPDL specific burst parameter semantic description
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	03– 05-2001
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:	⌘	The definition for the IPDL burst parameter in 25.214 in comparsion to 25.331 could lead to different starting points of the second IPDL-burst. Per definition in 25.214 e.g. Burst_Freq is an absolute value, but per definition in the WG2 spec. Burst_Freq is more relative value.
Summary of change:	⌘	Replacement of semantic description with a reference to 25.214 Backward compatibility: This CR is backward compatible.
Consequences if not approved:	⌘	Different starting points for the second IP-burst in 25.214/25.224 in comparsion to 25.331reg. OTDOA-IPDL specific burst parameter.

Clauses affected:	⌘	10.3.7.98
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/_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.

10.3.7.98 UE positioning IPDL parameters

This IE contains parameters for the IPDL mode. The use of this parameters is described in [29].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
IP spacing	MP		Integer(5,7,10,15,20,30,40,50)	See [29]~~The IPs are repeated every IP spacing frame.~~
IP length	MP		Integer(5,10)	See [29]~~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 [10]; See [29]
Seed	MP		Integer(0..63)	See [29]~~Seed used to start the random number generator~~
Burst mode parameters	OP			
>Burst Start	MP		Integer(0..15)	See [29]~~The frame number where the 1st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.~~
>Burst Length	MP		Integer(10..25)	See [29]~~Number of Idle Periods in a 'burst' of Idle Periods~~
>Burst freq	MP		Integer(1..16)	See [29]~~Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.~~

3GPP TSG-RAN2 Meeting #20 ***R2-011449***
Pusan, Korea, 21th – 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.331** **CR** **843** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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 on OTDOA-IPDL specific burst parameter semantic description
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	23– 05-2001
Category:	⌘	**A**
Release:	⌘	REL-4

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:	⌘	The definition for the IPDL burst parameter in 25.214 and 25.224 in comparsion to 25.331 could lead to different starting points of the second IPDL-burst. Per definition in 25.214 or 25.224 e.g. Burst_Freq is an absolute value, but per definition in the WG2 spec. Burst_Freq is more relative value.
Summary of change:	⌘	Replacement of semantic description with a reference to 25.214 and 25.224 Backward compatibility: This CR is backward compatible.
Consequences if not approved:	⌘	Different starting points for the second IP-burst in 25.214/25.224 in comparsion to 25.331reg. OTDOA-IPDL specific burst parameter.

Clauses affected:	⌘	10.3.7.98
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://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.

10.3.7.98 UE positioning IPDL parameters

This IE contains parameters for the IPDL mode. The use of this parameters is described in [29].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description	Version
IP spacing	MP		Integer(5,7,10,15,20,30,40,50)	See [29] and [28]~~The IPs are repeated every IP spacing frame.~~	
CHOICE **MODE**					REL-4
>FDD					REL-4
>>IP length	MP		Integer(5,10)	See [29]~~The length in symbols of the idle periods~~	
>>IP offset	MP		Integer(0..9)	See [29]~~Relates the BFN and SFN, should be same as T_cell defined in [10]~~	
>>Seed	MP		Integer(0..63)	See [29]~~Seed used to start the random number generator~~	
>TDD					REL-4
>>IP_Start	MP		Integer(0..4095)	See [33]~~Number of the first frame containing idle periods~~	REL-4
>>IP_Slot	MP		Integer(0..14)	See [33]~~Number of the idle slot within a frame~~	REL-4
>>IP_PCCPCH	CV-*channel*		Boolean	See [33]~~Indicates if the PCCPCH is switched off in two consecutive frames~~	REL-4
Burst mode parameters	OP				
>Burst Start	MP		Integer(0..15)	See [29] and [33]~~The frame number where the 1st Idle Period Burst occurs within an SFN cycle. Scaling factor 256.~~	
>Burst Length	MP		Integer(10..25)	See [29] and [33]~~Number of Idle Periods in a 'burst' of Idle Periods~~	
>Burst freq	MP		Integer(1..16)	See [29] and [33]~~Number of 10ms frames between consecutive Idle Period bursts. Scaling factor 256.~~	

Condition	Explanation
channel	This IE is present only if the idle slot carries the PCCPCH

3GPP TSG-RAN WG2 Meeting #21 ***R2-011290***
Busan, Korea, 21-25 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 844** ⌘ rev **r1** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	Error handling for messages sent from another RAT
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-25
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:	⌘	There is currently no description in clause 9 for the error handling of messages sent via another radio access technology (i.e. for the HANDOVER TO UTRAN COMMAND message).
Summary of change:	⌘	Description of error cases added in clause 9 for messages sent via another RAT.
Consequences if not approved:	⌘	Incorrect error handlin for the HANDOVER TO UTRAN COMMAND message.

Clauses affected:	⌘	9.2, 9.3, 9.3b, 9.4, 9.5, 9.6, 9.7, 9.8
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Backwards compatibility: • « Correction to a function where the specification was : o Procedural text or rules were missing. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

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

9 Handling of unknown, unforeseen and erroneous protocol data

9.1 General

This subclause specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this subclause shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

When the UE receives an RRC message, it shall set the variable PROTOCOL_ERROR_REJECT to FALSE and then perform the checks in the order as defined below.

The procedures specified in clause 8 are applied only for the messages passing the checks as defined below, except when procedure specific handling is used to recover from the error.

9.2 ASN.1 violation or encoding error

If the UE receives an RRC message on the DCCH for which the encoded message does not result in any valid abstract syntax value, it shall perform the following. The UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";
- when RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message sent to the UE in a RRC information container via a radio access technology other than UTRAN, for which the encoded message does not result in any valid abstract syntax, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "ASN.1 violation or encoding error";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH for which the encoded message does not result in any valid abstract syntax value, it shall ignore the message.

9.3 Unknown or unforeseen message type

If a UE receives an RRC message on the DCCH with a message type not defined for the DCCH it shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Message type non-existent or not implemented";
- when the RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH with a message type not defined for the logical channel type the message was received on, it shall ignore the message.

9.3a Unsolicited received message

If the UE receives any of the following messages:

- an RRC CONNECTION SETUP message addressed to the UE on the CCCH; or
- an RRC CONNECTION REJECT message addressed to the UE on the CCCH; or
- a UE CAPABILITY INFORMATION CONFIRM message on the DCCH; or
- a CELL UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH; or
- a URA UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH

and no procedure is ongoing according to clause 8 which expects the message to be received:

the UE shall:

- ignore the received message.

9.3b Unexpected critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined critical message extension, the UE shall:

- ignore the message.

9.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare) or when the encoded IE does not result in any valid abstract syntax value for this IE, the UE shall:

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

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

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

9.5 Conditional information element error

If the UE receives an RRC message on the DCCH, BCCH, PCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, for which the specified conditions for absence of a conditional IE are met and that IE is present, the UE shall:

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

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE via a radio access technology other than UTRAN, for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Conditional information element error";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- ignore the message.

9.6 Unknown or unforeseen information element value, conditional information element

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

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

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

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

9.7 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, with an optional IE having a value, including choice, reserved for future extension (spare) or when the encoded IE does not result in any valid abstract syntax value for this IE, it shall:

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

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

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

9.8 Unexpected non-critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

3GPP TSG-RAN WG2 Meeting #21 ***R2-011291***
Busan, Korea, 21-25 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 845** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Error handling for messages sent from another RAT
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-25
Category:	⌘	**A**
Release:	⌘	REL-4

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.

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R96 (Release 1996)
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R98 (Release 1998)
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REL-4 (Release 4)
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Reason for change:	⌘	There is currently no description in clause 9 for the error handling of messages sent via another radio access technology (i.e. for the HANDOVER TO UTRAN COMMAND message).
Summary of change:	⌘	Description of error cases added in clause 9 for messages sent via another RAT.
Consequences if not approved:	⌘	Incorrect error handlin for the HANDOVER TO UTRAN COMMAND message.

Clauses affected:	⌘	9.2, 9.3, 9.3b, 9.4, 9.5, 9.6, 9.7, 9.8
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Corresponds to CR844r1 to 25.331 (rel-99).

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9 Handling of unknown, unforeseen and erroneous protocol data

9.1 General

This subclause specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this subclause shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

When the UE receives an RRC message, it shall set the variable PROTOCOL_ERROR_REJECT to FALSE and then perform the checks in the order as defined below.

The procedures specified in clause 8 are applied only for the messages passing the checks as defined below, except when procedure specific handling is used to recover from the error.

9.2 ASN.1 violation or encoding error

If the UE receives an RRC message on the DCCH for which the encoded message does not result in any valid abstract syntax value, it shall perform the following. The UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";
- when RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message sent to the UE in a RRC information container via a radio access technology other than UTRAN, for which the encoded message does not result in any valid abstract syntax, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "ASN.1 violation or encoding error";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH for which the encoded message does not result in any valid abstract syntax value, it shall ignore the message.

9.3 Unknown or unforeseen message type

If a UE receives an RRC message on the DCCH with a message type not defined for the DCCH it shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "Message type non-existent or not implemented";
- when the RRC STATUS message has been submitted to lower layers for transmission:
  - continue with any ongoing processes and procedures as if the invalid message had not been received.

If the UE receives an RRC message on the BCCH, PCCH, CCCH or SHCCH with a message type not defined for the logical channel type the message was received on, it shall ignore the message.

9.3a Unsolicited received message

If the UE receives any of the following messages:

- an RRC CONNECTION SETUP message addressed to the UE on the CCCH; or
- an RRC CONNECTION REJECT message addressed to the UE on the CCCH; or
- a UE CAPABILITY INFORMATION CONFIRM message on the DCCH; or
- a CELL UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH; or
- a URA UPDATE CONFIRM message addressed to the UE on the CCCH or on the DCCH

and no procedure is ongoing according to clause 8 which expects the message to be received:

the UE shall:

- ignore the received message.

9.3b Unexpected critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined critical message extension, the UE shall:

- ignore the message.

9.4 Unknown or unforeseen information element value, mandatory information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare) or when the encoded IE does not result in any valid abstract syntax value for this IE, the UE shall:

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

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

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

9.5 Conditional information element error

If the UE receives an RRC message on the DCCH, BCCH, PCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, for which the specified conditions for absence of a conditional IE are met and that IE is present, the UE shall:

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

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE via a radio access technology other than UTRAN, for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- set the variable PROTOCOL_ERROR_REJECT to TRUE;
- set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Conditional information element error";
- perform procedure specific error handling according to clause 8.

If the UE receives an RRC message on the BCCH or PCCH for which the specified conditions for presence of a conditional IE are met and that IE is absent, the UE shall:

- ignore the message.

9.6 Unknown or unforeseen information element value, conditional information element

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

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

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

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

9.7 Unknown or unforeseen information element value, optional information element

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, with an optional IE having a value, including choice, reserved for future extension (spare) or when the encoded IE does not result in any valid abstract syntax value for this IE, it shall:

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

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

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

9.8 Unexpected non-critical message extension

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent to the UE in a RRC information container via a radio access technology other than UTRAN, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

If the UE receives an RRC message on the BCCH or PCCH, containing an undefined non-critical message extension, the UE shall:

- ignore the content of the extension and the message contents after the extension, but treat the parts of the message up to the extension normally.

3GPP TSG-RAN WG2 Meeting #21 ***R2-011292***
Busan, Korea, 21-25 May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 848** ⌘ ev **r2** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	Needed TFC in the TFCS for TDD
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-25
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	For TDD, there may be more than one dedicated CCTrCHs, each having its own TFCS. In order to allow the MAC to always find a suitable TFC, 8.6.5.2 defines some TFCs that should be always present in the TFCS. For TDD it is sufficient in these cases to have each of these minimal combinations in one of the CCTrCHs, except of the "empty" TFC, which should be available in all CCTrCHs.
Summary of change:	⌘	A description is added in 8.6.5.2 to clarify the TFC needs for TDD.
Consequences if not approved:	⌘	Not clear understanding, if the needed TFCs are meant to be per CCTrCH or for all CCTrCHs in TDD.

Clauses affected:	⌘	8.6.5.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Backwards compatibility: • « Correction to a function where the specification was : o Procedural text or rules were missing. • Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. »

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- clear the IE "Duration" in the variable TFC_SUBSET;
- set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set";
- remove any previous restriction of the transport format combination set;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

If the IE "Transport format combination set" is not included and if there is no addition/removal/replacement of transport channels, the UE shall for that direction (uplink or downlink):

- consider a previously stored transport format combination set if this exists as valid information.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set.

For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

If the IE "Transport format combination set" is not included, the TFCI ordering shall correspond to the CTFC ordering.

The UTRAN should include in the TFCS, for each transport channel, a TFC with one transport block for this transport channel and 0 transport blocks for all the others. Similarly, the UTRAN should include, for each AM logical channel, a TFC with a minimum size compatible TF for the corresponding transport channel and 0 transport blocks for all other transport channels. Finally, the UTRAN should include, for each TM logical channel and for each SDU size associated with it, a TFC with a minimum size compatible TF for the corresponding transport channel and 0 transport blocks for all other transport channels. For TDD, the TFCS of a CCTrCH should include those of the above combinations, which include a TF with one transport block for a transport channel used in that CCTrCH.

For AM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size. For non-segmented mode TM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC SDU size considered. For segmented mode TM-RLC, the minimum size compatible TF is any TF such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the RLC SDU size considered. Note that the "Configured RLC Size" is defined as the transport block size minus the MAC header size.

Finally, UTRAN should include in the TFCS an "empty" TFC (e.g. the TFC with one transport block of zero size for one transport channel and zero transport blocks for all others). For TDD, the "empty" TFC should be included in the TFCS of every CCTrCH.

3GPP TSG-RAN WG2 Meeting #21 ***R2-011293***
Busan, Korea, 21-25 May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 849** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Needed TFC in the TFCS for TDD
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-25
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	For TDD, there may be more than one dedicated CCTrCHs, each having its own TFCS. In order to allow the MAC to always find a suitable TFC, 8.6.5.2 defines some TFCs that should be always present in the TFCS. For TDD it is sufficient in these cases to have each of these minimal combinations in one of the CCTrCHs, except of the "empty" TFC, which should be available in all CCTrCHs.
Summary of change:	⌘	A description is added in 8.6.5.2 to clarify the TFC needs for TDD.
Consequences if not approved:	⌘	Not clear understanding, if the needed TFCs are meant to be per CCTrCH or for all CCTrCHs in TDD.

Clauses affected:	⌘	8.6.5.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Corresponds to CR848r2 to 25.331 (rel-99)

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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- clear the IE "Duration" in the variable TFC_SUBSET;
- set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set";
- remove any previous restriction of the transport format combination set;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

If the IE "Transport format combination set" is not included and if there is no addition/removal/replacement of transport channels, the UE shall for that direction (uplink or downlink):

- consider a previously stored transport format combination set if this exists as valid information.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set.

For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

If the IE "Transport format combination set" is not included, the TFCI ordering shall correspond to the CTFC ordering.

The UTRAN should include in the TFCS, for each transport channel, a TFC with one transport block for this transport channel and 0 transport blocks for all the others. Similarly, the UTRAN should include, for each AM logical channel, a TFC with a minimum size compatible TF for the corresponding transport channel and 0 transport blocks for all other transport channels. Finally, the UTRAN should include, for each TM logical channel and for each SDU size associated with it, a TFC with a minimum size compatible TF for the corresponding transport channel and 0 transport blocks for all other transport channels. For TDD, the TFCS of a CCTrCH should include those of the above combinations, which include a TF with one transport block for a transport channel used in that CCTrCH.

For AM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size. For non-segmented mode TM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC SDU size considered. For segmented mode TM-RLC, the minimum size compatible TF is any TF such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the RLC SDU size considered. Note that the "Configured RLC Size" is defined as the transport block size minus the MAC header size.

Finally, UTRAN should include in the TFCS an "empty" TFC (e.g. the TFC with one transport block of zero size for one transport channel and zero transport blocks for all others). For TDD, the "empty" TFC should be included in the TFCS of every CCTrCH.

3GPP TSG-RAN Meeting #21 ***R2-011159***
Busan, Korea, 5/21/2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 854** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*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 TFCS selection guidelines
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	5/15/2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	It was found that as specified, the TFCS guidelines are incompatible with the default configurations defined in document 34.108. Since it was not the original intention to be this restrictive, minor clarifications were introduced to eliminate this discrepancy.
Summary of change:	⌘	The term empty Transport Format (defined by a new CR in 25.302) is used instead of zero blocks, so as to clarify that no distinction is made with regards to whether a CRC is included for the block or not. A reference is added to point to 25.302 where the terms empty Transport Format and Transport Format Combination are defined. Backward Compatibility Analysis: This change is backward compatible. Correction to a function where the specification was : • Containing some contradictions. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. ~~since it only impacts the set of allowed network configurations and not the protocol itself.~~
Consequences if not approved:	⌘	The default configurations defined in 34.108 will not satisfy the TFCS selection guidelines.

Clauses affected:	⌘	8.6.5.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- clear the IE "Duration" in the variable TFC_SUBSET;
- set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set";
- remove any previous restriction of the transport format combination set;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

If the IE "Transport format combination set" is not included and if there is no addition/removal/replacement of transport channels, the UE shall for that direction (uplink or downlink):

- consider a previously stored transport format combination set if this exists as valid information.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set. For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

If the IE "Transport format combination set" is not included, the TFCI ordering shall correspond to the CTFC ordering.

The UTRAN should include in the TFCS, for each transport channel, a TFC with one transport block for this transport channel and empty TFs (see [34]) ~~0 transport blocks~~ for all the others. Similarly, the UTRAN should include, for each AM logical channel, a TFC with a minimum size compatible TF for the corresponding transport channel and empty TFs~~0 transport blocks~~ for all other transport channels. Finally, the UTRAN should include, for each TM logical channel and for each SDU size associated with it, a TFC with a minimum size compatible TF for the corresponding transport channel and empty TFs ~~0 transport blocks~~ for all other transport channels.

For AM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size. For non-segmented mode TM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC SDU size considered. For segmented mode TM-RLC, the minimum size compatible TF is any TF

such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the RLC SDU size considered. Note that the "Configured RLC Size" is defined as the transport block size minus the MAC header size.

Finally, UTRAN should include in the TFCS an ~~"~~empty~~"~~ TFC (~~e.g. the TFC with one transport block of zero size for one transport channel and zero transport blocks for all others~~see [34]).

3GPP TSG-RAN Meeting #21 ***R2-011357***
Busan, Korea, 5/21/2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 855** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 TFCS selection guidelines
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	5/25/2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	It was found that as specified, the TFCS guidelines are incompatible with the default configurations defined in document 34.108. Since it was not the original intention to be this restrictive, minor clarifications were introduced to eliminate this discrepancy.
Summary of change:	⌘	The term empty Transport Format (defined by a new CR in 25.302) is used instead of zero blocks, so as to clarify that no distinction is made with regards to whether a CRC is included for the block or not. A reference is added to point to 25.302 where the terms empty Transport Format and Transport Format Combination are defined.
Consequences if not approved:	⌘	The default configurations defined in 34.108 will not satisfy the TFCS selection guidelines.

Clauses affected:	⌘	8.6.5.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included, the UE shall for that direction (uplink or downlink):

- remove a previously stored transport format combination set if this exists;
- clear the IE "Duration" in the variable TFC_SUBSET;
- set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set";
- remove any previous restriction of the transport format combination set;
- store the new transport format combination set present in the IE "Transport format combination set";
- start to respect those transport format combinations.

If the IE "Transport format combination set" is not included and if there is no addition/removal/replacement of transport channels, the UE shall for that direction (uplink or downlink):

- consider a previously stored transport format combination set if this exists as valid information.

For downlink CCTrCHs if no TFCS is stored in the UE the UE shall consider all possible transport format combinations and calculate the possible TFCI values according to the IE transport format combination set.
For downlink CCTrCHs if a TFCS is stored in the UE and

- if the IE "Transport format combination set" is not included and transport channels are deleted in the message, the UE shall:
  - remove the affected transport format combinations from the transport format combination set, recalculate the TFCI values and start to respect those transport format combinations
- if the IE "Transport format combination set" is not included and transport channels are added in the message, the UE shall:
  - consider all possible new combinations to be valid and recalculate the TFCI values and start to respect those transport format combinations. In TDD the new transport format combinations are considered to belong to the TFCS with the ID 1 of DCH type.
- if the IE "Transport format combination set" is not included and transport channels are replaced the UE shall:
  - consider all possible transport format combinations to be valid and calculate the TFCI values accordingly.

If the IE "Transport format combination set" is not included, the TFCI ordering shall correspond to the CTFC ordering.

The UTRAN should include in the TFCS, for each transport channel, a TFC with one transport block for this transport channel and empty TFs (see [34]) ~~0 transport blocks~~ for all the others. Similarly, the UTRAN should include, for each AM logical channel, a TFC with a minimum size compatible TF for the corresponding transport channel and empty TFs~~0 transport blocks~~ for all other transport channels. Finally, the UTRAN should include, for each TM logical channel and for each SDU size associated with it, a TFC with a minimum size compatible TF for the corresponding transport channel and empty TFs ~~0 transport blocks~~ for all other transport channels.

For AM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size. For non-segmented mode TM-RLC logical channels, the minimum size compatible TF includes one transport block with "Configured RLC Size" equal to the RLC SDU size considered. For segmented mode TM-RLC, the minimum size compatible TF is any TF

such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the RLC SDU size considered. Note that the "Configured RLC Size" is defined as the transport block size minus the MAC header size.

Finally, UTRAN should include in the TFCS an ~~"~~empty~~"~~ TFC (~~e.g. the TFC with one transport block of zero size for one transport channel and zero transport blocks for all others~~see [34]).

3GPP TSG-RAN Meeting #21 ***R2-011323***
Busan, Korea, 5/21/2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 860** ⌘ ev **r1** ⌘ Current version: **3.6.0** ⌘

*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 of Traffic Volume Measurements
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	5/15/2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	The traffic volume measurements section is still not perfectly consistent with the messages used to configure it. The section on traffic volume measurements is not very clear.
Summary of change:	⌘	Added a note to the editor to correct a recurring reference to CONFIGURATION_INCOMPETE. Eliminated the check of "CHOICE Report Criteria" which is MP in the messaging and should therefore always be included. Specified that only reporting of traffic volume measurements on RBs multiplexed onto the same transport channels is supported. Indeed, this is the only thing that can be signalled. Moved a sentence that applied to event based trigger to the section on Traffic Volume report triggers Moved two sentence that described the reported quantities to the section on Traffic Volume Measurement quantity Added in R2-ADHOC: Clarified that exceeds is referring to applying an absolute threshold. Applied the corrections made to event 4b, to event 4a also. Eliminated the note to the editor since this change was already being made by another CR. Backward compatibility analysis: Correction to a function where the specification was : • Containing some contradictions. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.~~The changes do not affect backward compatibility.~~
Consequences if not approved:	⌘	The text and the messaging will not be aligned.

Clauses affected:	⌘	8.6.7.10, 14.4.1, 14.4.2, 14.4.2.1, 14.4.2.2

Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

~~NOTE TO THE EDITOR:~~

~~Please replace each occurrence of CONFIGURATION_INCOMPETE with CONFIGURATION_INCOMPLETE.~~

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 Buffer Payload for each RB" or the parameter "Variance of RLC Buffer payload for each RB" is set:
  - if the IE "Traffic volume measurement quantity" is not included:
    - set the variable CONFIGURATION_INCOMPETE to TRUE;
  - if the IE "Traffic volume measurement quantity" is included;
    - 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 Buffer Payload 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.

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" or~~,~~ IE "Traffic volume reporting quantity" ~~or "CHOICE Report criteria"~~ is not received, the 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.

14.4 Traffic Volume Measurements

14.4.1 Traffic Volume Measurement Quantity

~~For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume [15] (which equals the sum of Buffer Occupancies of RBs~~

~~multiplexed onto a transport channel) in number of bytes.~~ In order to support a large variation of bit rates and RLC buffer size capabilities, a non-linear scale is used. Since, for each RB, the expected traffic includes both new and retransmitted RLC PDUs and potentially existing Control PDUs, all these should be included in the Buffer Occupancy measure. It should also be noted that traffic volume measurements are only applicable for acknowledged and unacknowledged mode.

According to what is stated in the Measurement Control message, the UE should support ~~measuring~~ reporting of RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload for ~~a specific RB,~~ RBs multiplexed onto the same Transport channel~~ and the total UE traffic volume (the same as one transport channel for a UE that uses RACH)~~. The Reporting Quantities (i.e. RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload of each RB) are indicated in the measurement control message. If Average of RLC Buffer Payload or Variance of RLC Buffer Payload is included as Reporting Quantity, the time interval to take an average or a variance shall be used.

14.4.2 Traffic Volume reporting triggers

Traffic volume can be reported in two different ways, periodical and event triggered. The reporting criteria are specified in the measurement control message.

For periodical reporting the UE simply ~~measures~~ determines the Reporting Quantities in number of bytes for each RB mapped onto the indicated transport channels and reports the ~~measurement~~ results ~~at the given~~ at the time ~~instants~~interval and for the number of times specified. ~~The Reporting Quantities (i.e. RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload of each RB) are stated in the measurement control message. If Average of RLC Buffer Payload or Variance of RLC Buffer Payload is included as Reporting Quantity, the time interval to take an average or a variance shall be used.~~

For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume [15] (which equals the sum of Buffer Occupancies of RBs multiplexed onto a transport channel) in number of bytes. Event triggered reporting is performed when the Transport Channel Traffic Volume exceeds an upper threshold or becomes smaller than a lower threshold. Every TTI, UE measures the Transport Channel Traffic Volume for each transport channel and compares it with the configured thresholds. If the value is out of range, the UE ~~measures~~ determines the Reporting Quantities ~~of~~ for the RBs mapped onto that transport channel and reports the ~~measurement~~ results. ~~The Reporting Quantities are stated in the measurement control message.~~

14.4.2.1 Reporting event 4 A: Transport Channel Traffic Volume exceeds an absolute threshold

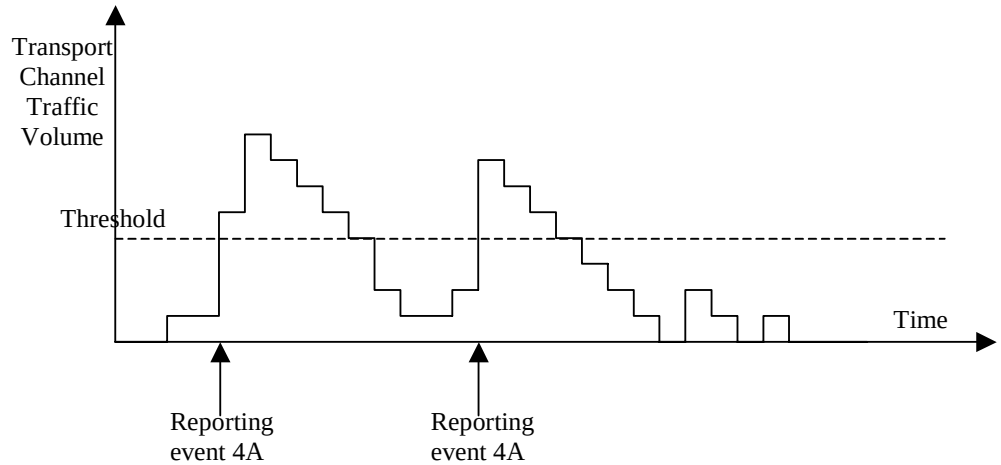

Figure 78: Event triggered report when Transport Channel Traffic Volume exceeds a certain threshold

If the monitored Transport Channel Traffic Volume [15] exceeds an absolute threshold, i.e. if TCTF>Reporting threshold, this is an event that could trigger a report. The corresponding report ~~contains~~ specifies at least which ~~transport channel~~ measurement ID the event that triggered the report belongs to.

14.4.2.2 Reporting event 4 B: Transport Channel Traffic Volume becomes smaller than an absolute threshold

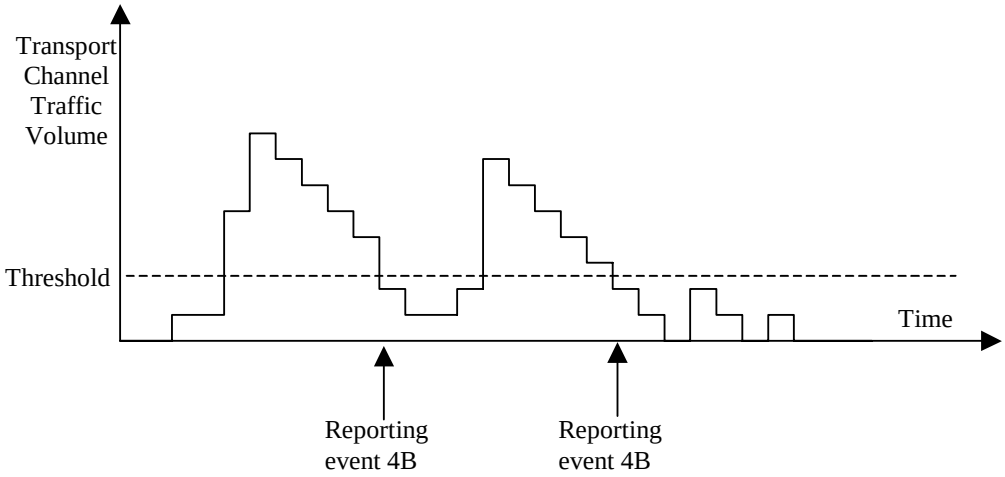

Figure 79: Event triggered report when Transport Channel Traffic Volume becomes smaller than certain threshold

If the monitored Transport Channel Traffic Volume [15] becomes smaller than an absolute threshold, i.e. if TCTF<Reporting threshold, this is an event that could trigger a report. The corresponding report ~~contains~~ specifies at least which ~~transport channel~~ measurement ID the event that triggered the report belongs to.

14.4.3 Traffic volume reporting mechanisms

Traffic volume measurement triggering could be associated with both a *time-to-trigger* and a *pending time after trigger*. The time-to-trigger is used to get time domain hysteresis, i.e. the condition must be fulfilled during the time-to-trigger time before a report is sent. Pending time after trigger is used to limit consecutive reports when one traffic volume measurement report already has been sent. This is described in detail below.

14.4.3.1 Pending time after trigger

This timer is started in the UE when a measurement report has been triggered. The UE is then forbidden to send any new measurement reports with the same measurement ID during this time period even when the triggering condition is fulfilled again. Instead the UE waits until the timer has suspended. If the Transport Channel Traffic Volume [15] is still above the threshold when the timer has expired the UE sends a new measurement report, and the timer is restarted. Otherwise it waits for a new triggering.

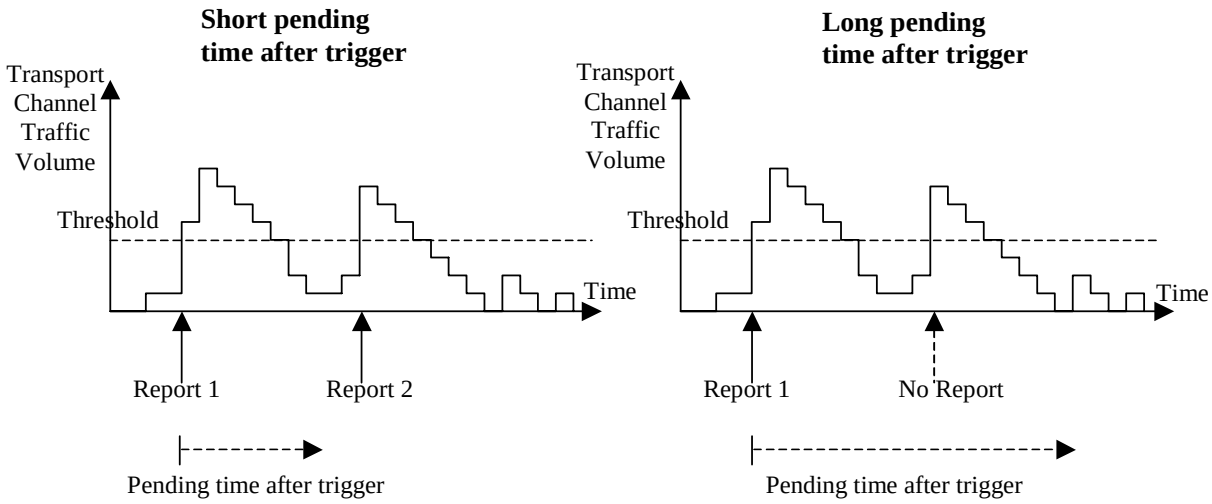

Figure 80: Pending time after trigger limits the amount of consecutive measurement reports

Figure 80 shows that by increasing the pending time after trigger a triggered second event does not result in a measurement report.

14.4.4 Interruption of user data transmission

A UE in CELL_FACH substate may be instructed by the UTRAN to cease transmission of user data on the RACH after a measurement report has been triggered. Before resuming transmission of user data,

- the UE shall receive from the UTRAN either a message allocating a dedicated physical channel, and make a transition to CELL_DCH state; or

- the UE shall receive an individually assigned measurement control message indicating that interruption of user data transmission is not be applied.

The transmission of signalling messages on the signalling bearer shall not be interrupted.

3GPP TSG-RAN Meeting #21 ***R2-011360***
Busan, Korea, 5/21/2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 861** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 of Traffic Volume Measurements
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	5/25/2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	The traffic volume measurements section is still not perfectly consistent with the messages used to configure it. The section on traffic volume measurements is not very clear.
Summary of change:	⌘	Added a note to the editor to correct a recurring reference to CONFIGURATION_INCOMPETE. Eliminated the check of "CHOICE Report Criteria" which is MP in the messaging and should therefore always be included. Specified that only reporting of traffic volume measurements on RBs multiplexed onto the same transport channels is supported. Indeed, this is the only thing that can be signalled. Moved a sentence that applied to event based trigger to the section on Traffic Volume report triggers Moved two sentence that described the reported quantities to the section on Traffic Volume Measurement quantity Added in R2-ADHOC: Clarified that exceeds is referring to applying an absolute threshold. Applied the corrections made to event 4b, to event 4a also. Eliminated the note to the editor since this change was already being made by another CR.
Consequences if not approved:	⌘	The text and the messaging will not be aligned.

Clauses affected:	⌘	8.6.7.10, 14.4.1, 14.4.2, 14.4.2.1, 14.4.2.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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

~~NOTE TO THE EDITOR:~~

~~Please replace each occurrence of CONFIGURATION_INCOMPETE with CONFIGURATION_INCOMPLETE.~~

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 Buffer Payload for each RB" or the parameter "Variance of RLC Buffer payload for each RB" is set:
  - if the IE "Traffic volume measurement quantity" is not included:
    - set the variable CONFIGURATION_INCOMPETE to TRUE;
  - if the IE "Traffic volume measurement quantity" is included;
    - 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 Buffer Payload 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.

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" or~~,~~ IE "Traffic volume reporting quantity" ~~or "CHOICE Report criteria"~~ is not received, the 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.

14.4 Traffic Volume Measurements

14.4.1 Traffic Volume Measurement Quantity

~~For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume [15] (which equals the sum of Buffer Occupancies of RBs~~

~~multiplexed onto a transport channel) in number of bytes.~~ In order to support a large variation of bit rates and RLC buffer size capabilities, a non-linear scale is used. Since, for each RB, the expected traffic includes both new and retransmitted RLC PDUs and potentially existing Control PDUs, all these should be included in the Buffer Occupancy measure. It should also be noted that traffic volume measurements are only applicable for acknowledged and unacknowledged mode.

According to what is stated in the Measurement Control message, the UE should support ~~measuring~~ reporting of RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload for ~~a specific RB,~~ RBs multiplexed onto the same Transport channel~~ and the total UE traffic volume (the same as one transport channel for a UE that uses RACH)~~. The Reporting Quantities (i.e. RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload of each RB) are indicated in the measurement control message. If Average of RLC Buffer Payload or Variance of RLC Buffer Payload is included as Reporting Quantity, the time interval to take an average or a variance shall be used.

14.4.2 Traffic Volume reporting triggers

Traffic volume can be reported in two different ways, periodical and event triggered. The reporting criteria are specified in the measurement control message.

For periodical reporting the UE simply ~~measures~~ determines the Reporting Quantities in number of bytes for each RB mapped onto the indicated transport channels and reports the ~~measurement~~ results ~~at the given~~ at the time ~~instants~~interval and for the number of times specified. ~~The Reporting Quantities (i.e. RLC Buffer Payload, Average of RLC Buffer Payload, and Variance of RLC Buffer Payload of each RB) are stated in the measurement control message. If Average of RLC Buffer Payload or Variance of RLC Buffer Payload is included as Reporting Quantity, the time interval to take an average or a variance shall be used.~~

For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume [15] (which equals the sum of Buffer Occupancies of RBs multiplexed onto a transport channel) in number of bytes. Event triggered reporting is performed when the Transport Channel Traffic Volume exceeds an upper threshold or becomes smaller than a lower threshold. Every TTI, UE measures the Transport Channel Traffic Volume for each transport channel and compares it with the configured thresholds. If the value is out of range, the UE ~~measures~~ determines the Reporting Quantities ~~of~~ for the RBs mapped onto that transport channel and reports the ~~measurement~~ results. ~~The Reporting Quantities are stated in the measurement control message.~~

14.4.2.1 Reporting event 4 A: Transport Channel Traffic Volume exceeds an absolute threshold

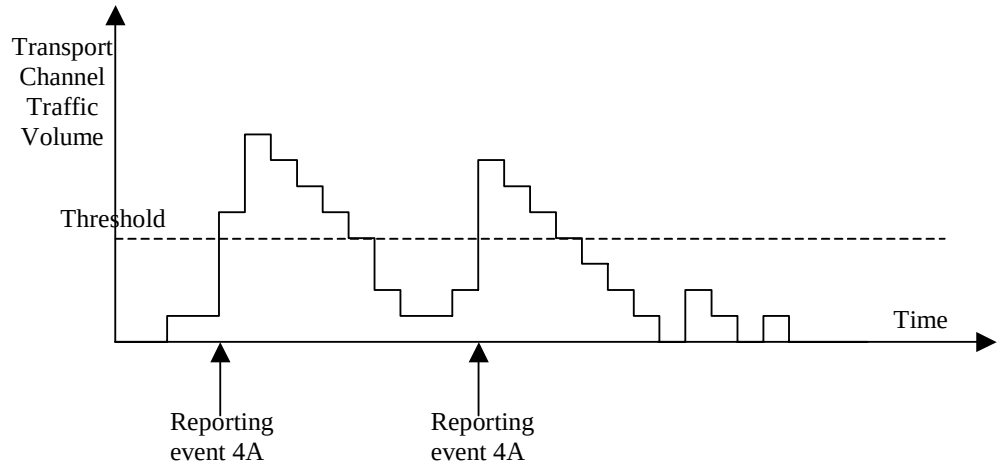

Figure 78: Event triggered report when Transport Channel Traffic Volume exceeds a certain threshold

If the monitored Transport Channel Traffic Volume [15] exceeds an absolute threshold, i.e. if TCTF>Reporting threshold, this is an event that could trigger a report. The corresponding report ~~contains~~ specifies at least which ~~transport channel~~ measurement ID the event that triggered the report belongs to.

14.4.2.2 Reporting event 4 B: Transport Channel Traffic Volume becomes smaller than an absolute threshold

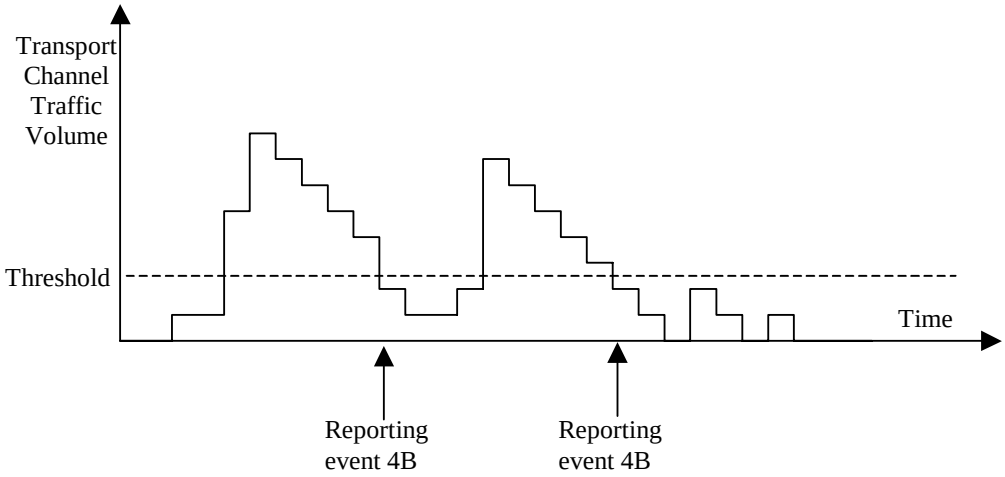

Figure 79: Event triggered report when Transport Channel Traffic Volume becomes smaller than certain threshold

If the monitored Transport Channel Traffic Volume [15] becomes smaller than an absolute threshold, i.e. if TCTF<Reporting threshold, this is an event that could trigger a report. The corresponding report ~~contains~~ specifies at least which ~~transport channel~~ measurement ID the event that triggered the report belongs to.

14.4.3 Traffic volume reporting mechanisms

Traffic volume measurement triggering could be associated with both a *time-to-trigger* and a *pending time after trigger*. The time-to-trigger is used to get time domain hysteresis, i.e. the condition must be fulfilled during the time-to-trigger time before a report is sent. Pending time after trigger is used to limit consecutive reports when one traffic volume measurement report already has been sent. This is described in detail below.

14.4.3.1 Pending time after trigger

This timer is started in the UE when a measurement report has been triggered. The UE is then forbidden to send any new measurement reports with the same measurement ID during this time period even when the triggering condition is fulfilled again. Instead the UE waits until the timer has suspended. If the Transport Channel Traffic Volume [15] is still above the threshold when the timer has expired the UE sends a new measurement report, and the timer is restarted. Otherwise it waits for a new triggering.

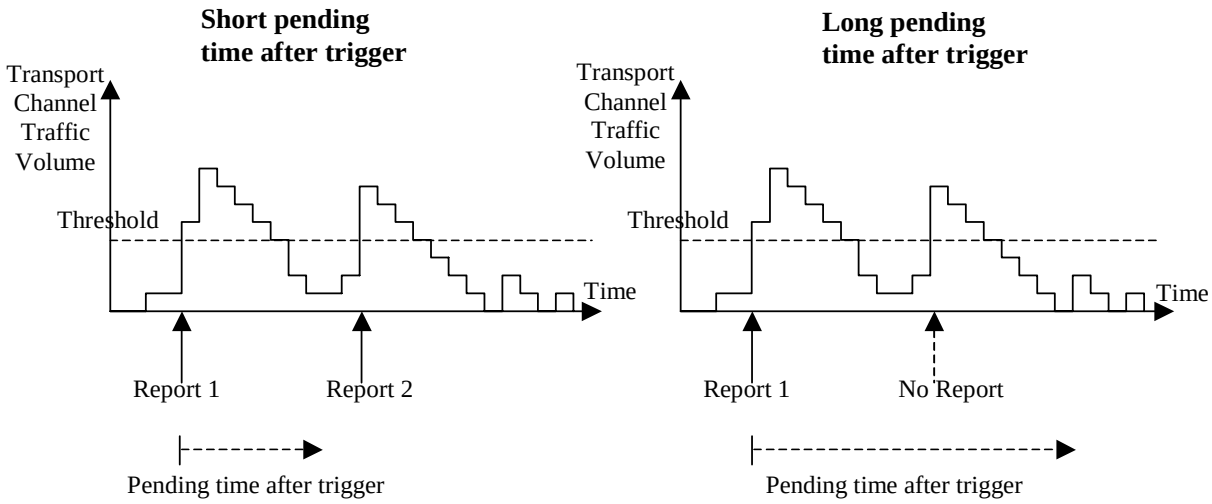

Figure 80: Pending time after trigger limits the amount of consecutive measurement reports

Figure 80 shows that by increasing the pending time after trigger a triggered second event does not result in a measurement report.

14.4.4 Interruption of user data transmission

A UE in CELL_FACH substate may be instructed by the UTRAN to cease transmission of user data on the RACH after a measurement report has been triggered. Before resuming transmission of user data,

- the UE shall receive from the UTRAN either a message allocating a dedicated physical channel, and make a transition to CELL_DCH state; or

- the UE shall receive an individually assigned measurement control message indicating that interruption of user data transmission is not be applied.

The transmission of signalling messages on the signalling bearer shall not be interrupted.

3GPP TSG-RAN WG2 Meeting #21
Busan, Korea, May 21th-25th 2001

Tdoc R2-011299

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 862** ⌘ rev **r1** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	CFN synchronisation problems at timing re-initialised hard handover
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
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: ⌘ At timing-reinitialised hard handover, when UE receives IE *"CFN-targetSFN frame offset"* (COFF), UE shall correct its CFN accordingly (thus without reading SFN on target cell), and continue this frame numbering on the new RL. There is however a potential risk that UE and UTRAN, due to different understanding on the exact frame timing, do not 'connect' (or re-initialise) the frame numbering on the new RL to the same radio frame. UE and UTRAN might end up in unsynchronised CFN, leading to dropped call.

Futhermore, this hard handover scenario, where COFF is signalled to UE, is not included in TS 25.402, "Synchronization in UTRAN, stage 2"

Backwards Compatibility Analysis: This CR is backwards compatible, if IE "CFN-targetSFN frame offset" is not signalled to UE. Functionality is removed.

Summary of change: ⌘ Timing re-initialised hard handover scenario where UE receives IE *"CFN-targetSFN frame offset"* (COFF), and correct CFN without reading SFN of target cell is removed. UE shall ignore IE "CFN-targetSFN frame offset" if received.

The formula is updated by removing the multiplication of DOFF with 512.

Consequences if not approved: ⌘ Risk of dropped calls due to unsynchronised CFN in UTRAN and UE.

Clauses affected: ⌘ 8.5.15.2, 8.6.6.28

Other specs Affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ 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.

8.5.15.2 Initialisation in CELL_DCH state at hard handover

When the UE is in CELL_DCH state and receives any of the messages causing the UE to perform a hard handover, the UE shall check the IE "Timing indication" in that message and:

- if IE "Timing indication" has the value "initialise" (i.e. timing re-initialised hard handover):

  ~~if IE "CFN-targetSFN frame offset" is not included:~~

  - read SFN on target cell identified by the first radio link listed in the IE "Downlink information per radio link list" included in that message;Changed indentation

    - set the CFN according to the following formula: Changed indentation

    - for FDD: Changed indentation

      - CFN = ((SFN*38400 - DOFF*~~512~~) div 38400) mod 256; Changed indentation

    - for TDD: Changed indentation

      - CFN = (SFN - DOFF) mod 256; Changed indentation

  ~~if IE "CFN-targetSFN frame offset" is included in the message causing the UE to perform a timing re-initialised hard handover, CFN shall be calculated according to the following formula:~~

  ~~for FDD:~~

  ~~CFNnew = (CFNold*38400+COFF*38400 -DOFF*512) div 38400) mod 256~~

  ~~for TDD:~~

  ~~CFNnew = (CFNold+COFF -DOFF) mod 256~~

  ~~where COFF is the value of "CFN-targetSFN frame offset".~~

~~NOTE: CFN-targetSFN frame offset = (TargetSFN-CFN)mod256~~

- if IE "Timing indication" has the value "maintain" (i.e. timing-maintained hard handover), the UE shall keep CFN with no change due to the hard handover, and only increase CFN (mod 256) by 1 every frame.

8.6.6.28 Downlink DPCH info common for all radio links

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

- perform actions for the IE "Timing indicator" ~~and the IE "CFN-targetSFN frame offset"~~ as specified in subclause 8.5.15.2;
- ignore the value received in IE "CFN-targetSFN frame offset";
- if the IE choice "mode" is set to 'FDD':
  - if the IE "Downlink DPCH power control information" is included:
    - perform actions for the IE "DPC Mode" according to [29];
  - if the IE "Downlink rate matching restriction information" is included:
    - store the transport channels that have restrictions on the allowed transport formats;
  - perform actions for the IE "spreading factor";
  - perform actions for the IE "Fixed or Flexible position";
  - perform actions for the IE "TFCI existence";
  - if the IE choice "SF" is set to 256:
    - store the value of the IE "Number of bits for pilot bits";
  - if the IE choice "SF" set to 128:
    - store the value of the IE "Number of bits for pilot bits";
- if the IE choice "mode" is set to 'TDD':
  - perform actions for the IE "Common timeslot info".

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

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

3GPP TSG-RAN WG2 Meeting #21
Busan, Korea, May 21th-25th 2001

Tdoc R2-011300

CR-Form-v3

CHANGE REQUEST

⌘ **25.331 CR 863** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	CFN synchronisation problems at timing re-initialised hard handover
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
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Reason for change: ⌘ At timing-reinitialised hard handover, when UE receives IE *"CFN-targetSFN frame offset"* (COFF), UE shall correct its CFN accordingly (thus without reading SFN on target cell), and continue this frame numbering on the new RL. There is however a potential risk that UE and UTRAN, due to different understanding on the exact frame timing, do not 'connect' (or re-initialise) the frame numbering on the new RL to the same radio frame. UE and UTRAN might end up in unsynchronised CFN, leading to dropped call.

Futhermore, this hard handover scenario, where COFF is signalled to UE, is not included in TS 25.402, "Synchronization in UTRAN, stage 2"

Backwards Compatibility Analysis: This CR is backwards compatible, if IE "CFN-targetSFN frame offset" is not signalled to UE. Functionality is removed.

Summary of change: ⌘ Timing re-initialised hard handover scenario where UE receives IE *"CFN-targetSFN frame offset"* (COFF), and correct CFN without reading SFN of target cell is removed. UE shall ignore IE "CFN-targetSFN frame offset" if received.

The formula is updated by removing the multiplication of DOFF with 512.

Consequences if not approved: ⌘ Risk of dropped calls due to unsynchronised CFN in UTRAN and UE.

Clauses affected: ⌘ 8.5.15.2, 8.6.6.28

Other specs Affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘

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    - set the CFN according to the following formula: Changed indentation

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      - CFN = ((SFN*38400 - DOFF*~~512~~) div 38400) mod 256; Changed indentation

    - for TDD: Changed indentation

      - CFN = (SFN - DOFF) mod 256; Changed indentation

  ~~if IE "CFN-targetSFN frame offset" is included in the message causing the UE to perform a timing re-initialised hard handover, CFN shall be calculated according to the following formula:~~

  ~~for FDD:~~

  ~~CFNnew = (CFNold*38400+COFF*38400 -DOFF*512) div 38400) mod 256~~

  ~~for TDD:~~

  ~~CFNnew = (CFNold+COFF -DOFF) mod 256~~

  ~~where COFF is the value of "CFN-targetSFN frame offset".~~

~~NOTE: CFN-targetSFN frame offset = (TargetSFN-CFN)mod256~~

- if IE "Timing indication" has the value "maintain" (i.e. timing-maintained hard handover), the UE shall keep CFN with no change due to the hard handover, and only increase CFN (mod 256) by 1 every frame.

8.6.6.28 Downlink DPCH info common for all radio links

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

- perform actions for the IE "Timing indicator" ~~and the IE "CFN-targetSFN frame offset"~~ as specified in subclause 8.5.15.2;
- ignore the value received in IE "CFN-targetSFN frame offset";
- if the IE choice "mode" is set to 'FDD':
  - if the IE "Downlink DPCH power control information" is included:
    - perform actions for the IE "DPC Mode" according to [29];
  - if the IE "Downlink rate matching restriction information" is included:
    - store the transport channels that have restrictions on the allowed transport formats;
  - perform actions for the IE "spreading factor";
  - perform actions for the IE "Fixed or Flexible position";
  - perform actions for the IE "TFCI existence";
  - if the IE choice "SF" is set to 256:
    - store the value of the IE "Number of bits for pilot bits";
  - if the IE choice "SF" set to 128:
    - store the value of the IE "Number of bits for pilot bits";
- if the IE choice "mode" is set to 'TDD':
  - perform actions for the IE "Common timeslot info".

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

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

3GPP TSG-SA WG2 Meeting #21
Busan, Korea, 21st – 25th, May 2001

R2-011452

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 865** ⌘ rev **r2** ⌘ Current version: **3.6.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections on UP Assistance Message Descriptions
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	25 May, 01
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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: ⌘ 8.1.1.1.5, No information about the need for broadcasting Ephemeris (SIB 15.2) and Reference Location/Position (SIB 15) simultaneously.

10.2.48.8.18.2, Use common GPS language. In fact, the majority of the parameters in the table are Ephemeris data.

10.3.7.89, Same as the above.

10.3.7.90a, Same as the above.

10.3.7.94, Same as the above.

10.3.7.96, Use the same parameter order as the original satellite navigation message to reduce the work load. Otherwise, the GPS server at the UTRAN has to change the order. After the UE receives them, it has to change the order back to match with the same navigation message received directly from the satellite.

This CR is backward compatible since it is only affects UE positioning.

Summary of change: ⌘ 8.1.1.1.5, Add note about the need for broadcasting Ephemeris (SIB 15.2) and Reference Location/Position (SIB 15) simultaneously.

10.2.48.8.18.2, Use common GPS language. In fact, the majority of the parameters in the table are Ephemeris data.

10.3.7.89, Same as the above.

10.3.7.90a, Same as the above.

10.3.7.94, Same as the above.

		10.3.7.96, Use the same parameter order as the original satellite navigation message to reduce the work load. Otherwise, the GPS server at the UTRAN has to change the order. After the UE receives them, it has to change the order back to match with the same navigation message received directly from the satellite.
Consequences if not approved:	⌘	It would lead to inefficient implementation and waste network and terminal resources

Clauses affected:	⌘	8.1.1.6.15, 10.2.48.8.18.2, 10.3.7.89, 10.3.7.90a, 10.3.7.94, 10.3.7.96, 11		
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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

8.1.1.6.15 System Information Block type 15

If the UE is in idle or connected mode, and supports GPS location services and/or OTDOA location services it should store all relevant IEs included in this system information block. The UE shall:

- if the IE "Cipher GPS Data Indicator" is included, and the UE has a full or reduced complexity GPS receiver functionality (the UE will know that the broadcast GPS data is ciphered in accordance with the Data Assistance Ciphering Algorithm detailed in [18]):
  store the parameters contained within this IE (see 10.3.7.86 for details), and use them to decipher the broadcast UE positioning GPS information contained within the System Information Block types 15.1, 15.2 and 15.3;

- use IE "Reference Location" as a priori knowledge of the approximate location of the UE;

- if the IE "NODE B Clock Drift" is included:

  - use it as an estimate of the drift rate of the NODE B clock relative to GPS time;

-- if the IE "NODE B Clock Drift" is not included:

  - assume the value 0;

- if SFN is included:

  - use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the serving cell;

- use "Reference GPS TOW" as GPS Time of Week which is the start of the frame with SFN=0;

Note: For efficiency purposes, the UTRAN should broadcast SIB 15 if it is broadcasting SIB 15.2.

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

10.2.48.8.18.2 System Information Block type 15.2

The system information block type 15.2 contains information useful for GPS Navigation Model. These IE fields are based on information extracted from the subframes 1 to 3 of the GPS navigation message [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Integer (0..604799)	The approximate GPS time-of-week when the message is broadcast. in seconds
SatID	MP		Enumerated(0..63)	Satellite ID
GPS ~~Clock and~~ Ephemeris and Clock Correction ~~p~~Parameters	MP		UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction parameters 10.3.7.90a	

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

10.3.7.89 UE positioning GPS almanac

This IE contains a reduced-precision subset of the ~~clock and~~ ephemeris and clock correction parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
WN_a	MP		Bit string(8)	
Satellite information	MP	1 to <maxSat>		
>DataID	MP		Bitstring(2)	See [12]
>SatID	MP		Enumerated(0..63)	Satellite ID
>e	MP		Bit string(16)	Eccentricity [12]
$>t_{oa}$	MP		Bit string(8)	Reference Time Ephemeris [12]
>δi	MP		Bit string(16)	
>OMEGADOT	MP		Bit string(16)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
>SV Health	MP		Bit string(8)	
$>A^{1/2}$	MP		Bit string(24)	Semi-Major Axis (meters)$^{1/2}$ [12]
$>OMEGA_0$	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
$>M_0$	MP		Bit string(24)	Mean Anomaly at Reference Time (semi-circles) [12]
>ω	MP		Bit string(24)	Argument of Perigee (semi-circles) [12]
$>af_0$	MP		Bit string(11)	apparent clock correction [12]
$>af_1$	MP		Bit string(11)	apparent clock correction [12]
SV Global Health	OP		Bit string(364)	This enables GPS time recovery and possibly extended GPS correlation intervals. It is specified in page 25 of subframes 4 and 5 [12]

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

10.3.7.90a UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction parameters

This IE contains information for GPS ephemeris and clock correction.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
C/A or P on L2	MP		Bit string(2)	Code(s) on L2 Channel [12]
URA Index	MP		Bit string(4)	User Range Accuracy [12]
SV Health	MP		Bit string(6)	[12]
IODC	MP		Bit string(10)	Issue of Data, Clock [12]
L2 P Data Flag	MP		Bit string(1)	[12]
SF 1 Reserved	MP		Bit string(87)	[12]
T_{GD}	MP		Bit string(8)	Estimated group delay differential [12]
t_{oc}	MP		Bit string(16)	apparent clock correction [12]
af_2	MP		Bit string(8)	apparent clock correction [12]
af_1	MP		Bit string(16)	apparent clock correction [12]
af_0	MP		Bit string(22)	apparent clock correction [12]
C_{rs}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term to the Orbit Radius (meters) [12]
Δn	MP		Bit string(16)	Mean Motion Difference From Computed Value (semi-circles/sec) [12]
M_0	MP		Bit string(32)	Mean Anomaly at Reference Time (semi-circles) [12]
C_{uc}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
e	MP		Bit string(32)	c
C_{us}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
$(A)^{1/2}$	MP		Bit string(32)	Semi-Major Axis (meters)$^{1/2}$ [12]
t_{oe}	MP		Bit string(16)	Reference Time Ephemeris [12]
Fit Interval Flag	MP		Bit string(1)	[12]
AODO	MP		Bit string(5)	Age Of Data Offset [12]
C_{ic}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
$OMEGA_0$	MP		Bit string(32)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
C_{is}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
i_0	MP		Bit string(32)	Inclination Angle at Reference Time (semi-circles) [12]
C_{rc}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius (meters) [12]
ω	MP		Bit string(32)	Argument of Perigee (semi-circles) [12]
OMEGAdot	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
Idot	MP		Bit string(14)	Rate of Inclination Angle (semi-circles/sec) [12]

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

10.3.7.94 UE positioning GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN, ES_SN, ES_NN, REVD)	See note 1
>~~Clock and~~GPS Ephemeris and Clock Correction ~~p~~Parameters	CV-*Satellite status*		UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction ~~p~~Parameters 10.3.7.90a	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Value	Indication
NS_NN	New satellite, new Navigation Model
ES_SN	Existing satellite, same Navigation Model
ES_NN	Existing satellite, new Navigation Model
REVD	Reserved

Condition	Explanation
Satellite status	The IE is present unless IE "Satellite status" is ES_SN

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

10.3.7.96 UE positioning GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
GPS TOW rem usec	OP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000. GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
SFN	OP		Integer(0..4095)	The SFN which the GPS TOW time stamps. SFN and GPS TOW msec and GPS TOW rem usec are included if relation GPS TOW/SFN is known to at least 10 μs.
SFN-TOW Uncertainty	OP		Enumerated (lessThan10, moreThan10)	This field indicates the uncertainty of the relation GPS TOW/SFN. lessThan10 means the relation is accurate to at least 10 ms.
Node B Clock Drift	OP		Real(-0.1..0.1 by step of 0.0125)	μsec/sec (ppm)
GPS TOW Assist	OP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	
>TLM Message	MP		Bit string(14)	
>TLM Reserved	MP		Bit string(2)	
>Alert	MP		Boolean	
>Anti-Spoof	MP		Boolean	
~~>Alert~~	~~MP~~		~~Boolean~~	
~~>TLM Reserved~~	~~MP~~		~~Bit string(2)~~	

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

11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

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


... ...



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

… …


NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    ephemerisParameternavModel                          EphemerisParameterNavModel      OPTIONAL
}

NavigationModelSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                        NavigationModelSatInfo

EphemerisParameterNavModel ::=                      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)),
    sf1Revd                             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))

... ...
```

```
SysInfoType15-2 ::=                 SEQUENCE {
-- Ephemeris and clock corrections
    transmissionTOW                 INTEGER (0..604799),
    satID                           SatID,
    ephemerisParameternavModel                      EphemerisParameterNavModel,

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

3GPP TSG-SA WG2 Meeting #21
Busan, Korea, 21st – 25th, May 2001

R2-011453

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 866** ⌘ rev ⌘ Current version: **4.0.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Corrections on UP Assistance Message Descriptions	
Source:	⌘	TSG-RAN WG2	
Work item code:	⌘	TEI	***Date:*** ⌘ 25 May, 01
Category:	⌘	**A**	***Release:*** ⌘ REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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: ⌘ 8.1.1.1.5, No information about the need for broadcasting Ephemeris (SIB 15.2) and Reference Location/Position (SIB 15) simultaneously.

10.2.48.8.18.2, Use common GPS language. In fact, the majority of the parameters in the table are Ephemeris data.

10.3.7.89, Same as the above.

10.3.7.90a, Same as the above.

10.3.7.94, Same as the above.

10.3.7.96, Use the same parameter order as the original satellite navigation message to reduce the work load. Otherwise, the GPS server at the UTRAN has to change the order. After the UE receives them, it has to change the order back to match with the same navigation message received directly from the satellite.

Summary of change: ⌘ 8.1.1.1.5, Add note about the need for broadcasting Ephemeris (SIB 15.2) and Reference Location/Position (SIB 15) simultaneously.

10.2.48.8.18.2, Use common GPS language. In fact, the majority of the parameters in the table are Ephemeris data.

10.3.7.89, Same as the above.

10.3.7.90a, Same as the above.

10.3.7.94, Same as the above.

10.3.7.96, Use the same parameter order as the original satellite navigation message to reduce the work load. Otherwise, the GPS server at the UTRAN has to change the order. After the UE receives them, it has to change the order back

		to match with the same navigation message received directly from the satellite.
Consequences if not approved:	⌘	It would lead to inefficient implementation and waste network and terminal resources

Clauses affected:	⌘	8.1.1.6.15, 10.2.48.8.18.2, 10.3.7.89, 10.3.7.90a, 10.3.7.94, 10.3.7.96, 11		
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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

8.1.1.6.15 System Information Block type 15

If the UE is in idle or connected mode, and supports GPS location services and/or OTDOA location services it should store all relevant IEs included in this system information block. The UE shall:

- if the IE "Cipher GPS Data Indicator" is included, and the UE has a full or reduced complexity GPS receiver functionality (the UE will know that the broadcast GPS data is ciphered in accordance with the Data Assistance Ciphering Algorithm detailed in [18]):
  store the parameters contained within this IE (see 10.3.7.86 for details), and use them to decipher the broadcast UE positioning GPS information contained within the System Information Block types 15.1, 15.2 and 15.3;

- use IE "Reference Location" as a priori knowledge of the approximate location of the UE;

- if the IE "NODE B Clock Drift" is included:

  - use it as an estimate of the drift rate of the NODE B clock relative to GPS time;

-- if the IE "NODE B Clock Drift" is not included:

  - assume the value 0;

- if SFN is included:

  - use it as the relationship between GPS time and air-interface timing of the NODE B transmission in the serving cell;

- use "Reference GPS TOW" as GPS Time of Week which is the start of the frame with SFN=0;

Note: For efficiency purposes, the UTRAN should broadcast SIB 15 if it is broadcasting SIB 15.2.

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

10.2.48.8.18.2 System Information Block type 15.2

The system information block type 15.2 contains information useful for GPS Navigation Model. These IE fields are based on information extracted from the subframes 1 to 3 of the GPS navigation message [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Integer (0..604799)	The approximate GPS time-of-week when the message is broadcast. in seconds
SatID	MP		Enumerated(0..63)	Satellite ID
GPS ~~Clock and~~ Ephemeris and Clock Correction ~~p~~Parameters	MP		UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction parameters 10.3.7.90a	

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

10.3.7.89 UE positioning GPS almanac

This IE contains a reduced-precision subset of the ~~clock and~~ ephemeris and clock correction parameters.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
WN_a	MP		Bit string(8)	
Satellite information	MP	1 to <maxSat>		
>DataID	MP		Bitstring(2)	See [12]
>SatID	MP		Enumerated(0..63)	Satellite ID
>e	MP		Bit string(16)	Eccentricity [12]
$>t_{oa}$	MP		Bit string(8)	Reference Time Ephemeris [12]
>δi	MP		Bit string(16)	
>OMEGADOT	MP		Bit string(16)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
>SV Health	MP		Bit string(8)	
$>A^{1/2}$	MP		Bit string(24)	Semi-Major Axis (meters)$^{1/2}$ [12]
$>OMEGA_0$	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
$>M_0$	MP		Bit string(24)	Mean Anomaly at Reference Time (semi-circles) [12]
>ω	MP		Bit string(24)	Argument of Perigee (semi-circles) [12]
$>af_0$	MP		Bit string(11)	apparent clock correction [12]
$>af_1$	MP		Bit string(11)	apparent clock correction [12]
SV Global Health	OP		Bit string(364)	This enables GPS time recovery and possibly extended GPS correlation intervals. It is specified in page 25 of subframes 4 and 5 [12]

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

10.3.7.90a UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction parameters

This IE contains information for GPS ephemeris and clock correction.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
C/A or P on L2	MP		Bit string(2)	Code(s) on L2 Channel [12]
URA Index	MP		Bit string(4)	User Range Accuracy [12]
SV Health	MP		Bit string(6)	[12]
IODC	MP		Bit string(10)	Issue of Data, Clock [12]
L2 P Data Flag	MP		Bit string(1)	[12]
SF 1 Reserved	MP		Bit string(87)	[12]
T_{GD}	MP		Bit string(8)	Estimated group delay differential [12]
t_{oc}	MP		Bit string(16)	apparent clock correction [12]
af_2	MP		Bit string(8)	apparent clock correction [12]
af_1	MP		Bit string(16)	apparent clock correction [12]
af_0	MP		Bit string(22)	apparent clock correction [12]
C_{rs}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term to the Orbit Radius (meters) [12]
Δn	MP		Bit string(16)	Mean Motion Difference From Computed Value (semi-circles/sec) [12]
M_0	MP		Bit string(32)	Mean Anomaly at Reference Time (semi-circles) [12]
C_{uc}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
e	MP		Bit string(32)	c
C_{us}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Argument Of Latitude (radians) [12]
$(A)^{1/2}$	MP		Bit string(32)	Semi-Major Axis (meters)$^{1/2}$ [12]
t_{oe}	MP		Bit string(16)	Reference Time Ephemeris [12]
Fit Interval Flag	MP		Bit string(1)	[12]
AODO	MP		Bit string(5)	Age Of Data Offset [12]
C_{ic}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
$OMEGA_0$	MP		Bit string(32)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles) [12]
C_{is}	MP		Bit string(16)	Amplitude of the Sine Harmonic Correction Term To The Angle Of Inclination (radians) [12]
i_0	MP		Bit string(32)	Inclination Angle at Reference Time (semi-circles) [12]
C_{rc}	MP		Bit string(16)	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius (meters) [12]
ω	MP		Bit string(32)	Argument of Perigee (semi-circles) [12]
OMEGAdot	MP		Bit string(24)	Longitude of Ascending Node of Orbit Plane at Weekly Epoch (semi-circles/sec) [12]
Idot	MP		Bit string(14)	Rate of Inclination Angle (semi-circles/sec) [12]

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

10.3.7.94 UE positioning GPS navigation model

This IE contain information required to manage the transfer of precise navigation data to the GPS-capable UE.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Satellite information	MP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	Satellite ID
>Satellite Status	MP		Enumerated(NS_NN, ES_SN, ES_NN, REVD)	See note 1
>~~Clock and~~GPS Ephemeris and Clock Correction ~~p~~Parameters	CV-*Satellite status*		UE positioning GPS ~~Clock and~~ Ephemeris and Clock Correction ~~p~~Parameters 10.3.7.90a	

NOTE 1: The UE shall interpret enumerated symbols as follows.

Value	Indication
NS_NN	New satellite, new Navigation Model
ES_SN	Existing satellite, same Navigation Model
ES_NN	Existing satellite, new Navigation Model
REVD	Reserved

Condition	Explanation
Satellite status	The IE is present unless IE "Satellite status" is ES_SN

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

10.3.7.96 UE positioning GPS reference time

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
GPS Week	MP		Integer(0..1023)	
GPS TOW msec	MP		Integer(0..6.048*10^8-1)	GPS Time of Week in milliseconds (rounded down to the nearest millisecond unit).
GPS TOW rem usec	OP		Integer(0..999)	GPS Time of Week in microseconds MOD 1000. GPS Time of Week in microseconds = 1000 * GPS TOW msec + GPS TOW rem usec
SFN	OP		Integer(0..4095)	The SFN which the GPS TOW time stamps. SFN and GPS TOW msec and GPS TOW rem usec are included if relation GPS TOW/SFN is known to at least 10 μs.
SFN-TOW Uncertainty	OP		Enumerated (lessThan10, moreThan10)	This field indicates the uncertainty of the relation GPS TOW/SFN. lessThan10 means the relation is accurate to at least 10 ms.
Node B Clock Drift	OP		Real(-0.1..0.1 by step of 0.0125)	μsec/sec (ppm)
GPS TOW Assist	OP	1 to <maxSat>		
>SatID	MP		Enumerated(0..63)	
>TLM Message	MP		Bit string(14)	
>TLM Reserved	MP		Bit string(2)	
>Alert	MP		Boolean	
>Anti-Spoof	MP		Boolean	
~~>Alert~~	~~MP~~		~~Boolean~~	
~~>TLM Reserved~~	~~MP~~		~~Bit string(2)~~	

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

11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

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


... ...



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

… …


NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    ephemerisParameternavModel                          EphemerisParameterNavModel      OPTIONAL
}

NavigationModelSatInfoList ::=      SEQUENCE (SIZE (1..maxSat)) OF
                                        NavigationModelSatInfo

EphemerisParameterNavModel ::=                          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)),
    sf1Revd                             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))

... ...
```

```
SysInfoType15-2 ::=                 SEQUENCE {
-- Ephemeris and clock corrections
    transmissionTOW                 INTEGER (0..604799),
    satID                           SatID,
    ephemerisParameternavModel                      EphemerisParameterNavModel,

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

3GPP TSG-SA WG2 Meeting #21
Busan, Korea, 21st – 25th, May 2001

R2-011454

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 867** ⌘ rev **r2** ⌘ Current version: **3.6.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Correction on Area Scope of SIB 15.3
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	25 May, 01
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	Wrong area scope for SIB 15.3. This CR is backward compatible since it is only affects UE positioning.
Summary of change:	⌘	Change the area scope of SIB 15.3 from cell to PLMN
Consequences if not approved:	⌘	It would lead to unnecessary inconsistence

Clauses affected:	⌘	13.4.32
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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

13.4.32 VALUE_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB value tag	MP		MIB value tag 10.3.8.9	Value tag for the master information block
SB 1 value tag	MP		Cell value tag 10.3.8.4	Value tag for the scheduling block type 1
SB 2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the scheduling block type 2
SIB 1 value tag	CV-*GSM*		PLMN value tag 10.3.8.10	Value tag for the system information block type 1
SIB 2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 2
SIB 3 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 3
SIB 4 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 4
SIB 5 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 5
SIB 6 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 6
CHOICE *mode*				
>FDD				
>>SIB 8 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 8
>TDD				(no data)
SIB 11 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 11
SIB 12 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 12
SIB 13 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13
SIB 13.1 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.1
SIB 13.2 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.2
SIB 13.3 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.3
SIB 13.4 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.4
SIB 15 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15
SIB 15.1 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.1
SIB 15.2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.2
SIB 15.3 value tag	MP		PLMN~~Cell~~ value tag 10.3.8.10~~4~~	Value tag for the system information block type 15.3
SIB 15.4 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.4
SIB 16 value tag	MP		PLMN value tag 10.3.8.10	Value tag for the system information block type 16
SIB 18 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 18

Condition	Explanation
GSM	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "GSM-MAP".
ANSI	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "ANSI-41".

3GPP TSG-SA WG2 Meeting #21
Busan, Korea, 21st – 25th, May 2001

R2-011455

CR-Form-v4

CHANGE REQUEST

⌘ **25.331 CR 868** ⌘ rev ⌘ Current version: **4.0.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Correction on Area Scope of SIB 15.3
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	25 May, 01
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	Wrong area scope for SIB 15.3.
Summary of change:	⌘	Change the area scope of SIB 15.3 from cell to PLMN
Consequences if not approved:	⌘	It would lead to unnecessary inconsistence

Clauses affected:	⌘	13.4.32
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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.

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

13.4.32 VALUE_TAG

This variable contains information about the value tag for the last received system information block of a given type, for all system information blocks using value tags.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MIB value tag	MP		MIB value tag 10.3.8.9	Value tag for the master information block
SB 1 value tag	MP		Cell value tag 10.3.8.4	Value tag for the scheduling block type 1
SB 2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the scheduling block type 2
SIB 1 value tag	CV-*GSM*		PLMN value tag 10.3.8.10	Value tag for the system information block type 1
SIB 2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 2
SIB 3 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 3
SIB 4 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 4
SIB 5 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 5
SIB 6 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 6
CHOICE *mode*				
>FDD				
>>SIB 8 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 8
>TDD				(no data)
SIB 11 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 11
SIB 12 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 12
SIB 13 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13
SIB 13.1 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.1
SIB 13.2 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.2
SIB 13.3 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.3
SIB 13.4 value tag	CV-*ANSI*		Cell value tag 10.3.8.4	Value tag for the system information block type 13.4
SIB 15 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15
SIB 15.1 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.1
SIB 15.2 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.2
SIB 15.3 value tag	MP		PLMN~~Cell~~ value tag 10.3.8.10~~4~~	Value tag for the system information block type 15.3
SIB 15.4 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 15.4
SIB 16 value tag	MP		PLMN value tag 10.3.8.10	Value tag for the system information block type 16
SIB 18 value tag	MP		Cell value tag 10.3.8.4	Value tag for the system information block type 18

Condition	Explanation
GSM	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "GSM-MAP".
ANSI	This information is only stored when the PLMN Type in the variable SELECTED_PLMN is "ANSI-41".

3GPP TSG RAN2 Meeting #21 ***R2-011301***
Pusan, Korea, May 21-25, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **871** ⌘ ev **r1** ⌘ Current version: **3.6.0** ⌘

*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 for AICH Power Offset
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	24 May 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	The AICH Power offset parameter in SIB Type 5 is also used to set the power offsets for AP-AICH and CD/CA-ICH. This is not clear in specification.
Summary of change:	⌘	Note is added to tabular description of SIB Types 5 and 6 and a note is added to the AICH Power offset IE.
Consequences if not approved:	⌘	Current text may lead to misunderstanding of the specification.

Clauses affected:	⌘	10.2.48.8.8, 10.2.48.8.9, 10.3.6.3
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:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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 *mode*	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH .
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	
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 *mode*	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH .
>>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	
>>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

10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This parameter is used to indicate the power level of AICH, AP-AICH and CD/CA-ICH channels. This is the power per transmitted Acquisition Indicator, AP Acquisistion Indicator or CD/CA Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AICH Power offset	MP		Integer(-22..+5)	Offset in dB

3GPP TSG RAN2 Meeting #21 ***R2-011302***
Pusan, Korea, May 21-25, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.331** **CR** **872** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Correction to for AICH Power Offset
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	24 May 2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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:	⌘	The AICH Power offset parameter in SIB Type 5 is also used to set the power offsets for AP-AICH and CD/CA-ICH. This is not clear in specification.
Summary of change:	⌘	Note is added to tabular description of SIB Types 5 and 6 and a note is added to the AICH Power offset IE.
Consequences if not approved:	⌘	Current text may lead to misunderstanding of the specification.

Clauses affected:	⌘	10.2.48.8.8, 10.2.48.8.9, 10.3.6.3
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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 *mode*	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH .
>TDD				
>>PUSCH system information	OP		PUSCH system information 10.3.6.66	
>>PDSCH system information	OP		PDSCH system information 10.3.6.46	
>>TDD open loop power control	MP		TDD open loop power control 10.3.6.79	
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 *mode*	MP			
>FDD				
>>AICH Power offset	MP		AICH Power offset 10.3.6.3	This AICH Power offset also indicates the power offset for AP-AICH and for CD/CA-ICH .
>>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	
>>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

10.3.6.3 AICH Power offset

NOTE: Only for FDD.

This parameter is used to indicate the power level of AICH, AP-AICH and CD/CA-ICH channels. This is the power per transmitted Acquisition Indicator, AP Acquisistion Indicator or CD/CA Indicator minus power of the Primary CPICH.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
AICH Power offset	MP		Integer(-22..+5)	Offset in dB