

TSG-RAN Meeting #9
Oahu, HI, USA, 20 – 22 September 2000

RP-000363

Title: Agreed CRs to TS 25.331 (3)

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-001450	agreed	25.331	462	1	Max Window Size in RLC capabilities	F	3.3.0	3.4.0
R2-001758	agreed	25.331	463	3	UE handling of CFN	F	3.3.0	3.4.0
R2-001475	agreed	25.331	464	1	Correction of padding description in clause 12	F	3.3.0	3.4.0
R2-001545	agreed	25.331	465	1	Window size in RLC info	F	3.3.0	3.4.0
R2-001520	agreed	25.331	466	1	TFC Control Duration	F	3.3.0	3.4.0
R2-001460	agreed	25.331	467		System Information Block Tabular Information	F	3.3.0	3.4.0
R2-001521	agreed	25.331	469	1	Frequency encoding in inter-system handover messages	F	3.3.0	3.4.0
R2-001490	agreed	25.331	470		RRC message size optimisation regarding TFS parameters	F	3.3.0	3.4.0
R2-001749	agreed	25.331	471	2	RACH selection	F	3.3.0	3.4.0
R2-001496	agreed	25.331	472		DRX cycle lower limit	F	3.3.0	3.4.0
R2-001505	agreed	25.331	474		Rx window size in RLC info	F	3.3.0	3.4.0
R2-001783	agreed	25.331	476	1	Corrections & optimisations regarding system information blocks of length 215..221	F	3.3.0	3.4.0
R2-001826	agreed	25.331	477	1	Corrections on 8.1.1 resulting from RRC review at R2#14	F	3.3.0	3.4.0
R2-001769	agreed	25.331	478	1	Corrections to the RRC connection release procedure	F	3.3.0	3.4.0
R2-001784	agreed	25.331	479	1	New release cause for signalling connection re-establishment	F	3.3.0	3.4.0
R2-001790	agreed	25.331	480	1	Correction to IE midamble shift and burst type	F	3.3.0	3.4.0
R2-001860	agreed	25.331	481	1	Correction in RLC info	F	3.3.0	3.4.0
R2-001609	agreed	25.331	483		Description of CTCH occasions	F	3.3.0	3.4.0
R2-001786	agreed	25.331	485	1	TDD CCTrCH UL/DL Pairing for Inner Loop Power Control	F	3.3.0	3.4.0
R2-001729	agreed	25.331	486	1	DCCH and BCCH Signaling of TDD UL OL PC Information	F	3.3.0	3.4.0

3GPP TSG RAN WG2 meeting #14
Paris, France, 03 - 07 July 2000

Document R2-001450

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

CHANGE REQUEST

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

25.331 CR 462r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

Proposed change affects:

(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source:

TSG-RAN WG2

Date: 2000-06-28

Subject:

Max Window Size in RLC capabilities

Work item:

Category:

(only one category shall be marked with an X)

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

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

Reason for change:

1. The UE maximum RLC TX/RX window size should be included in the RLC capabilities.

Clauses affected:

10.3.3.34, 11.3.3

Other specs affected:

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

Other comments:



help.doc

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

10.3.3.34 RLC capability

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Total RLC AM buffer size	MP		Integer (2,10,50,100,150,500,1000)	Total receiving and transmitting RLC AM buffer capability in kBytes At least 1 spare value needed
<u>Maximum RLC AM Window Size</u>	<u>MP</u>		<u>Integer(2047,4095)</u>	<u>Maximum supported RLC TX and RX window in UE</u>
Maximum number of AM entities	MP		Integer (3,4,5,6,8,16,32)	At least 1 spare value needed

11.3.3 User equipment information elements

UserEquipment-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 CN-DomainIdentity,
 IMEI,
 IMSI-GSM-MAP,
 LAI,
 P-TMSI-GSM-MAP,
 RAI,
 TMSI-GSM-MAP
FROM CoreNetwork-IEs

 RB-ActivationTimeInfoList
FROM RadioBearer-IEs

 FrequencyInfo,
 PowerControlAlgorithm
FROM PhysicalChannel-IEs

 InterSystemInfo
FROM Measurement-IEs

 ProtocolErrorInformation
FROM Other-IEs

 maxASC,
 maxCNdomains,
 maxDRACclasses,
 maxFrequencybands,
 maxPage1,
 maxSystemCapability
FROM Constant-definitions;

ActivationTime ::= INTEGER (0..255)

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

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

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

CellUpdateCause ::= ENUMERATED {
 cellReselection,
 periodicCellUpdate,
 ul-DataTransmission,
 pagingResponse,
 rb-ControlResponse,
 spare1, spare2, spare3 }

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

CipheringAlgorithm ::= BIT STRING (SIZE (4))

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

CipheringModeInfo ::= SEQUENCE {

```

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

CN-DRX-CycleLengthCoefficient ::= INTEGER (6..12)

CN-PagedUE-Identity ::= CHOICE {
    imsi-GSM-MAP          IMSI-GSM-MAP,
    tmsi-GSM-MAP          TMSI-GSM-MAP,
    p-TMSI-GSM-MAP        P-TMSI-GSM-MAP,
    imsi-DS-41            IMSI-DS-41,
    tmsi-DS-41            TMSI-DS-41,
    spare1                 NULL,
    spare2                 NULL,
    spare3                 NULL
}

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

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

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

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

DL-PhysChCapabilityTDD ::= SEQUENCE {
    maxSimultaneousCCTrCH-Count MaxSimultaneousCCTrCH-Count,
    maxTS-PerFrame              MaxTS-PerFrame,
    maxPhysChPerFrame           MaxPhysChPerFrame,
    minimumSF                    MinimumSF-DL,
    supportOfPDSCH               BOOLEAN
}

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

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

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

DRX-Indicator ::= ENUMERATED {
    noDRX,

```

```

drxWithCellUpdating,
drxWithURA-Updating,
spare1 }

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

EstablishmentCause ::= ENUMERATED {
    originatingConversationalCall,
    originatingStreamingCall,
    originatingInteractiveCall,
    originatingBackgroundCall,
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    emergencyCall,
    interSystemCellReselection,
    registration,
    detach,
    sms,
    callRe-establishment,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8,
    spare9, spare10, spare11, spare12,
    spare13, spare14, spare15, spare16,
    spare17, spare18 }

FailureCauseWithProtErr ::= CHOICE {
    configurationUnacceptable NULL,
    physicalChannelFailure NULL,
    incompatibleSimultaneousReconfiguration NULL,
    protocolError ProtocolErrorInformation,
    spare1 NULL,
    spare2 NULL,
    spare3 NULL
}

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

HyperFrameNumber ::= BIT STRING (SIZE (20))

ICS-Version ::= ENUMERATED {
    r99,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7 }

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

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

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

InitialUE-Identity ::= CHOICE {
    imsi IMSI-GSM-MAP,
    tmsi-and-LAI TMSI-and-LAI-GSM-MAP,
    p-TMSI-and-RAI P-TMSI-and-RAI-GSM-MAP,
    imei IMEI,
    esn-DS-41 ESN-DS-41,
    imsi-DS-41 IMSI-DS-41,
    imsi-and-ESN-DS-41 IMSI-and-ESN-DS-41,
    tmsi-DS-41 TMSI-DS-41,
    spare1 NULL,
    spare2 NULL,
    spare3 NULL,
    spare4 NULL,
    spare5 NULL,
    spare6 NULL,
    spare7 NULL,
    spare8 NULL
}

```

```

}

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

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

IntegrityProtectionAlgorithm ::= BIT STRING (SIZE (4))

IntegrityProtectionModeCommand ::= CHOICE {
    startIntegrityProtection      SEQUENCE {
        integrityProtInitNumber   IntegrityProtInitNumber
    },
    modify                         SEQUENCE {
        dl-IntegrityProtActivationInfo IntegrityProtActivationInfo
    },
    spare1                         NULL,
    spare2                         NULL
}

IntegrityProtectionModeInfo ::= SEQUENCE {
    integrityProtectionModeCommand IntegrityProtectionModeCommand,
    -- TABULAR: DL integrity protection activation info and Integrity
    -- protection intialisation number have been nested inside
    -- IntegrityProtectionModeCommand.
    integrityProtectionAlgorithm   IntegrityProtectionAlgorithm   OPTIONAL
}

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

LCS-Capability ::= SEQUENCE {
    standaloneLocMethodsSupported  BOOLEAN,
    ue-BasedOTDOA-Supported        BOOLEAN,
    networkAssistedGPS-Supported   NetworkAssistedGPS-Supported,
    gps-ReferenceTimeCapable       BOOLEAN,
    supportForIDL                  BOOLEAN
}

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

MaximumAM-EntityNumberRLC-Cap ::= ENUMERATED {
    am3, am4, am5, am6,
    am8, am16, am32, spare1 }

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

MaxNoDPDCH-BitsTransmitted ::= ENUMERATED {
    b600, b1200, b2400, b4800,
    b9600, b19200, b28800, b38400,
    b48000, b57600, spare1, spare2,
    spare3, spare4, spare5, spare6 }

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

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

MaxNoSCCPCH-RL ::= ENUMERATED {
    r11, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7 }

```

```

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

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

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

-- TABULAR: Used range in Release99 is 1..224, values 225-256 are spare values
MaxPhysChPerFrame ::=          INTEGER (1..256)

MaxPhysChPerTimeslot ::=          ENUMERATED {
                                     ts1, ts2 }

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

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

MaxSimultaneousTransChsUL ::=          ENUMERATED {
                                         e2, e4, e8, e16, e32,
                                         spare1, spare2, spare3 }

MaxTransportBlocksDL ::=          ENUMERATED {
                                     tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5, spare6 }

MaxTransportBlocksUL ::=          ENUMERATED {
                                     tb2, tb4, tb8, tb16, tb32, tb48,
                                     tb64, tb96, tb128, tb256, tb512,
                                     spare1, spare2, spare3,
                                     spare4, spare5 }

-- TABULAR: Used range in Release99 is 1..14
MaxTS-PerFrame ::=          INTEGER (1..16)

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

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

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

MinimumSF-UL ::=          ENUMERATED {
                             sf1, sf2, sf4, sf8, sf16,
                             spare1, spare2, spare3 }

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

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

N-300 ::=          INTEGER (1..8)

N-302 ::=          INTEGER (1..8)

N-303 ::=          INTEGER (1..8)

```



```

N-304 ::= INTEGER (1..8)
N-310 ::= INTEGER (1..8)
N-312 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }
N-313 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }
N-315 ::= ENUMERATED {
    s1, s50, s100, s200, s400,
    s600, s800, s1000 }
N-AccessFails ::= INTEGER (1..64)
N-AP-RetransMax ::= INTEGER (1..64)
NetworkAssistedGPS-Supported ::= ENUMERATED {
    networkBased,
    ue-Based,
    bothNetworkAndUE-Based,
    noNetworkAssistedGPS }
NF-BO-AllBusy ::= INTEGER (0..31)
NF-BO-NoAICH ::= INTEGER (0..31)
NF-BO-Mismatch ::= INTEGER (0..127)
NS-BO-Busy ::= INTEGER (0..63)
NS-IP ::= INTEGER (0..28)
P-TMSI-and-RAI-GSM-MAP ::= SEQUENCE {
    p-TMSI
    rai
}
PagingCause ::= ENUMERATED {
    terminatingConversationalCall,
    terminatingStreamingCall,
    terminatingInteractiveCall,
    terminatingBackgroundCall,
    sms,
    spare1, spare2, spare3, spare4 }
PagingRecord ::= CHOICE {
    cn-Page
        SEQUENCE {
            pagingCause
            cn-DomainIdentity
            cn-pagedUE-Identity
        },
    utran-Page
        U-RNTI
}
PagingRecordList ::= SEQUENCE (SIZE (1..maxPage1)) OF
    PagingRecord
PDCP-Capability ::= SEQUENCE {
    losslessSRNS-RelocationSupport
        BOOLEAN,
    supportForRfc2507
        CHOICE {
            notSupported
            supported
        },
    MaxHcContextSpace
}
PhysicalChannelCapability ::= SEQUENCE {
    modeSpecificInfo
        CHOICE {
            fdd
                SEQUENCE {
                    downlinkPhysChCapability
                    uplinkPhysChCapability
                },
            tdd
                SEQUENCE {

```

```

        downlinkPhysChCapability          DL-PhysChCapabilityTDD,
        uplinkPhysChCapability           UL-PhysChCapabilityTDD
    }
}

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

ProtocolErrorIndicator ::=
    ENUMERATED {
        noError, errorOccurred }

ProtocolErrorIndicatorWithInfo ::= CHOICE {
    noError                NULL,
    errorOccurred          ProtocolErrorInformation
}

RadioFrequencyBand ::=
    ENUMERATED {
        a, b, c,
        spare1 }

RadioFrequencyBandList ::=
    SEQUENCE (SIZE (1..maxFrequencybands)) OF
        RadioFrequencyBand

Re-EstablishmentTimer ::=
    CHOICE {
        t-314                T-314Value,
        t-315                T-315Value
    }

RedirectionInfo ::=
    CHOICE {
        frequencyInfo        FrequencyInfo,
        interSystemInfo      InterSystemInfo,
        spare                 NULL
    }

RejectionCause ::=
    ENUMERATED {
        congestion,
        unspecified,
        spare1, spare2 }

ReleaseCause ::=
    ENUMERATED {
        normalEvent,
        unspecified,
        pre-emptiveRelease,
        congestion,
        re-establishmentReject,
        spare1, spare2, spare3 }

RF-Capability ::=
    SEQUENCE {
        modeSpecificInfo
        fdd
            ue-PowerClass
            txRxFrequencySeparation
        },
        tdd
            ue-PowerClass
            radioFrequencyBandList
            chipRateCapability
    }

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

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

```

```

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

RRC-MessageTX-Count ::= INTEGER (1..8)

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

S-RNTI-2 ::= INTEGER (0..1023)

SecurityCapability ::= SEQUENCE {
    cipheringAlgorithm BIT STRING (SIZE (16)),
    integrityProtectionAlgorithm BIT STRING (SIZE (16))
}

SimultaneousSCCPCH-DPCH-Reception ::= CHOICE {
    notSupported NULL,
    supported SEQUENCE {
        maxNoSCCPCH-RL MaxNoSCCPCH-RL,
        simultaneousSCCPCH-DPCH-DPDCH-Reception BOOLEAN
        -- The IE above is applicable only if IE Support of PDSCH = TRUE
    }
}

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

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

STARTSingle ::= SEQUENCE {
    cn-DomainIdentity CN-DomainIdentity,
    startValue HyperFrameNumber
}

SystemSpecificCapUpdateReq ::= ENUMERATED {
    gsm, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7,
    spare8, spare9, spare10, spare11,
    spare12, spare13, spare14, spare15 }

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

T-300 ::= INTEGER (1..8)

T-301 ::= INTEGER (1..8)

T-302 ::= INTEGER (1..8)

T-303 ::= INTEGER (1..8)

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

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

T-306 ::= ENUMERATED {
    noUpdate, m5, m10, m30,
    m60, m120, m360, m720 }

T-307 ::= ENUMERATED {
    s5, s10, s15, s20,
    s30, s40, s50, spare1 }

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

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

T-310 ::= ENUMERATED {

```

```

ms40, ms80, ms120, ms160,
ms200, ms240, ms280, ms320 }

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

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

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

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

T-314Value ::=
SEQUENCE {
t-314
}
OPTIONAL

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

T-315Value ::=
SEQUENCE {
t-315
}
OPTIONAL

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

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

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

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

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

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

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

TurboSupport ::=
CHOICE {
notSupported
supported
}

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

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

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

UE-ConnTimersAndConstants ::=
SEQUENCE {
t-301
t-302
}
DEFAULT 1,
DEFAULT 5,

```

```

n-302          N-302          DEFAULT 3,
t-303          T-303          DEFAULT 8,
n-303          N-303          DEFAULT 3,
t-304          T-304          DEFAULT ms2000,
n-304          N-304          DEFAULT 2,
t-305          T-305          DEFAULT m60,
t-306          T-306          DEFAULT m60,
t-307          T-307          DEFAULT s30,
t-308          T-308          DEFAULT ms320,
t-309          T-309          DEFAULT 5,
t-310          T-310          OPTIONAL,
n-310          N-310          OPTIONAL,
t-311          T-311          OPTIONAL,
t-312          T-312          DEFAULT 1,
n-312          N-312          DEFAULT s1,
t-313          T-313          DEFAULT 3,
n-313          N-313          DEFAULT s50,
t-314          T-314          DEFAULT s12,
t-315          T-315          DEFAULT s180,
n-315          N-315          DEFAULT s1
}

63
UE-DCHTimersAndConstants ::= SEQUENCE {
t-304          T-304          DEFAULT ms2000,
n-304          N-304          DEFAULT 2,
t-308          T-308          DEFAULT ms320,
t-309          T-309          DEFAULT 5,
t-310          T-310          OPTIONAL,
n-310          N-310          OPTIONAL,
t-311          T-311          OPTIONAL,
t-313          T-313          DEFAULT 3,
n-313          N-313          DEFAULT s50,
t-314          T-314          DEFAULT s12,
t-315          T-315          DEFAULT s180,
n-315          N-315          DEFAULT s1
}

UE-IdleTimersAndConstants ::= SEQUENCE {
t-300          T-300,
n-300          N-300,
t-312          T-312,
n-312          N-312
}

UE-MultiModeRAT-Capability ::= SEQUENCE {
multiRAT-CapabilityList
multiModeCapability
}

UE-PowerClass ::= INTEGER (1..4)

UE-RadioAccessCapability ::= SEQUENCE {
ics-Version    ICS-Version,
pdcp-Capability PDCP-Capability,
rlc-Capability RLC-Capability,
transportChannelCapability TransportChannelCapability,
rf-Capability  RF-Capability,
physicalChannelCapability PhysicalChannelCapability,
ue-MultiModeRAT-Capability UE-MultiModeRAT-Capability,
securityCapability SecurityCapability,
lcs-Capability LCS-Capability,
modeSpecificInfo CHOICE {
fdd          SEQUENCE {
measurementCapability
},
tdd          NULL
}
}

UL-PhysChCapabilityFDD ::= SEQUENCE {
maxNoDPDCH-BitsTransmitted,
supportOfPCPCH
}

UL-PhysChCapabilityTDD ::= SEQUENCE {
maxSimultaneousCCTrCH-Count,
maxTS-PerFrame
}

```

```
maxPhysChPerTimeslot          MaxPhysChPerTimeslot,
minimumSF                     MinimumSF-UL,
supportOfPUSCH                BOOLEAN
}

UL-TransChCapability ::=
maxNoBitsTransmitted          MaxNoBits,
maxConvCodeBitsTransmitted    MaxNoBits,
turboDecodingSupport          TurboSupport,
maxSimultaneousTransChs      MaxSimultaneousTransChsUL,
maxTransmittedBlocks         MaxTransportBlocksUL,
maxNumberOfTFC-InTFCS        MaxNumberOfTFC-InTFCS-UL,
maxNumberOfTF                MaxNumberOfTF
}

URA-UpdateCause ::=
ENUMERATED {
changeOfURA,
periodicURAUpdate,
re-enteredServiceArea,
spare1, spare2, spare3,
spare4, spare5 }

UTRAN-DRX-CycleLengthCoefficient ::= INTEGER (3..12)

WaitTime ::=
INTEGER (0..15)

END
```

3GPP TSG RAN WG2#14
Sophia Antipolis, France, August 21-25, 2000

Document R2-001758

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

<h2 style="margin: 0;">CHANGE REQUEST</h2>		<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>
25.331	CR	463r3
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team
For submission to: TSG-RAN #9 <small>List expected approval meeting # here</small>		Current Version: 3.3.0
for approval <input checked="" type="checkbox"/>		strategic <input type="checkbox"/> <small>(for SMG use only)</small>
for information <input type="checkbox"/>		non-strategic <input type="checkbox"/>

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

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

Source: TSG-RAN WG2 **Date:** 2000-08-21

Subject: UE handling of CFN

Work item: _____

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

(only one category shall be marked With an X)

Reason for change:

This contribution proposes an IE "Timing Indication (Enumerated (Initialise, Maintain))" to indicate whether to maintain the UL transmission timing or to initialise it.

If UTRAN already knows the OFFtarget, there is no need to reset the timing in the UE by setting the OFFtarget to the target NodeB.

If the IE "Timing Indication" is set to "Initialise", UE shall initialise the UL transmission timing the CFN timing and it should be called as "Non-synchronised hard handover". On the other hand, if the IE "Timing Indication" is set to "Maintain", UE shall maintain the UL transmission timing and CFN timing and it should be called as "Synchronised hard handover".

The CFN (Connection Frame Number) is used in UE and UTRAN for synchronisation of radio frames (specified in TS 25.402, "Synchronisation in UTRAN, stage 2") and for ciphering of RBs using TM RLC. This CR clarifies UE handling of CFN at RRC state transitions, "**synchronised and non-synchronised**" hard handover and UE cell change, by adding the formula according to TS 25.402.

The following RRC procedures are affected:

- RRC connection setup
- RRC connection re-establishment (RRC state transition)
- Physical channel reconfiguration
 - RB Establishment, RB Reconfiguration
 - RB Release, Transport channel reconfiguration
 - Physical channel reconfiguration (RRC state transition, hard handover)
- Cell Update
 - URA Update

(UE cell change)

Inter-system handover to UTRAN
(Hard handover)

For information, TS 25.402 specifies the following:

For common physical channels, UE shall set $CFN = SFN \bmod 256$.

When establishing the first RL(s) or in case of "non-synchronised" hard handover, UE shall set

[FDD] $CFN = ((SFN * 38400 - DOFF * 512) \text{ div } 38400) \bmod 256$
 [TDD] $CFN = SFN \bmod 256$

Note that the formula for TDD is changed to also include DOFF according to agreed CR to align TDD and FDD on using DOFF.

At "non-synchronised" hard handover, the ciphering HFN for radio bearers using TM RLC shall be incremented by 1, since CFN is updated. This avoids usage of same COUNT-C after the "non-synchronised" hard handover.

At "synchronised" hard handover, the UE shall maintain the UL transmission timing and the CFN timing. Also the ciphering HFN for radio bearers using TM RLC shall be maintained.

CFN calculation for CELL_PCH and URA_PCH is removed since the convention in RAN2 is to refer to SFN instead.

A new IE "CFN-targetSFN frame offset" is proposed to indicate the frame offset between "the CFN in the UE" and "SFN of the target cell". This IE is transmitted from UTRAN to UE in case of non-synchronised hard handover (initialise the CFN). When the UE received this IE, UE does not need to read SFN from BCH. If this IE is not included, UE should read SFN from BCH.

Clauses affected: 8.1.3.2, 8.1.5.2, 8.3.5.1, 8.3.5.2, 8.5.X (new), 8.5.7.6.3, 8.5.7.6.5, 9.3.1.4, 10.3.6.14, 10.3.6.15, 10.3.6.16, 11.3.6

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

Other comments: The texts highlighted in yellow are the changes from the revision 1.



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

8.1.3 RRC connection establishment

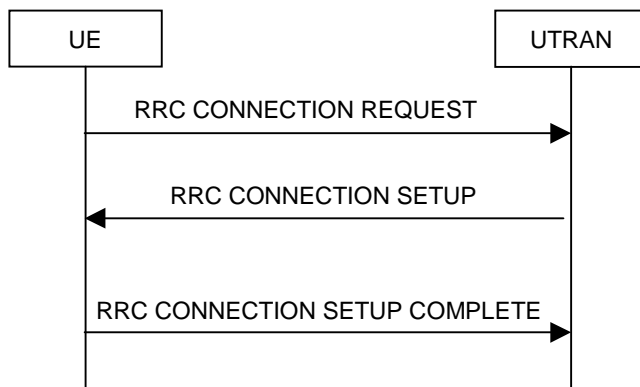


Figure 7: RRC Connection Establishment, network accepts RRC connection

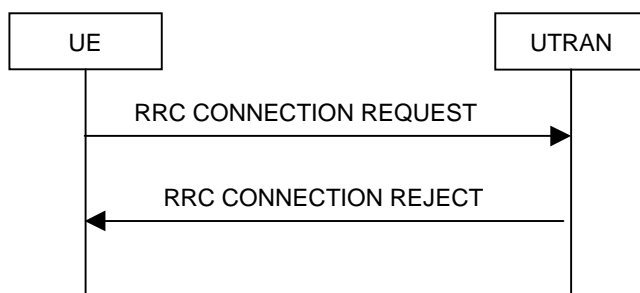


Figure 8: RRC Connection Establishment, network rejects RRC connection

8.1.3.1 General

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

8.1.3.2 Initiation

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

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

UE shall set CFN in relation to SFN of current cell according to 8.5.x.~~TS-25.402~~.

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

The UE shall perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.15, and shall apply the given Access Service Class when accessing the RACH.

The UE shall set the IE "Establishment cause" according to indications from the upper layers.

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

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

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

8.1.5 RRC connection re-establishment

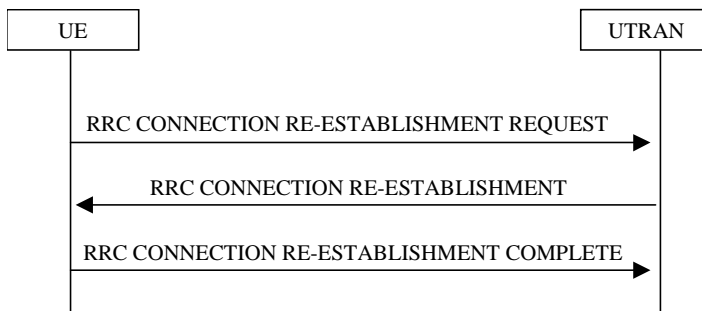


Figure 10: RRC Connection Re-establishment, successful case

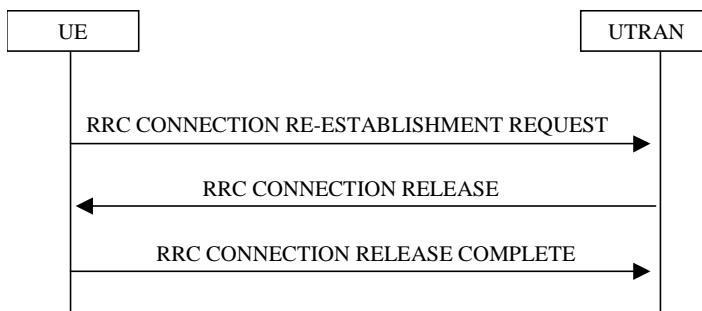


Figure 11: RRC Connection Re-establishment, failure case

8.1.5.1 General

The purpose of this procedure is to re-establish a lost RRC connection.

8.1.5.2 Initiation

When a UE loses the radio connection due to e.g. radio link failure (see 8.5.6), detection of RLC unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in CELL_DCH state, the UE may initiate a new cell selection by transiting to CELL_FACH state.

If timer T314=0 and timer T315=0 the UE shall:

- Enter idle mode. The procedure ends and a connection failure may be indicated to the non-access stratum. Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2

If timer T314=0 the UE shall:

- Release locally all radio bearers (except Signalling Radio Bearers) which are associated with T314. An indication may be sent to the non-access stratum.

If timer T315=0 the UE shall:

- Release locally all radio bearers (except Signalling Radio Bearers) which are associated with T315. An indication may be sent to the non-access stratum.

If T314>0, the UE shall start timer T314.

If T315>0, the UE shall start timer T315.

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

The IE "AM_RLC error indication (for c-plane)" shall be set when the UE detects unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK) in an AM RLC entity for the signalling link. The IE "AM_RLC error indication (for u-plane)" shall be set when the UE detects unrecoverable error in an AM RLC entity (for u-plane) for u-plane link.

UE shall include "the maximum value in the currently used HFNs among CS and PS domains" plus "1" in IE "HFN" in RRC CONNECTION RE-ESTABLISHMENT REQUEST message.

UE shall set CFN in relation to SFN of current cell according to 8.5.x.~~TS-25.402~~

8.3.5 Hard handover

8.3.5.1 Non-synchronised hard handover

8.3.5.1.1 General

The purposes of the ~~hard non-synchronised hard~~ handover procedure ~~are to remove all the RL(s) in the active set and establish new RL(s) with changing the UL transmission timing and the CFN in the UE according to the SFN of the target cell.~~(see 8.5.x CFN calculation).

~~This procedure is initiated when UTRAN does not know the target SFN timing before hard handover.~~

~~to change the frequency of the connection between the UE and UTRAN;~~

~~to change cell in a network that does not support macro diversity; and~~

~~to change the mode between TDD and FDD.~~

~~This procedure may be used in CELL_DCH state.~~

8.3.5.1.2 Initiation

~~Hard Non-synchronised hard~~ handover initiated by the network is normally performed by the procedure "Physical channel reconfiguration" (8.2.6), but may also be performed by the procedures "radio bearer establishment" (8.2.1), "Radio bearer reconfiguration" (8.2.2), "Radio bearer release" (8.2.3) or "Transport channel reconfiguration" (8.2.4). ~~If IE "Timing indication" has the value "initialise", UE shall initiate non-synchronised hard handover.~~

8.3.5.2 Synchronised hard handover

8.3.5.2.1 General

~~The purposes of the synchronised hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) with maintaining the UL transmission timing and the CFN in the UE.~~

~~This procedure can be initiated only if UTRAN knows the target SFN timing before hard handover. The target SFN timing can be known by UTRAN in the following 2 cases:~~

- ~~- UE reads SFN when measuring "CFN-SFN observed time difference" and sends it to the UTRAN in MEASUREMENT REPORT message.~~
- ~~- UTRAN internally knows the time difference between the cells.~~

8.3.5.1.2 Initiation

~~Synchronised hard handover initiated by the network is normally performed by the procedure "Physical channel reconfiguration" (8.2.6), but may also be performed by the procedures "radio bearer establishment" (8.2.1), "Radio bearer reconfiguration" (8.2.2), "Radio bearer release" (8.2.3) or "Transport channel reconfiguration" (8.2.4). If IE "Timing indication" has the value "maintain", UE shall initiate synchronised hard handover.~~

9.3.1 CELL_DCH state

The CELL_DCH state is characterised by

- A dedicated physical channel is allocated to the UE in uplink and downlink.
- The UE is known on cell level according to its current active set.
- Dedicated transport channels, downlink and uplink (TDD) shared transport channels, and a combination of these transport channels can be used by the UE.

The CELL_DCH-state is entered from the Idle Mode through the setup of an RRC connection, or by establishing a dedicated physical channel from the CELL_FACH state.

A PDSCH may be assigned to the UE in this state, to be used for a DSCH. In TDD a PUSCH may also be assigned to the UE in this state, to be used for a USCH. If PDSCH or PUSCH are used for TDD, a FACH transport channel may be assigned to the UE for reception of physical shared channel allocation messages.

9.3.1.1 Transition from CELL_DCH to Idle Mode

Transition to Idle Mode is realised through the release of the RRC connection.

9.3.1.2 Transition from CELL_DCH to CELL_FACH state

Transition to CELL_FACH state occurs when all dedicated channels have been released, which may be

- a) via explicit signalling.

at the end of the time period for which the dedicated channel was allocated (TDD)

9.3.1.3 Radio Resource Allocation tasks (CELL_DCH)

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

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

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

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

9.3.1.4 RRC Connection mobility tasks (CELL_DCH)

Depending on the amount and frequency of data macrodiversity (soft handover) may or may not be applied.

The RRC Connection mobility is handled by measurement reporting, **soft handover and non-synchronised or synchronised hard handover procedures.**

9.3.1.5 UE Measurements (CELL_DCH)

The UE shall perform measurements and transmit measurement reports according to the measurement control information.

The UE shall use the connected mode measurement control information received in other states until new measurement control information has been assigned to the UE.

9.3.1.6 Acquisition of system information (CELL_DCH)

FDD UEs with certain capabilities shall read system information broadcast on FACH.

TDD UEs shall read the BCH to acquire valid system information. For each acquisition, the UE may need different combinations of system information broadcast on BCH. The scheduling on the broadcast channel is done in such way that the UE knows when the requested information can be found.

8.15.x CFN calculation

Initialisation for CELL_DCH state from CELL_FACH state

When the UE changes from CELL_FACH state to CELL_DCH state or performs a hard handover CFN shall be calculated according to the following formula for FDD:

$$CFN = ((SFN * 38400 - DOFF * 512) \text{ div } 38400) \text{ mod } 256$$

and for TDD

$$CFN = (SFN - DOFF) \text{ mod } 256$$

Initialisation for 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.

If IE "Timing indication" has the value "initialise" (i.e. non-synchronised hard handover), CFN shall be calculated according to the following formula:

$$CFN = ((SFN * 38400 - DOFF * 512) \text{ div } 38400) \text{ mod } 256 \quad (\text{for FDD})$$

$$CFN = (SFN - DOFF) \text{ mod } 256 \quad (\text{for TDD})$$

If IE "CFN-targetSFN frame offset" is included in the message causing the UE to perform a non-synchronised hard handover, CFN shall be calculated according to the following formula:

$$CFN_{\text{new}} = (CFN_{\text{old}} * 38400 + COFF * 38400 - DOFF * 512) \text{ div } 38400 \text{ mod } 256 \quad (\text{for FDD})$$

$$CFN_{\text{new}} = (CFN_{\text{old}} + COFF - DOFF) \text{ mod } 256 \quad (\text{for TDD})$$

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

If IE "CFN-targetSFN frame offset" is not included the UE shall read SFN on target cell.

Note: $CFN\text{-targetSFN frame offset} = (TargetSFN - CFN) \text{ mod } 256$

If IE "Timing indication" has the value "maintain" (i.e. synchronised 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.

Initialisation for CELL_FACH

When the UE performs cell selection, re-selection or changes to CELL_FACH state the UE shall set CFN according to:

$$CFN = SFN \text{ mod } 256$$

for all common or shared channels

Initialisation for CELL_PCH and URA_PCH

When the UE performs cell selection, re-selection or changes to CELL_PCH and URA_PCH state the UE shall set CFN according to:

$$CFN = SFN$$

After the initialisation, the CFN in the UE is increased (mod 256) by 1 every frame.

8.5.7.6.3 Secondary CCPCH info

If the IE "Secondary CCPCH info" is indicated by a dedicated message, the UE shall start to receive that Secondary CCPCH in the downlink. If the IE "Secondary CCPCH info" is not indicated by a dedicated message, the UE selects a SCCPCH from the broadcast SCCPCHs on BCH which are set to "Selection indicator"="On" based on "Initial UE identity" in idle mode or "old U-RNTI" in connected mode and the UE shall start to receive that Secondary CCPCH in the downlink.

The UE selects one SCCPCH based on the following algorithm.

- Selected SCCPCH = (Initial UE Identity) mod (listed SCCPCHs with "Selection Indicator"="on") (idle mode)
- Selected SCCPCH = (old U-RNTI) mod (listed SCCPCHs with "Selection Indicator"="on") (connected mode)

UE shall set CFN in relation to SFN of current cell according to [TS 25.402](#) 8.5.x.

*** Next modified section ***

8.5.7.6.5 Downlink DPCH info

If the IE "Downlink DPCH info" is included, the UE shall:

- Activate the dedicated physical channels indicated by that IE.

If the IE "Downlink DPCH info" is included in a message used to establish the first RL(s) for a UE or perform a non-synchronised hard handover, UE shall, after having activated the dedicated physical channels indicated by that IE, set CFN in relation to SFN of the first RL (cell) listed in that message, according to 8.5.x.TS 25.402.

If the IE "Downlink DPCH info" is included in a message used to perform a non-synchronised hard handover, and ciphering is active for any radio bearer using RLC-TM, UE shall, after having activated the dedicated physical channels indicated by that IE, increment HFN for RLC-TM by '1'.

If the IE "Downlink DPCH info" is included in a message used to perform a synchronised hard handover, UE shall, after having activated the dedicated physical channels indicated by that IE, only increase CFN (mod 256) by 1 every frame and maintain UL transmission timing.

*** Next modified section ***

10.3.6.14 Downlink DPCH info common for all RL

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated (Initialise, Maintain)	
CFN-targetSFN frame offset	OP		Integer(0..255)	In frame
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.19	
Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE SF	MP			
> SF = 256				
>> Number of bits for Pilot bits	MP		Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits	MP		Integer(4,8)	In bits
> Otherwise				(no data)

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

10.3.6.15 Downlink DPCH info common for all RL Post

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Timing Indication	MP		Enumerated (Initialise, Maintain)	
CFN-targetSFN frame offset	OP		Integer(0..255)	In frame
Downlink DPCH power control information	OP		Downlink DPCH power control information 10.3.6.19	

10.3.6.16 Downlink DPCH info common for all RL Pre

NOTE: Only for FDD

Information Element/Group name	Need	Multi	Type and reference	Semantics description
<u>Timing Indication</u>	<u>MP</u>		<u>Enumerated (Initialise, Maintain)</u>	
<u>CFN-targetSFN frame offset</u>	<u>OP</u>		<u>Integer(0..255)</u>	<u>In frame</u>
Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-Andpilot with "number of its for pilot bits" in ASN.1
Fixed or Flexible Position	MP		Enumerated (Fixed, Flexible)	
TFCI existence	MP		Boolean	TRUE indicates that TFCI exists
CHOICE SF	MP			
> SF = 256				
>> Number of bits for Pilot bits	MP		Integer (2,4,8)	In bits
> SF = 128				
>>Number of bits for Pilot bits	MP		Integer(4,8)	In bits
> Otherwise				(no data)

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

11.3.6 Physical channel information elements

```

DL-DPCH-InfoCommon ::= SEQUENCE {
    timingIndication          TimingIndication,
    cfntargetsfnframeoffset  Cfntargetsfnframeoffset OPTIONAL,
    dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL,
    spreadingFactorAndPilot  SF512-AndPilot,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible  PositionFixedOrFlexible,
    tfci-Existence          BOOLEAN
}

DL-DPCH-InfoCommonPost ::= SEQUENCE {
    timingIndication          TimingIndication,
    cfntargetsfnframeoffset  Cfntargetsfnframeoffset OPTIONAL,
    dl-DPCH-PowerControlInfo DL-DPCH-PowerControlInfo OPTIONAL
}

DL-DPCH-InfoCommonPredef ::= SEQUENCE {
    timingIndication          TimingIndication,
    cfntargetsfnframeoffset  Cfntargetsfnframeoffset OPTIONAL,
    spreadingFactorAndPilot  SF512-AndPilot,
    -- TABULAR: The number of pilot bits is nested inside the spreading factor.
    positionFixedOrFlexible  PositionFixedOrFlexible,
    tfci-Existence          BOOLEAN
}

TimingIndication ::= ENUMERATED{
    initialize, maintain
}

Cfntargetsfnframeoffset ::= INTEGER{0..255}
    
```

CHANGE REQUEST

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

25.331

CR 464r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9** for approval
 list expected approval meeting # here for information

strategic
 non-strategic

(for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 5th July 2000

Subject: Correction of padding description in clause 12

Work item:

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

Reason for change: The fact that the end padding of PER productions is not to be applied in transparent cases is not clear enough. More generally, the text is modified to highlight that the end padding is specified by 25.331, and not by PER.

Clauses affected: 12.1

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

Other comments:



help.doc

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

12 Message transfer syntax

Transfer syntax for RRC PDUs is derived from their abstract syntax-ASN.1 definitions by use of Packed Encoding Rules, unaligned (X.691), and with adapted final padding. If special encoding is used, it is indicated in the ECN module defined for each ASN.1 module. How special encoding is used is defined in TR 25.921.

12.1 Structure of encoded RRC messages

An RRC PDU, which is the bit string that is exchanged between peer entities/ across the radio interface, is the concatenation of a basic production, an extension and padding, in that order.

Basic production

The ‘basic production’ is obtained by applying UNALIGNED PER to the abstract syntax value (the ASN.1 description) as specified in X.691, except for the 0 to 7 bits added at the end to produce a multiple of 8 bits. The basic production can have any positive number of bits, not necessarily a multiple of 8 bits.

Extension

Emitters compliant with this version of the specification of the protocol shall, unless indicated otherwise on a PDU type basis, set the extension part empty. Emitters compliant with a later version might send non empty extensions.

Padding

Emitters compliant with this version of the specification of the protocol shall, unless indicated otherwise on a PDU type basis, pad the basic production with the smallest number of bits required to meet the size constraints of the lower layers. Padding bits shall be set to 0.

Receivers compliant with this version of the specification have no need to distinguish the extension and padding parts, and shall, unless indicated otherwise on a PDU type basis, accept RRC PDUs with any bit string in the extension and padding parts.

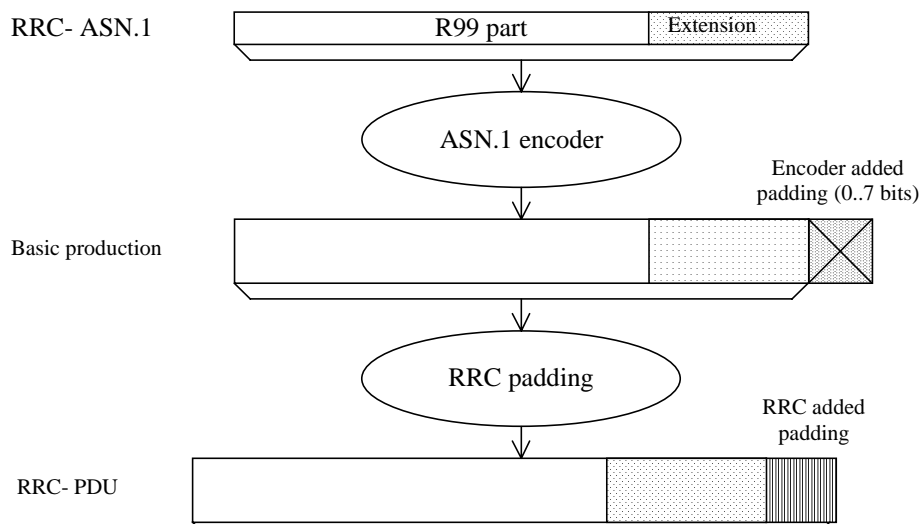


Figure xxx: Padding

When using AM or UM mode, RLC requires that the RRC PDU length is a multiple of 8 bits.

When using Tr mode, RLC does neither impose size requirements nor perform padding. This implies that RRC has to take into account the transport format set defined for the transport channel across which the message is to be sent. RRC shall select the smallest transport format that fits the RRC PDU and shall add the lowest number of padding bits required to fit the size specified for the selected transport format.

For system information blocks, building the PDU involves two steps. The first step is the building of the SIBs, in which step padding is not applied (the rules for extension apply). The second step is the building of the RRC PDUs, involving segmentation and concatenation of SIBs, and then padding and extension are as described above for Tr mode. The procedure is shown by means of an example as described in figure yyy. The example includes two SIBs, SIBn and SIBn+1, of which only SIBn includes a protocol extension. The two SIBs used in the example don't require segmentation and are concatenated into one SYSTEM INFORMATION message.

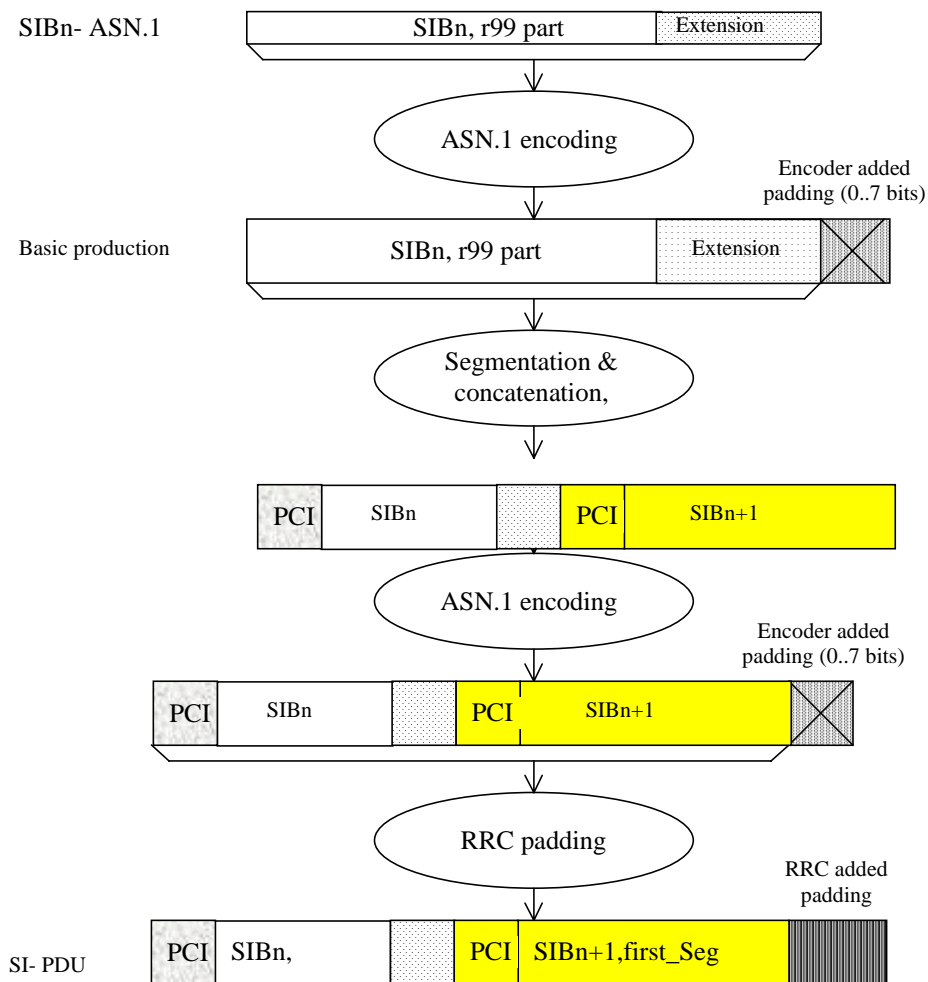


Figure yyy: Padding for System Information

PCI: Protocol control information || SYSTEM INFORMATION message level

SI: SYSTEM INFORMATION message

12.1 Padding of RRC messages using RLC transparent mode

Padding is applicable for all UL and DL RRC messages using transparent RLC mode.

On the transmitter side, padding is inserted after the message has been encoded using the specified encoding rule. The RRC layer shall insert padding at the end of the message until the size of the RRC PDU equals the transport block size.

~~If the TFS contains more than one transport block size, the RRC layer shall select the smallest possible transport block size to use for the transfer of the message. Padding shall be inserted at the end of the message until the size of the RRC PDU equals the size of the selected transport block.~~

~~The value of the padding bits shall be "0".~~

~~On the receiver side, the padding bits shall be ignored.~~

CHANGE REQUEST

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

25.331 CR 465r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
For information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 2000-7-3

Subject: Window Size in RLC info

Work item:

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

Reason for change: It is proposed to add 64 to window size, to have a finer granularity between 32 and 128.

Clauses affected: 10.3.4.20, 11.3.4

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

Other comments: r1 changes are highlighted in yellow.



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

10.3.4.20 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Uplink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	MP		Transmission RLC discard 10.3.4.22	
>>Transmission window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. At least one spare value needed, criticality: reject
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. This is to provide information of the UTRAN Receiving window size to the UE, for the RLC AM entity. At least one spare value with criticality reject needed
>>Timer_RST	MP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Integer(1, 4, 6, 8, 12, 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard 10.3.4.22	
>TM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.22	
CHOICE <i>Downlink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>>Receiving window size	MP		Integer(1,8,16,32,64,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used.

3GPP TSG RAN WG2#14
Paris, France July 3-7, 2000

Document R2-001520

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

CHANGE REQUEST

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

25.331 CR 466r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** July 3, 2000

Subject: TFC Control Duration

Work item:

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

Reason for change: Original agreed range of 10 - 320ms, with 10 ms granularity, for the TFC control duration seems to have been changed in subsequent editorial changes to the tabular format. Hence, additional values of 2, 4 and 8 frames, equivalent to 20, 40 and 80 ms are re-inserted to enable the original proposal of using the TFC Control message for short uplink packet data burst allocations. The number of spare values is reduced to 3.

Clauses affected: 10.3.6.69, 11.3.6

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

Other comments:



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

3GPP TSG RAN WG2#14
Paris, France July 3-7, 2000

Document R2-001460

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

CHANGE REQUEST

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

25.331 CR 467

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** July 3, 2000

Subject: System Information Block Tabular information

Work item:

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

Reason for change: Alignment of Tabular format with ASN.1 and a minor correction in ASN.1.

Clauses affected: 10.2.52.6.16.1,10.2.52.6.16.2,10.2.52.6.16.3,11.3.8

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

Other comments:



help.doc

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

10.2.52.6.16.1 System Information Block type 15.1

The system information block type 15.1 contains information useful for LCS DGPS Corrections. The DGPS Corrections message contents are based on a Type-1 message of version 2.2 of the RTCM-SC-104 recommendation for differential service. This format is a standard of the navigation industry and is supported by all DGPS receivers.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UTRAN Time Flag	MP		Bitstring(1)	
Node B Clock Drift Flag	MP		Bitstring(1)	
Node B Clock Drift	OP		Real(-0.1..0.1 by a proper step)	This IE provides an estimate of the drift rate of the Node B clock relative to GPS time. It has units of $\mu\text{sec}/\text{sec}$ (ppm) and a range of ± 0.1 . This IE aids the UE in maintaining the relation between GPS and cell timing over a period of time. A positive value for Node B Clock Drift indicates that the Node B clock is running at a greater frequency than desired.
Reference Location	MP		As defined in TS23.032	Provides a prior knowledge of the approximate location of the UE
SFN	OP		Integer(0..4095)	The SFN that occurs at the Reference GPS TOW time
Reference GPS TOW	MP		Integer(0..6.047*10 ¹¹)	GPS Time of Week with scaling factor of 1 usec. This field time-stamps the start of the frame with SFN=0.
Status/Health	MP		Enumerated(UDRE scale 1.0, UDRE scale 0.75, UDRE scale 0.5, UDRE scale 0.3, UDRE scale 0.2, UDRE scale 0.1, no data, invalid data)	This field indicates the status of the differential corrections.
DPGS information	CV-Status	1..MAX_N_SAT		The following fields contain the DPGS corrections. If the Cipher information is included these fields are ciphered.
>SatID	MP		Integer(0..31) Enumerated(0..63)	The satellite ID number.
>IODE	MP		Integer(0..255)	This IE is the sequence number for the ephemeris for the particular satellite. The MS can use this IE to determine if new ephemeris is used for calculating the corrections that are provided in the broadcast message. This eight-bit IE is incremented for each new set of ephemeris for the satellite and may occupy the numerical range of [0, 239] during normal operations.
>UDRE	MP		Enumerated(UDRE \leq 1.0 m,	User Differential Range Error. This field provides an estimate of the uncertainty (1- σ) in the

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
			1.0m < UDRE ≤ 4.0m, 4.0m < UDRE ≤ 8.0m, 8.0m < UDRE)	corrections for the particular satellite. The value in this field shall be multiplied by the UDRE Scale Factor in the Status field to determine the final UDRE estimate for the particular satellite.
>PRC	MP		Integer(-2047..2047)	Scaling factor 0.32 meters (different from [13])
>RRC	MP		Integer(-127..127)	Scaling factor 0.032 meters/sec (different from [13])
>Delta PRC2	MP		Integer(-127..127)	The difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE -2.
>Delta RRC2	MP		Integer(-7..7)	The difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2.

NOTE: Each UDRE value shall be adjusted based on the operation of an Integrity Monitor (IM) function which exists at the network (SRNC, GPS server, or reference GPS receiver itself). Positioning errors derived at the IM which are excessive relative to DGPS expected accuracy levels shall be used to scale the UDRE values to produce consistency.

Multi Bound	Explanation
MAX_N_SAT	Maximum number of satellites included in the IE=16

Condition	Explanation
Status/Health	This IE is mandatory if "status" is not equal to "no data" or "invalid data", otherwise the IE is not needed

10.2.52.6.16.2 System Information Block type 15.2

The system information block type 15.2 contains information useful for ephemeris and clock corrections of a particular satellite. These IE fields are 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		Enumerated(0..491048575)	The approximate GPS time-of-week when the message is broadcast
SatID	MP		Enumerated(0..63)	Satellite ID
TLM Message	MP		Bit string(14)	
TLM Revd (C)	MP		Bit string(2)	
HOW	MP		Bit string(22)	
WN	MP		Bit string(10)	
C/A or P on L2	MP		Bit string(2)	
URA Index	MP		Bit string(4)	
SV Health	MP		Bit string(6)	
IODC	MP		Bit string(10 ⁽¹⁾)	
L2 P Data Flag	MP		Bit string(1)	
SF 1 Reserved	MP		Bit string(87)	
T _{GD}	MP		Bit string(8)	
t _{oc}	MP		Bit string(16 ⁽¹⁾)	
af ₂	MP		Bit string(8)	
af ₁	MP		Bit string(16)	
af ₀	MP		Bit string(22)	
C _{rs}	MP		Bit string(16)	
Δn	MP		Bit string(16)	
M ₀	MP		Bit string(32)	
C _{uc}	MP		Bit string(16)	
e	MP		Bit string(32 ⁽¹⁾)	
C _{us}	MP		Bit string(16)	
(A) ^{1/2}	MP		Bit string(32 ⁽¹⁾)	
t _{oe}	MP		Bit string(16 ⁽¹⁾)	
Fit Interval Flag	MP		Bit string(1)	
AODO	MP		Bit string(5)	
C _{ic}	MP		Bit string(16)	
OMEGA ₀	MP		Bit string(32)	
C _{is}	MP		Bit string(16)	
i ₀	MP		Bit string(32)	
C _{rc}	MP		Bit string(16)	
ω	MP		Bit string(32)	
OMEGAdot	MP		Bit string(24)	
ldot	MP		Bit string(14)	
Spare/zero fill	MP		Bit string(20)	

10.2.52.6.16.3 System Information Block type 15.3

The system information block type 15.3 contains information useful for ionospheric delay, UTC offset, and Almanac. These IE fields are extracted from the subframes 4 and 5 of the GPS navigation message, excluding the parity bits and other redundant bits [12].

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Transmission TOW	MP		Enumerated(0. 49 1048575)	The approximate GPS time-of-week when the message is broadcast
SatMask	MP		Enumerated Bit string(1..32)	indicates the satellites that contain the pages being broadcast in this data set
LSB TOW	MP		Bit string(8)	
GPS Info	MP	1 to <Max_Dat_rep>		
>SFIO 0	MP		Bit string(1)	Each repetition corresponds to a different page no. as described in the table below
>Data ID	MP		Bit string(2)	
>Page No.	MP		Bit string(6)	
>Word 3	MP		Bit string(16)	
>Word 4	MP		Bit string(24)	
>Word 5	MP		Bit string(24)	
>Word 6	MP		Bit string(24)	
>Word 7	MP		Bit string(24)	
>Word 8	MP		Bit string(24)	
>Word 9	MP		Bit string(24)	
>Word 10	MP		Bit string(22)	
Spare/zero fill	MP		Bit string(5)	

Mapping of Almanac, Health, Iono, and UTC Data to Subframe Number and Page Number

Data Type	Subframe	Page(s)
Almanac Data (SV1 – 24)	5	1 - 24
Almanac Data (SV25 – 32)	4	2, 3, 4, 5, 7, 8, 9, 10
SV Health (SV1 – 24)	5	25
SV Health (SV25 – 32)	4	25
Iono/UTC Corrections	4	18

Multi Bound	Explanation
Max_Dat_rep	Maximum number of repeats=3

 NEXT SECTION WITH CHANGES

11.3.8 Other information elements

Other-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainSysInfoList,
 NAS-SystemInformationGSM-MAP,
 PLMN-Type

FROM CoreNetwork-IEs

CellAccessRestriction,
 CellIdentity,
 CellSelectReselectInfoSIB-3-4,
 URA-IdentityList

FROM UTRANMobility-IEs

CapabilityUpdateRequirement,
 CPCH-Parameters,
 DRAC-SysInfoList,
 ProtocolErrorCause,

```

    UE-ConnTimersAndConstants,
    UE-DCHTimersAndConstants,
    UE-IdleTimersAndConstants
FROM UserEquipment-IEs

```

```

    PredefinedConfigIdentity,
    PredefinedConfigValueTag,
    PreDefRadioConfiguration
FROM RadioBearer-IEs

```

```

    AICH-PowerOffset,
    ConstantValue,
    CPCH-PersistenceLevelsList,
    CPCH-SetInfoList,
    CSICH-PowerOffset,
    DynamicPersistenceLevelList,
    IndividualTS-InterferenceList,
    MidambleConfiguration,
    PDSCH-SysInfoList,
    PICH-PowerOffset,
    PRACH-SystemInformationList,
    PrimaryCCPCH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-SysInfoList,
    SCCPCH-SystemInformationList,
    UL-Interference
FROM PhysicalChannel-IEs

```

```

    FACH-MeasurementOccasionInfo,
    LCS-Alma-SIB-DataList,
    LCS-DGPS-SIB-Data,
    LCS-Ephe-SIB-Data,
    LCS-GPS-AssistanceSIB,
    LCS-OTDOA-AssistanceSIB,
    MeasurementControlSysInfo
FROM Measurement-IEs

```

```

    ANSI-41-GlobalServiceRedirectInfo,
    ANSI-41-PrivateNeighborListInfo,
    ANSI-41-RAND-Information,
    ANSI-41-UserZoneID-Information
FROM ANSI-41-IEs

```

```

    maxInterSysMessages,
    maxSIB,
    maxSIB-FACH
FROM Constant-definitions;

```

```

BCC ::=
    INTEGER (0..7)

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

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

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

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

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

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

CellValueTag ::=
    INTEGER (1..4)

```

```

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

InterSystemHO-Failure ::= SEQUENCE {
    interSystemHO-FailureCause OPTIONAL,
    interSystemMessage         OPTIONAL
}

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

InterSystemMessage ::= CHOICE {
    gsm                          SEQUENCE {
        gsm-MessageList
    },
    cdma2000                     SEQUENCE {
        cdma2000-MessageList
    },
    spare1                      NULL,
    spare2                      NULL,
    spare3                      NULL,
    spare4                      NULL,
    spare5                      NULL,
    spare6                      NULL
}

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

MIB-ValueTag ::= INTEGER (1..8)

NCC ::= INTEGER (0..7)

PLMN-ValueTag ::= INTEGER (1..256)

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

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

SchedulingInformation ::= SEQUENCE {
    sib-Type                   SIB-TypeAndTag,
    scheduling                 SEQUENCE {
        segCount               SegCount DEFAULT 1,
        sib-Pos                CHOICE {
            -- The element name indicates the repetition period and the value
            -- (multiplied by two) indicates the position of the first segment.
            rep4                INTEGER (0..1),
            rep8                INTEGER (0..3),
            rep16               INTEGER (0..7),
            rep32               INTEGER (0..15),
            rep64               INTEGER (0..31),
        }
    }
}

```



```

    sysInfoType16                               PredefinedConfigIdentityAndValueTag
}

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

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

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

SysInfoType2 ::=                               SEQUENCE {
    -- Other IEs
    sib-ReferenceList                           SIB-ReferenceList           OPTIONAL,
    -- UTRAN mobility IEs
    ura-IdentityList                           URA-IdentityList,
    -- User equipment IEs
    ue-ConnTimersAndConstants                  UE-ConnTimersAndConstants,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}                OPTIONAL
}

SysInfoType3 ::=                               SEQUENCE {
    -- Other IEs
    sib-ReferenceList                           SIB-ReferenceList           OPTIONAL,
    -- UTRAN mobility IEs
    cellIdentity                               CellIdentity,
    cellSelectReselectInfo                     CellSelectReselectInfoSIB-3-4,
    cellAccessRestriction                     CellAccessRestriction,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions                       SEQUENCE {}                OPTIONAL
}

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

SysInfoType5 ::=                               SEQUENCE {
    -- Other IEs
    sib-ReferenceList                           SIB-ReferenceList           OPTIONAL,
    -- Physical channel IEs
    modeSpecificInfo                           CHOICE {
        fdd                                     SEQUENCE {
            pich-PowerOffset                   PICH-PowerOffset,
            aich-PowerOffset                   AICH-PowerOffset
        },
        tdd                                     SEQUENCE {
            pusch-SysInfo                       PUSCH-SysInfoList         OPTIONAL,
            pdsch-SysInfo                       PDSCH-SysInfoList        OPTIONAL,
            midambleConfiguration              MidambleConfiguration     OPTIONAL
        }
    },
}

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

SysInfoType10 ::=             SEQUENCE {

```

```

-- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- User equipment IEs
  drac-SysInfoList          DRAC-SysInfoList,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions      SEQUENCE {}              OPTIONAL
}

SysInfoType11 ::=          SEQUENCE {
-- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Measurement IEs
  fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo  OPTIONAL,
  measurementControlSysInfo     MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions      SEQUENCE {}              OPTIONAL
}

SysInfoType12 ::=          SEQUENCE {
-- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Measurement IEs
  fach-MeasurementOccasionInfo  FACH-MeasurementOccasionInfo  OPTIONAL,
  measurementControlSysInfo     MeasurementControlSysInfo,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions      SEQUENCE {}              OPTIONAL
}

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

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

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

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

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

SysInfoType14 ::=          SEQUENCE {
-- Other IEs
  sib-ReferenceList          SIB-ReferenceList          OPTIONAL,
-- Physical channel IEs
  primaryCCPCH-TX-Power        PrimaryCCPCH-TX-Power          OPTIONAL,
  individualTS-InterferenceList IndividualTS-InterferenceList,
  prach-ConstantValue          ConstantValue                    OPTIONAL,
  dpch-ConstantValue           ConstantValue                    OPTIONAL,
}

```

```

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

SysInfoType15 ::=                      SEQUENCE {
-- Other IEs
    sib-ReferenceList                SIB-ReferenceList      OPTIONAL,
-- Measurement IEs
    lcs-GPS-Assistance                LCS-GPS-AssistanceSIB  OPTIONAL,
    lcs-OTDOA-Assistance              LCS-OTDOA-AssistanceSIB  OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions              SEQUENCE {}              OPTIONAL
}

SysInfoType15-1 ::=                    SEQUENCE {
-- DGPS corrections
    lcs-DGPS-SIB-Data                 LCS-DGPS-SIB-Data
}

SysInfoType15-2 ::=                    SEQUENCE {
-- Ephemeris and clock corrections
    lcs-Ephe-SIB-Data                 LCS-Ephe-SIB-Data
}

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

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

END

```


CHANGE REQUEST

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

25.331

CR 469r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9** for approval
 list expected approval meeting # here ↑ for information

strategic
 non-strategic

(for SMG use only)

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

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

Source: **TSG-RAN WG2** **Date:** **7th July 2000**

Subject: **Frequency encoding in inter-system handover messages**

Work item:

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

Reason for change:

In GSM specifications, there are two different decoding for the ARFCN in the range 512-800+, one for 1800 and one for 1900. It is then not possible to transport a GSM message with an ARFCN without a specification about how decoding should be done.

More generally, the RRC specification should specify unambiguously the protocol specification to which a transported message belongs.

These shortcomings are corrected by an explicit indication of the external specification to apply, including decoding variants when applicable.

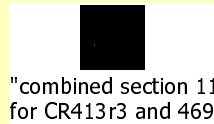
Clauses affected: **8.3.7, 10.3.8.6, 11**

Other specs affected:

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

Other comments:

This CR collides with CR413r3, the combined modifications for section 11 are shown in the attached file



The number of spare values in the tabular has not been modified, since the ASN1 is

already out of line.



help.doc

<----- [double-click here for help and instructions on how to create a CR.](#)

8.3.7 Inter-system handover from UTRAN

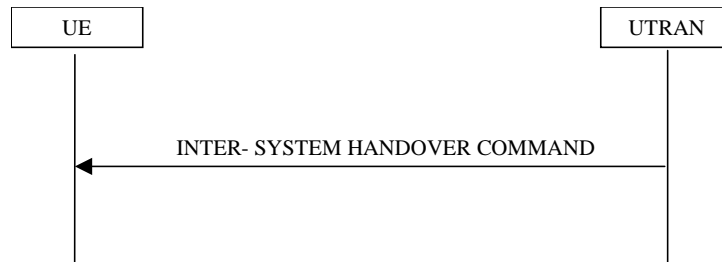


Figure 49: Inter system handover from UTRAN, successful case

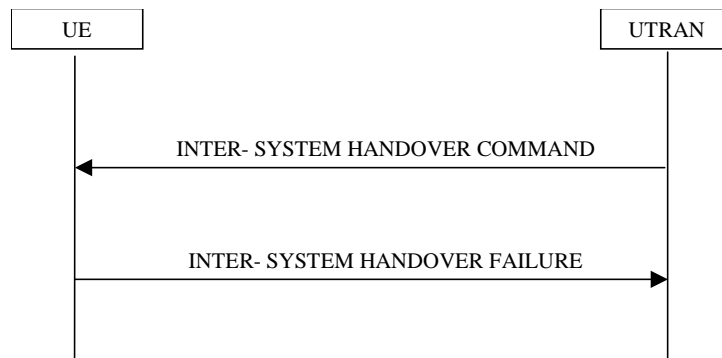


Figure 50: Inter system handover from UTRAN, failure case

8.3.7.1 General

The purpose of the inter system handover procedure is to, controlled by the network, transfer a connection between the UE and UTRAN to another radio access system (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state.

8.3.7.2 Initiation

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a handover to another radio access system than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends an INTER- SYSTEM HANDOVER COMMAND message.

8.3.7.3 Reception of an INTER- SYSTEM HANDOVER COMMAND message by the UE

The UE shall take the following actions:

- Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains a message specified in some other standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system. The correspondence between the value of the IE "System type" and the standard to apply is the following :

<u>Value of the IE "System type"</u>	<u>Standard to apply</u>
<u>GSM except PCS 1900</u>	<u>GSM 04.18, version 8.5.0 or later, as if the message was sent on any frequency except in the 1900 bandwidth</u>
<u>PCS 1900</u>	<u>GSM 04.18, version 8.5.0 or later, as if the message was sent was in the 1900 bandwidth</u>
<u>cdma2000</u>	<u>TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later</u>

- For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].
- Switch the current connection to the other radio access system.

NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of this specification.

NOTE 2: The release of the UMTS radio resources is initiated by the other system.

NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.

8.3.7.4 Successful completion of the inter-system handover

Upon successfully completing the handover, UTRAN should release the radio connection and remove all context information for the concerned UE.

8.3.7.5 UE fails to complete requested handover

If the UE does not succeed to establish the connection to the other radio access system, it shall

- resume the connection to UTRAN using the resources used before receiving the INTER-SYSTEM HANDOVER COMMAND message; and
- transmit the INTER-SYSTEM HANDOVER FAILURE message. When the transmission of the INTER-SYSTEM FAILURE message has been confirmed by RLC, the procedure ends.

8.3.7.6 Invalid INTER-SYSTEM HANDOVER COMMAND message

If the INTER-SYSTEM HANDOVER COMMAND message contains a protocol error causing the variable `PROTOCOL_ERROR_REJECT` to be set to TRUE according to clause 16, the UE shall perform procedure specific error handling as follows:

- Transmit a INTER-SYSTEM HANDOVER FAILURE message on the uplink DCCH using AM RLC and set the IE "failure cause" the cause value "protocol error".
- Include the IE "Protocol error information" with contents set to the value of the variable `PROTOCOL_ERROR_INFORMATION`.
- When the transmission of the INTER-SYSTEM HANDOVER FAILURE message has been confirmed by RLC, the UE shall resume normal operation as if the invalid INTER-SYSTEM HANDOVER COMMAND message has not been received and the procedure ends.

8.3.7.7 Reception of an INTER-SYSTEM HANDOVER FAILURE message by UTRAN

Upon receiving an INTER-SYSTEM HANDOVER FAILURE message, UTRAN may release the resources in the other radio access system.

10.2.13 INTER-SYSTEM HANDOVER COMMAND

This message is used for handover from UMTS to another system e.g. GSM. One or several messages from the other system can be included in the Inter-System message information element in this message. These messages are structured and coded according to that systems specification.

RLC-SAP: AM

Logical channel: DCCH

Direction: UTRAN→UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
Integrity check info	CH		Integrity check info 10.3.3.15	
Activation time	MD		Activation time 10.3.3.1	Default value is "now"
RAB info	OP		RAB info 10.3.4.8	Remaining radio access bearer if any
Inter-System message	MP		Inter-System message 10.3.8.6	

10.3.8.6 Inter-system message

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
System type	MP		Enumerated (GSM <u>except PCS 1900, PCS 1900, cdma2000</u>)	<u>This IE indicates in particular which specification to apply to decode the transported messages</u> At least 14 spare values, Criticality: reject, are needed
CHOICE <i>system</i>	MP			At least 14 spare choices, Criticality: reject, are needed
>GSM				
>>Message(s)	MP	1.to.<maxInterSysMessages>	Bitstring (1..512)	Formatted and coded according to GSM specifications
>cdma2000				
>>cdma2000Message	MP	1.to.<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bitstring (8)	Formatted and coded according to cdma2000 specifications
>>>cdma2000Messagepayload(s)	MP		Bitstring (1..512)	Formatted and coded according to cdma2000 specifications

<u>Condition</u>	<u>Explanation</u>
<u>System</u>	<u>The 'GSM' choice shall be applied when the IE 'System type' is 'GSM except PCS 1900' or 'PCS 1900', and the 'cdma2000' choice shall be applied when the IE 'system type' is 'cdma2000'.</u>

11 Message and Information element abstract syntax (with ASN.1)

./..

```
-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IEs
  activationTime          ActivationTime          OPTIONAL,
  -- Radio bearer IEs
  remainingRAB-Info      RAB-Info                OPTIONAL,
  -- Other IEs
  interSystemMessage     InterSystemMessage,
  -- Extension mechanism for non- release99 information
  criticalExtension      SEQUENCE {}             OPTIONAL,
  nonCriticalExtensions  SEQUENCE {}             OPTIONAL
}

./..
```

```
InterSystemMessage ::= CHOICE {
| Gsmgsm-except-PCS1900 SEQUENCE {
|   gsm-MessageList      GSM-MessageList
| },
| pcs1900 SEQUENCE {
|   gsm-MessageList    GSM-MessageList
| },
| cdma2000 SEQUENCE {
|   pcs1900 SEQUENCE {
|     gsm-MessageList GSM-MessageList
|   },
|   cdma2000-MessageList CDMA2000-MessageList
| },
| spare1 NULL,
| spare2 NULL,
| spare3 NULL,
| spare4 NULL,
| spare5 NULL,
| spare6 NULL
}

./..
```

CHANGE REQUEST

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

25.331 CR 470

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG Use only)

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

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

Source: TSG-RAN WG2 **Date:** 2000-06-26

Subject: RRC message size optimisation regarding TFS parameters

Work item:

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

Reason for change: In many cases the same value for each RLC PDU size in the TFS is used. Therefore, the proposal is to add for each dynamic part of TF the possibility to refer to a previous TF in the TFS. It only affects ASN.1 part.

Clauses affected: 11.3.5

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

Other comments:



help.doc

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

11.3.5 Transport channel information elements

TransportChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

```

    hiRM,
    maxCCTrCH,
    maxCPCHsets,
    maxDRACclasses,
    maxPDSCH-TFCIgroups,
    maxTF,
    maxTFC,
    maxTrCH

```

FROM Constant-definitions;

```

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

```

```

AllowedTFI-List ::=                SEQUENCE (SIZE (1..maxTF)) OF
                                   INTEGER (0..31)

```

```

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

```

```

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

```

```

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

```

```

CodingRate ::=                   ENUMERATED {
    half,
    third }

```

```

CommonDynamicTF-Info ::=         SEQUENCE {
    numberOfTransportBlocks          NumberOfTransportBlocks,
    rlc-Size                        CHOICE {
        sameAsPrevious              SEQUENCE {
            tf                      INTEGER (1..maxTF)  DEFAULT 1
        },
        independent                CHOICE {
            fdd                      SEQUENCE {
                octetModeRLC-SizeInfoType2  OctetModeRLC-SizeInfoType2  OPTIONAL
            }
        }
    }
}

```

```

tdd                               SEQUENCE {
  commonTDD-Choice                 CHOICE {
    bitModeRLC-SizeInfo           BitModeRLC-SizeInfo,
    octetModeRLC-SizeInfoType1   OctetModeRLC-SizeInfoType1
  }
}
OPTIONAL

```

```

CommonDynamicTF-Info-DynamicTTI ::= SEQUENCE {
  numberOfTransportBlocks         NumberOfTransportBlocks,
  transmissionTimeInterval       TransmissionTimeInterval,
  commonTDD-Choice               CHOICE {
    bitModeRLC-SizeInfo         BitModeRLC-SizeInfo,
    octetModeRLC-SizeInfoType1 OctetModeRLC-SizeInfoType1
  }
}
OPTIONAL

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

DedicatedDynamicTF-Info ::= SEQUENCE {
  numberOfTransportBlocks         NumberOfTransportBlocks,
  rlc-Size                       CHOICE {
    sameAsPrevious                SEQUENCE {
    tf                            INTEGER (1..maxTF) DEFAULT 1
    },
    independent                  CHOICE {
    bitModeRLC-SizeInfo           BitModeRLC-SizeInfo,
    octetModeRLC-SizeInfoType1   OctetModeRLC-SizeInfoType1
    }
  }
}
OPTIONAL

```

```

DedicatedDynamicTF-Info-DynamicTTI ::= SEQUENCE {
  numberOfTransportBlocks         NumberOfTransportBlocks,
  transmissionTimeInterval       TransmissionTimeInterval,
  rlc-Size                       CHOICE {
    bitMode                       BitModeRLC-SizeInfo,
    octetModeType1               OctetModeRLC-SizeInfoType1
  }
}
OPTIONAL

```

```

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

```

DedicatedDynamicTF-Info

```

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

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

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

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

DL-AddReconfTransChInformation ::= SEQUENCE {
    dl-transportChannelIdentity TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit TransportFormatSet,
        sameAsULTrCH TransportChannelIdentity
    },
    dch-QualityTarget QualityTarget OPTIONAL,
    tm-SignallingInfo TM-SignallingInfo OPTIONAL
}

DL-AddReconfTransChInformation2 ::= SEQUENCE {
    transportChannelIdentity TransportChannelIdentity,
    tfs-SignallingMode CHOICE {
        explicit TransportFormatSet,
        sameAsULTrCH TransportChannelIdentity
    },
    qualityTarget QualityTarget
}

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

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

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

```

```

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

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

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

GainFactor ::=                     INTEGER (0..15)

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

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

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

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

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

MessType ::=                       ENUMERATED {
    transportFormatCombinationControl, spare1 }

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

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

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

```

OPTIONAL

```

        part1                INTEGER (0..61),
        part2                INTEGER (1..7)
        -- Actual size = (64 * part1) + 1040 + (part2 * 8)
    }
}

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

PowerOffsetInformation ::= SEQUENCE {
    gainFactorInformation    GainFactorInformation,
    powerOffsetPp-m         PowerOffsetPp-m
}

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

PreDefTransChConfiguration ::= SEQUENCE {
    ul-CommonTransChInfo    UL-CommonTransChInfo,
    ul-AddReconfTrChInfoList UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo    DL-CommonTransChInfo,
    dl-TrChInfoList         DL-AddReconfTransChInfoList
}

QualityTarget ::= SEQUENCE {
    bler-QualityValue       BLER-QualityValue
}

RateMatchingAttribute ::= INTEGER (1..hiRM)

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

RestrictedTrChInfo ::= SEQUENCE {
    restrictedTrChIdentity   TransportChannelIdentity,
    allowedTFI-List         AllowedTFI-List
}

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

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

SignalledGainFactors ::= SEQUENCE {
    gainFactorBetaC         GainFactor,
    gainFactorBetaD         GainFactor,
    referenceTFC-ID         ReferenceTFC-ID
}

SplitTFCI-Signalling ::= SEQUENCE {
    splitType               SplitType
    tfci-Field2-Length      INTEGER (1..10)
    tfci-Field1-Information ExplicitTFCS-Configuration
    tfci-Field2-Information TFCI-Field2-Information
}

```

```

}

SplitType ::=
    ENUMERATED {
        hardSplit, logicalSplit }

TFC-Subset ::=
    CHOICE {
        minimumAllowedTFC-Number
        allowedTFC-List
        non-allowedTFC-List
        restrictedTrChInfoList
    }

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

TFCI-Field2-Information ::=
    CHOICE {
        tfci-Range
        explicit
    }

TFCI-Range ::=
    SEQUENCE {
        maxTFCIField2Value
        tfcs-InfoForDSCH
    }

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

TFCS ::=
    CHOICE {
        normalTFCS-Signalling
        splitTFCS-Signalling
    }

TFCS-Identity ::=
    SEQUENCE {
        tfcs-ID
        sharedChannelIndicator
    }

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

TFCS-InfoForDSCH ::=
    CHOICE {
        ctfc2bit
        ctfc4bit
        ctfc6bit
        ctfc8bit
        ctfc12bit
        ctfc16bit
        ctfc24bit
        spare
    }

TFCS-ReconfAdd ::=
    SEQUENCE {
        ctfcSize
        ctfc2Bit
        ctfc2
        gainFactorInformation
    },
    ctfc4Bit
    ctfc4
    SEQUENCE {
        CHOICE {
            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
                INTEGER (0..3),
                PowerOffsetInformation
            } OPTIONAL
        },
        SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            INTEGER (0..15),
        }
    }

```

```

        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    ctfc6Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc8                           INTEGER (0..63),
        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    ctfc8Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc16                          INTEGER (0..255),
        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    ctfc12Bit                          SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
        ctfc12                          INTEGER (0..4095),
        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    ctfc16Bit                          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc16                          INTEGER(0..65535),
        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    ctfc24Bit                          SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
        ctfc24                          INTEGER(0..16777215),
        gainFactorInformation          PowerOffsetInformation          OPTIONAL
    },
    spare                               NULL
}
}

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

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

TimeDurationBeforeRetry ::= INTEGER (1..256)

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

TransmissionTimeInterval ::= ENUMERATED {
    tti10, tti20, tti40, tti80,
    spare1, spare2, spare3, spare4 }

TransmissionTimeValidity ::= INTEGER (1..256)

TransportChannelIdentity ::= INTEGER (1..32)

TransportFormatSet ::= CHOICE {
    dedicatedTransChTFS
    commonTransChTFS
}

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

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

```

```

}

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

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

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

END

```


CHANGE REQUEST

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

25.331 CR 471r2

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here
↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 2000-08-22

Subject: RACH selection

Work item:

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

Reason for change: This CR proposes a mechanism for PRACH selection in the UE in case there are several established in a cell. The RACH selection algorithm cannot be left unspecified in order to prevent that all UEs may always try to use the same RACH.

Clauses affected: 8.5.7.6.2, 8.5.7.6.x (new)

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

Other comments:



help.doc

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

8.5.7.6.2 PRACH info and PRACH selection

If the IE "PRACH info" is included, the UE shall:

- release any active dedicated physical channels in the uplink; and
- let the PRACH be the default in the uplink for RACH.

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

- If the IE "PRACH info" is included in a dedicated message (in Connected Mode only), the UE shall
 - release any active dedicated physical channels in the uplink; and
 - let the PRACH be the default in the uplink for RACH.
 - If the IE "PRACH info" is not included in a dedicated message, the UE shall select a default PRACH from the ones indicated in the IE "PRACH info" in System Information Block type 5 (applicable in Idle Mode and Connected Mode) and System Information Block type 6 (applicable in Connected Mode only), as follows:
 - if both RACH with 10 ms and 20 ms TTI are indicated in SIB 5 and SIB 6, the UE shall select the appropriate TTI based on power requirements, as specified in subclause 8.5.7.6.3.
 - the UE shall randomly select an RACH from the ones listed in SIB 5 and SIB 6 as follows:
 - "Index of selected PRACH" = floor (rand * K),
- where K is equal to the number of listed PRACHs which carry an RACH with the above selected TTI, "rand" is a random number uniformly distributed in the range 0.....1, and "floor" refers to rounding down to nearest integer. RACHs with 10 and 20 ms TTI shall be counted separately. These RACHs shall be indexed from 0 to K-1 in the order of their occurrence in SIB 5 and SIB 6, where RACHs listed in SIB 5 shall be counted first. The random number generator is left to implementation. The scheme shall be implemented such that one of the available RACHs is randomly selected with uniform probability. At startup of the random number generator in the UE the seed shall be dependent on the IMSI of the UE or time, thereby avoiding that all UEs select the same RACH.
- The default PRACH shall be reselected when a new cell is selected. RACH reselection may also be performed after each transmission of a Transport Block Set on RACH.
 - For emergency call, the UE is allowed to select any of the available RACHs.

8.5.7.6.x Selection of RACH TTI

In FDD mode, an RACH may employ either 10 or 20 ms TTI. The supported TTI is indicated as a semi-static parameter of the RACH Transport Format in system information. If in one cell RACHs for both 10 and 20 ms TTI are supported, the UE shall select an appropriate RACH according to the following rule:

- The UE shall first check whether a RACH Transport Format is available which is suitable for the transmission of the current transport Block Set for both 10 and 20 ms TTI.
- If the required transport format is available only for one particular TTI, the UE shall select this TTI, identify the corresponding RACHs and proceed with RACH selection as specified in subclause 8.5.7.6.2.
- If the required transport format is available on both types of RACH, 10 and 20 ms TTI, the UE shall perform TTI selection as follows:

- When the UE calculates the initial preamble transmit power (“Preamble Initial Power”) as specified in subclause 8.5.9, it shall also calculate a transmit power margin.

Margin = min(Maximum allowed UL tx power, P_MAX) – ...

max(Preamble Initial Power, Preamble Initial Power + $\Delta P_{p-m} + 10 \cdot \log_{10}(1 + (\beta_d/\beta_c)^2)$)

where “Maximum allowed UL tx power” is the maximum allowed uplink transmit power indicated in system information (in dBm), and P_MAX is the maximum RF output power of the UE (dBm). The margin shall be calculated for 10 ms TTI RACH message gain factors β_d and β_c . Note that the expression Preamble Initial Power + $\Delta P_{p-m} + 10 \cdot \log_{10}(1 + (\beta_d/\beta_c)^2)$ represents the total RACH message power if the message would be sent after the initial preamble.

- If the value of “Margin” calculated for RACH with 10 ms TTI is less than 6 dB, the UE shall decide for RACH with 20 ms TTI, and proceed as specified in subclause 8.5.7.6.2 in ~~Connected mode, or as specified in subclause 8.3 of TS 25.304 when entering Connected mode from Idle mode, respectively.~~
- The UE shall perform reselection of the RACH TTI only after successful transmission of one Transport Block Set. However in case L1 message transmission on PRACH has failed at least once while using 10 ms TTI, the UE may use the 20 ms TTI RACH for the retransmission. Handling of RACH Message transmission failure is part of general error handling procedure.

8.5.7.6.34 Secondary CCPCH info

CHANGE REQUEST

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

25.331 CR 472

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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

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

Source: TSG-RAN WG2 **Date:** 5 July 2000

Subject: DRX cycle lower limit

Work item:

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

Reason for change: This CR is needed because the last item in the actions list below was accidentally left out from the version 3.3.0 of 25.331. The ASN.1 part is already correct.

The case when same DRX cycle parameter is used for both idle and connected mode is very undesirable. It may be acceptable to have a longish response time in normal paging whereas it may be a requirement to have fast response times in connected mode

Actions:

- Split the DRX cycle parameter into two, one for idle and one for connected mode.
- Put a lower limit of k=6 (corresponds to a cycle of 640ms) on the idle mode DRX cycle length.
- Put a lower limit of k=3 (corresponds to a cycle of 80ms) on the connected mode DRX cycle length.

Clauses affected: 10.3.3.47

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

Other comments:



help.doc

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

10.3.3.47 UTRAN DRX cycle length coefficient

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
DRX cycle length coefficient	MP		Integer(2...12) Integer(3...12)	Refers to 'k' in the formula as specified in 25.304, Discontinuous reception

10.3.4.20 RLC info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>Uplink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>Transmission RLC discard	MP		Transmission RLC discard 10.3.4.22	
>>Transmission window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs sent without getting them acknowledged. This parameter is needed if acknowledged mode is used. UE shall also assume that the UTRAN receiver window is equal to this value. At least one spare value needed, criticality: reject
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs allowed to be received. This parameter is needed if acknowledged mode is used. This is to provide information of the UTRAN Receiving window size to the UE, for the RLC-AM entity. At least one spare value with criticality reject needed
>>Timer_RST	MP		Integer(50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000)	It is used to detect the loss of RESET ACK PDU. 16 spare values needed, criticality: reject
>>Max_RST	MP		Integer(1, 4, 6, 8, 12, 16, 24, 32)	The maximum number of retransmission of RESET PDU. 8 spare values needed, criticality: reject
>> Polling info	OP		Polling info 10.3.4.4	
>UM RLC				
>> Transmission RLC discard	OP		Transmission RLC discard 10.3.4.22	
>TM RLC				
>>Transmission RLC discard	OP		Transmission RLC discard 10.3.4.22	
CHOICE <i>Downlink RLC mode</i>	OP			Indicates if Acknowledged, Unacknowledged or Transparent mode RLC shall be used. One spare value needed, criticality: reject.
>AM RLC				
>>In-sequence delivery	MP		Boolean	TRUE indicates that RLC shall preserve the order of higher layer PDUs when these are delivered.
>>Receiving window size	MP		Integer(1,8,16,32,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	Maximum number of RLC PUs

			2,128,256,512,768,1024,1536,2047,2560,3072,3584,4095)	allowed to be received. This parameter is needed if acknowledged mode is used. UE shall also assume that the UTRAN transmitter window is equal to this value. At least one spare value with criticality reject needed
>>Downlink RLC status Info	MP		Downlink RLC status info 10.3.4.1	
>UM RLC				(No data)
>TM RLC				(No data)
>>Segmentation indication	MP		Boolean	TRUE indicates that segmentation is performed.

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

11.3.4 Radio bearer information elements

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 CN-DomainIdentity,
 RAB-Identity
FROM CoreNetwork-IEs

 Re-EstablishmentTimer
FROM UserEquipment-IEs

 PreDefTransChConfiguration,
 TransportChannelIdentity
FROM TransportChannel-IEs

 PreDefPhyChConfiguration
FROM PhysicalChannel-IEs

 maxLoChperRLC,
 maxPDCPAlgoType,
 maxRABsetup,
 maxRB,
 maxRBallRABs,
 maxRBMuxOptions,
 maxRBperRAB,
 maxSRBsetup
FROM Constant-definitions;

```
AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info          RFC2507-Info,
    spare1                NULL,
    spare2                NULL,
    spare3                NULL,
    spare4                NULL,
    spare5                NULL,
    spare6                NULL,
    spare7                NULL
}
```

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

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

```
DL-AM-RLC-Mode ::= SEQUENCE {
    inSequenceDelivery    BOOLEAN,
    receivingWindowSize   ReceivingWindowSize,
    dl-RLC-StatusInfo    DL-RLC-StatusInfo
}
```

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

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

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

```

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

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

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

ExpectReordering ::=
ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

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

HeaderCompressionInfo ::=
    algorithmSpecificInfo
}
SEQUENCE {
    AlgorithmSpecificInfo
}

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

LogicalChannelIdentity ::=
INTEGER (1..15)

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

LosslessSRNS-RelocSupport ::=
    supported
    notSupported
}
CHOICE {
    MaxPDCP-SN,
    NULL
}

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

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

MaxDAT-Retransmissions ::=
    maxDAT
    timerMRW
    maxMRW
}
SEQUENCE {
    MaxDAT,
    TimerMRW,
    MaxMRW
}

MaxMRW ::=
ENUMERATED {
    mm1, mm4, mm6, mm8, mm12, mm16,
    mm24, mm32, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7, spare8 }

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

MaxRST ::=
ENUMERATED {
    rst1, rst4, rst6, rst8, rst12,

```

```

rst16, rst24, rst32,
spare1, spare2, spare3, spare4,
spare5, spare6, spare7, spare8 }

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

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

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

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

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

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

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

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

PollWindow ::=
    ENUMERATED {
        pw50, pw60, pw70, pw80, pw85,
        pw90, pw95, pw99,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

PredefinedRB-Configuration ::=
    SEQUENCE {
        srb-InformationList          SRB-InformationSetupList,
        rb-InformationList           RB-InformationSetupList
    }

PreDefRadioConfiguration ::=
    SEQUENCE {
        -- User equipment IEs
        re-EstablishmentTimer        Re-EstablishmentTimer,
        -- Radio bearer IEs
        predefinedRB-Configuration    PredefinedRB-Configuration,
        -- Transport channel IEs
        preDefTransChConfiguration    PreDefTransChConfiguration,
        -- Physical channel IEs
        preDefPhyChConfiguration      PreDefPhyChConfiguration
    }

```

RAB-Info ::=	SEQUENCE {	
rab-Identity	RAB-Identity,	
cn-DomainIdentity	CN-DomainIdentity,	
re-EstablishmentTimer	Re-EstablishmentTimer	
}		
RAB-InformationSetup ::=	SEQUENCE {	
rab-Info	RAB-Info,	
rb-InformationSetupList	RB-InformationSetupList	
}		
RAB-InformationSetupList ::=	SEQUENCE (SIZE (1..maxRABsetup)) OF	
	RAB-InformationSetup	
RB-ActivationTimeInfo ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
rlc-SequenceNumber	RLC-SequenceNumber	
}		
RB-ActivationTimeInfoList ::=	SEQUENCE (SIZE (1..maxRB)) OF	
	RB-ActivationTimeInfo	
RB-COUNT-C-Information ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
count-C-UL	COUNT-C,	
count-C-DL	COUNT-C	
}		
RB-COUNT-C-InformationList ::=	SEQUENCE (SIZE (1..maxRBallRABs)) OF	
	RB-COUNT-C-Information	
RB-COUNT-C-MSB-Information ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
count-C-MSB-UL	COUNT-C-MSB,	
count-C-MSB-DL	COUNT-C-MSB	
}		
RB-COUNT-C-MSB-InformationList ::=	SEQUENCE (SIZE (1..maxRBallRABs)) OF	
	RB-COUNT-C-MSB-Information	
RB-Identity ::=	INTEGER (0..31)	
RB-IdentityList ::=	SEQUENCE (SIZE (1..maxRB)) OF	
	RB-Identity	
RB-InformationAffected ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
rb-MappingInfo	RB-MappingInfo	
}		
RB-InformationAffectedList ::=	SEQUENCE (SIZE (1..maxRB)) OF	
	RB-InformationAffected	
RB-InformationReconfig ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
pdcp-Info	PDCP-InfoReconfig	OPTIONAL,
rlc-InfoChoice	RLC-InfoChoice	OPTIONAL,
rb-MappingInfo	RB-MappingInfo	OPTIONAL,
rb-SuspendResume	RB-SuspendResume	OPTIONAL
}		
RB-InformationReconfigList ::=	SEQUENCE (SIZE (1..maxRB)) OF	
	RB-InformationReconfig	
RB-InformationReleaseList ::=	SEQUENCE (SIZE (1..maxRB)) OF	
	RB-Identity	
RB-InformationSetup ::=	SEQUENCE {	
rb-Identity	RB-Identity,	
pdcp-Info	PDCP-Info	OPTIONAL,
rlc-Info	RLC-Info,	
rb-MappingInfo	RB-MappingInfo	

```

}

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

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

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

RB-SuspendResume ::=                ENUMERATED {
    suspend, resume }

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

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

ReceivingWindowSize ::=             ENUMERATED {
    rw1, rw8, rw16, rw32, rw128, rw256,
    rw512, rw768, rw1024, rw1536, rw2047,
    rw2560, rw3072, rw3584, rw4095, spare1 }

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

RLC-Info ::=                         SEQUENCE {
    ul-RLC-Mode                      UL-RLC-Mode                      OPTIONAL,
    dl-RLC-Mode                      DL-RLC-Mode                      OPTIONAL
}

RLC-InfoChoice ::=                  CHOICE {
    rlc-Info                          RLC-Info,
    spare                              NULL
}

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

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

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

SRB-InformationSetupList2 ::=        SEQUENCE (SIZE (4..5)) OF
                                     SRB-InformationSetup

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

```

```

TimerEPC ::=
    ENUMERATED {
        te50, te60, te70, te80, te90,
        te100, te120, te140, te160, te180,
        te200, te300, te400, te500, te700,
        te900, spare1, spare2, spare3,
        spare4, spare5, spare6, spare7,
        spare8, spare9, spare10, spare11,
        spare12, spare13, spare14, spare15,
        spare16 }

TimerMRW ::=
    ENUMERATED {
        te50, te0, te70, te80, te90, te100,
        te120, te140, te160, te180, te200,
        te300, te400, te500, te700, te900,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

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

        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerPollPeriodic ::=
    ENUMERATED {
        tper100, tper200, tper300, tper400,
        tper500, tper750, tper1000, tper2000,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

TimerPollProhibit ::=
    ENUMERATED {
        tpp10, tpp20, tpp30, tpp40, tpp50,
        tpp60, tpp70, tpp80, tpp90, tpp100,
        tpp110, tpp120, tpp130, tpp140, tpp150,
        tpp160, tpp170, tpp180, tpp190, tpp200,
        tpp210, tpp220, tpp230, tpp240, tpp250,
        tpp260, tpp270, tpp280, tpp290, tpp300,
        tpp310, tpp320, tpp330, tpp340, tpp350,
        tpp360, tpp370, tpp380, tpp390, tpp400,
        tpp410, tpp420, tpp430, tpp440, tpp450,
        tpp460, tpp470, tpp480, tpp490, tpp500,
        tpp510, tpp520, tpp530, tpp540, tpp550,
        tpp600, tpp650, tpp700, tpp750, tpp800,
        tpp850, tpp900, tpp950, tpp1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerRST ::=
    ENUMERATED {
        tr50, tr100, tr150, tr200, tr250, tr300,
        tr350, tr400, tr450, tr500, tr550,
        tr600, tr700, tr800, tr900, tr1000,
        spare1, spare2, spare3, spare4, spare5,
        spare6, spare7, spare8, spare9, spare10,
        spare11, spare12, spare13, spare14,
        spare15, spare16 }

TimerStatusPeriodic ::=
    ENUMERATED {
        tsp100, tsp200, tsp300, tsp400, tsp500,

```

```
tsp750, tsp1000, tsp2000 }
```

```
TimerStatusProhibit ::= ENUMERATED {
    tsp10, tsp20, tsp30, tsp40, tsp50,
    tsp60, tsp70, tsp80, tsp90, tsp100,
    tsp110, tsp120, tsp130, tsp140, tsp150,
    tsp160, tsp170, tsp180, tsp190, tsp200,
    tsp210, tsp220, tsp230, tsp240, tsp250,
    tsp260, tsp270, tsp280, tsp290, tsp300,
    tsp310, tsp320, tsp330, tsp340, tsp350,
    tsp360, tsp370, tsp380, tsp390, tsp400,
    tsp410, tsp420, tsp430, tsp440, tsp450,
    tsp460, tsp470, tsp480, tsp490, tsp500,
    tsp510, tsp520, tsp530, tsp540, tsp550,
    tsp600, tsp650, tsp700, tsp750, tsp800,
    tsp850, tsp900, tsp950, tsp1000,
    spare1, spare2, spare3, spare4, spare5,
    spare6, spare7, spare8, spare9, spare10,
    spare11, spare12, spare13, spare14,
    spare15, spare16 }

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

TransmissionWindowSize ::= ENUMERATED {
    tw1, tw8, tw16, tw32, tw128, tw256,
    tw512, tw768, tw1024, tw1536, tw2047,
    tw2560, tw3072, tw3584, tw4095, spare1 }

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

UL-LogicalChannelMapping ::= SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType      UL-TransportChannelType,
    logicalChannelIdentity        LogicalChannelIdentity          OPTIONAL,
    mac-LogicalChannelPriority     MAC-LogicalChannelPriority,
    logicalChannelMaxLoss         LogicalChannelMaxLoss           DEFAULT lcm0
}

UL-LogicalChannelMapping2 ::= SEQUENCE {
    rlc-LogicalChannelMappingIndicator  BOOLEAN,
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType              UL-TransportChannelType,
    logicalChannelIdentity                LogicalChannelIdentity          OPTIONAL,
    mac-LogicalChannelPriority             MAC-LogicalChannelPriority,
    logicalChannelMaxLoss                 LogicalChannelMaxLoss           DEFAULT lcm0
}

UL-LogicalChannelMappingList ::= SEQUENCE (SIZE (maxLoCHperRLC)) OF
    UL-LogicalChannelMapping2

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

UL-RLC-Mode ::= CHOICE {
    ul-AM-RLC-Mode      UL-AM-RLC-Mode,
    ul-UM-RLC-Mode      TransmissionRLC-Discard,
    ul-TM-RLC-Mode      UL-TM-RLC-Mode,
}
```

```
    spare                NULL
}

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

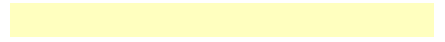
UL-TransportChannelType ::=
    dch                      CHOICE {
        rach                  TransportChannelIdentity,
        cpch                  NULL,
        usch                  NULL,
    }
}

END
```


O&M specifications



→ List of CRs:



**Other
comments:**



help.doc

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

10.2.52 SYSTEM INFORMATION

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message type	OP		Message type	The message type is mandatory on the FACH, and absent on the BCH
SFNprime	CV channel		Integer(0..4094 by step of 2)	SFN=SFNprime (for first 10ms frame of 20ms TTI), SFN=SFNprime+1 (for last 10ms frame of 20ms TTI)
CHOICE Segment combination	MP			
>Combination 1				(no data)
>Combination 2				
>>First Segment	MP		First Segment, 10.2.52.1	
>Combination 3				
>>Subsequent Segment	MP		Subsequent Segment, 10.2.52.3	
>Combination 4				
>>Last segment	MP		Last segment (short), 10.2.52.4	
>Combination 5				
>>Last segment	MP		Last Segment (short) 10.2.52.4	
>>First Segment	MP		First Segment (short), 10.2.52.2	
>Combination 6				
>>Last Segment	MP		Last Segment (short), 10.2.52.4	
>>Complete list		1 to maxSIBperMsgsegm		Note 1
>>>Complete			Complete SIB (short), 10.2.52.5	
>Combination 7				
>>Last Segment	MP		Last Segment (short), 10.2.52.4	
>>Complete list	MP	1..maxSIBperMsg46		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.52.5	
>>First Segment	MP		First Segment (short), 10.2.52.2	
>Combination 8				
>>Complete list	MP	1 to maxSIBperMsgsegm		Note 1
>>>Complete	MP		Complete SIB (short),	

			10.2.52.5	
>Combination 9				
>>Complete list	MP	1.. maxSIBper Msg46		Note 1
>>>Complete	MP		Complete SIB (short), 10.2.52.5	
>>First Segment	MP		First Segment (short), 10.2.52.2	
>Combination 10				
>>> Complete SIB of size 215 to 222	MP		Complete SIB, 10.2.52.5a	
>Combination 11				
>>Last segment of size 215 to 222	MP		Last segment, 10.2.52.4a	

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1. Padding is needed e.g. if the remaining space is insufficient to start a new First Segment (which requires several bits for SIB type, SEG_COUNT and SIB data).

NOTE 1: If Combination 6 - 9 contains a Master information block Master information shall be located as the first IE in the list.

10.2.52.4 Last Segment (short)

This segment type is used to transfer the last segment of a segmented system information block. The IE is used when the last segment has a length, excluding length denominator, of upto 214 bits (Combination 4, 5, 6 and 7).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
Segment index	MP		Segment Index, 10.3.8.14	
SIB data variable	MP		SIB data variable, 10.3.8.15	

10.2.52.4a Last Segment

This segment type is used to transfer the last segment of a segmented system information block. The IE is used when the last segment has a length, excluding length denominator, from 215 through 222 (Combination 11).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
<u>SIB type</u>	<u>MP</u>		<u>SIB Type, 10.3.8.17</u>	
<u>Segment index</u>	<u>MP</u>		<u>Segment Index, 10.3.8.14</u>	
<u>SIB data fixed</u>	<u>MP</u>		<u>SIB data fixed, 10.3.8.15</u>	<u>In case the SIB data is less than 222 bits, padding shall be used. The same padding bits shall be used as defined in clause 12.1</u>

10.2.52.5 Complete SIB (short)

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Other information elements				
SIB type	MP		SIB Type, 10.3.8.17	
SIB data variable	MP		data, 10.2.52.6 SIB data variable, 10.3.8.16	

10.2.52.5a Complete SIB

This segment type is used to transfer a non-segmented system information block. The IE is used when the complete SIB has a length, excluding length denominator, from 215 through 222 (Combination 10).

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>Other information elements</u>				
<u>SIB type</u>	<u>MP</u>		<u>SIB Type, 10.3.8.17</u>	
<u>SIB data fixed</u>	<u>MP</u>		<u>SIB data fixed, 10.3.8.15</u>	<u>In case the SIB data is less than 222 bits, padding shall be used. The same padding bits shall be used as defined in clause 12.1</u>

10.3.8.17 SIB type

The SIB type identifies a specific system information block.

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

The list of values to encode is:

Master information block,
 System Information Type 1,
 System Information Type 2,
 System Information Type 3,
 System Information Type 4,
 System Information Type 5,
 System Information Type 6,
 System Information Type 7,
 System Information Type 8,
 System Information Type 9,
 System Information Type 10,
 System Information Type 11,
 System Information Type 12,
 System Information Type 13,
 System Information Type 13.1,
 System Information Type 13.2,
 System Information Type 13.3,
 System Information Type 13.4,
 System Information Type 14,
 System Information Type 15,
[System Information Type 15.1](#),
[System Information Type 15.2](#),
[System Information Type 15.3](#),
 System Information Type 16

in addition, at least ~~8~~ spare values, criticality : ignore, are needed.

10.3.10 Multiplicity values and type constraint values

The following table includes constants that are either used as multi bounds (name starting with "max") or as high or low value in a type specification (name starting with "lo" or "hi"). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the "value" column instead of the actual value.

Constant	Explanation	Value
CN information		
maxCNdomains	Maximum number of CN domains	4
maxSignallingFlow	Maximum number of flow identifiers	16
UTRAN mobility information		
maxRAT	Maximum number of Radio Access Technologies	maxOtherRAT + 1
maxOtherRAT	Maximum number of other Radio Access Technologies	15
maxURA	Maximum number of URAs in a cell	8
maxInterSysMessages	Maximum number of Inter System Messages	4
maxRABsetup	Maximum number of RABs to be established	16
UE information		
maxPDCPalgoType	Maximum number of PDCP algorithm types	8
maxDRACclasses	Maximum number of UE classes which would require different DRAC parameters	8
maxFrequencybands	Maximum number of frequency bands supported by the UE as defined in 25.102	4
maxPage1	Number of Ues paged in the Paging Type 1 message	8
maxSystemCapability	Maximum number of system specific capabilities that can be requested in one message.	16
RB information		
maxPredefConfig	Maximum number of predefined configurations	16
maxRB	Maximum number of RBs	32
maxSRBsetup	Maximum number of signalling RBs to be established	8
maxRBperRAB	Maximum number of RBs per RAB	8
maxRBallRBs	Maximum number of non signalling RBs	27
maxRBMuxOptions	Maximum number of RB multiplexing options	8
maxLoCHperRLC	Maximum number of logical channels per RLC entity	2
TrCH information		
maxTrCH	Maximum number of transport channels used in one direction (UL or DL)	32
maxTrCHpreconf	Maximum number of preconfigured Transport channels, per direction	16
maxCCTrCH	Maximum number of CCTrCHs	8
maxTF	Maximum number of different transport formats that can be included in the Transport format set for one transport channel	32
maxTF-CPCH	Maximum number of TFs in a CPCH set	16
maxTFC	Maximum number of Transport Format Combinations	1024
maxTFCl-1-Combs	Maximum number of TFCl (field 1) combinations	512
maxTFCl-2-Combs	Maximum number of TFCl (field 2) combinations	512
maxCPCHsets	Maximum number of CPCH sets per Node B	16
maxSIBperMsgsegm	Maximum number of complete system information blocks per SYSTEM INFORMATION message	16
maxSIB	Maximum number of references to other system information blocks.	32
maxSIB-FACH	Maximum number of references to system information blocks on the FACH	8
PhyCH information		
maxSubCh	Maximum number of sub-channels on PRACH	12
maxPCPCH-APsubCH	Maximum number of available sub-channels for AP signature on PCPCH	12
maxPCPCH-CDsubCH	Maximum number of available sub-channels for CD signature on PCPCH	12
maxSig	Maximum number of signatures on PRACH	16
maxPCPCH-APsig	Maximum number of available signatures for AP on PCPCH	16
maxPCPCH-CDsig	Maximum number of available signatures for CD on PCPCH	16
maxAC	Maximum number of access classes	16
maxASC	Maximum number of access service classes	8
maxASCmap	Maximum number of access class to access service classes mappings	7
maxASCpersist	Maximum number of access service classes for which persistence scaling factors are specified	6
maxPRACH	Maximum number of PRACHs in a cell	16
maxFACH	Maximum number of FACHs mapped onto one secondary	8

	CCPCHs	
maxRL	Maximum number of radio links	8
maxSCCPCH	Maximum number of secondary CCPCHs per cell	16
maxDPDCH-UL	Maximum number of DPDCHs per cell	6
maxDPCH-DLchan	Maximum number of channelisation codes used for DL DPCH	8
maxDPCHcodesPerTS	Maximum number of codes for one timeslots (TDD)	16
maxPUSCH	Maximum number of PUSCHs	(8)
maxPDSCH	Maximum number of PDSCHs	8
maxPDSCHcodes	Maximum number of codes for PDSCH	16
maxPDSCH-TFCIgroups	Maximum number of TFCI groups for PDSCH	256
maxPDSCHcodeGroups	Maximum number of code groups for PDSCH	256
maxPCPCHs	Maximum number of PCPCH channels in a CPCH Set	64
maxPCPCH-SF	Maximum number of available SFs on PCPCH	7
maxTS	Maximum number of timeslots used in one direction (UL or DL)	14
Measurement information		
maxAdditionalMeas	Maximum number of additional measurements for a given measurement identity	4
maxMeasEvent	Maximum number of events that can be listed in measurement reporting criteria	8
maxMeasParEvent	Maximum number of measurement parameters (e.g. thresholds) per event	2
maxMeasIntervals	Maximum number of intervals that define the mapping function between the measurements for the cell quality Q of a cell and the representing quality value	1
maxCellMeas	Maximum number of cells to measure	32
maxFreq	Maximum number of frequencies to measure	8
maxSat	Maximum number of satellites to measure	16
HiRM	Maximum number that could be set as rate matching attribute for a transport channel	256

11.2 PDU definitions

```

--*****
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--*****

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--*****
--
-- IE parameter types from other modules
--
--*****

IMPORTS

    CN-DomainIdentity,
    CN-InformationInfo,
    FlowIdentifier,
    NAS-Message,
    PagingRecordTypeID,
    ServiceDescriptor,
    SignallingFlowInfoList
FROM CoreNetwork-IEs

    URA-Identity
FROM UTRANMobility-IEs

    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DRX-Indicator,
    EstablishmentCause,
    FailureCauseWithProtErr,
    HyperFrameNumber,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithInfo,
    Re-EstablishmentTimer,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-MessageTX-Count,
    SecurityCapability,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    URA-UpdateCause,
    UTRAN-DRX-CycleLengthCoefficient,
    WaitTime
FROM UserEquipment-IEs

    PredefinedConfigIdentity,
    RAB-Info,
    RAB-InformationSetupList,
    RB-ActivationTimeInfo,
    RB-ActivationTimeInfoList,
    RB-COUNT-C-InformationList,
    RB-COUNT-C-MSB-InformationList,
    RB-IdentityList,
    RB-InformationAffectedList,

```

RB-InformationReconfigList,
 RB-InformationReleaseList,
 RB-InformationSetupList,
 RB-WithPDCP-InfoList,
 SRB-InformationSetupList,
 SRB-InformationSetupList2
 FROM RadioBearer-IEs

CPCH-SetID,
 DL-AddReconfTransChInfo2List,
 DL-AddReconfTransChInfoList,
 DL-CommonTransChInfo,
 DL-DeletedTransChInfoList,
 DRAC-StaticInformationList,
 TFC-Subset,
 UL-AddReconfTransChInfoList,
 UL-CommonTransChInfo,
 UL-DeletedTransChInfoList
 FROM TransportChannel-IEs

AllocationPeriodInfo,
 CCTrCH-PowerControlInfo,
 ConstantValue,
 CPCH-SetInfo,
 DL-CommonInformation,
 DL-CommonInformationPost,
 DL-InformationPerRL,
 DL-InformationPerRL-List,
 DL-InformationPerRL-ListPost,
 DL-DPCH-PowerControlInfo,
 DL-OuterLoopControl,
 DL-PDSCH-Information,
 DPCH-CompressedModeStatusInfo,
 FrequencyInfo,
 IndividualTS-InterferenceList,
 MaxAllowedUL-TX-Power,
 PDSCH-Info,
 PRACH-RACH-Info,
 PrimaryCCPCH-TX-Power,
 PUSCH-CapacityAllocationInfo,
 RL-AdditionInformationList,
 RL-RemovalInformationList,
 SSdT-Information,
 TFC-ControlDuration,
 TimeslotList,
 TX-DiversityMode,
 UL-ChannelRequirement,
 UL-DPCH-Info,
 UL-DPCH-InfoPost,
 UL-TimingAdvance
 FROM PhysicalChannel-IEs

AdditionalMeasurementID-List,
 EventResults,
 MeasuredResults,
 MeasuredResultsList,
 MeasuredResultsOnRACH,
 MeasurementCommand,
 MeasurementIdentityNumber,
 MeasurementReportingMode,
 PrimaryCCPCH-RSCP,
 TimeslotListWithISCP,
 TrafficVolumeMeasuredResultsList
 FROM Measurement-IEs

BCCH-ModificationInfo,
 InterSystemHO-Failure,
 InterSystemMessage,
 ProtocolErrorInformation,
 SegCount,
 SegmentIndex,
 SFN-Prime,
 SIB-Data-fixed,
 SIB-Data-variable,
 SIB-Type
 FROM Other-IEs

maxSIBperMsgsegm

FROM Constant-definitions;

```

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

ActiveSetUpdate ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo              OPTIONAL,
  activationTime                  ActivationTime                  OPTIONAL,
  newU-RNTI                       U-RNTI                       OPTIONAL,
  -- Core network IEs
  cn-InformationInfo             CN-InformationInfo             OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList           RB-WithPDCP-InfoList           OPTIONAL,
  -- Physical channel IEs
  maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
  rl-AdditionInformationList      RL-AdditionInformationList      OPTIONAL,
  rl-RemovalInformationList       RL-RemovalInformationList       OPTIONAL,
  tx-DiversityMode                TX-DiversityMode                OPTIONAL,
  ssdt-Information                SSDT-Information                OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension               SEQUENCE {}                   OPTIONAL,
  nonCriticalExtensions           SEQUENCE {}                   OPTIONAL
}

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

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

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

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

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

CellUpdate ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                           U-RNTI,
  hyperFrameNumber                 HyperFrameNumber,
  am-RLC-ErrorIndicationC-plane    BOOLEAN,
  am-RLC-ErrorIndicationU-plane    BOOLEAN,
  cellUpdateCause                  CellUpdateCause,
  protocolErrorIndicator            ProtocolErrorIndicatorWithInfo,
  -- TABULAR: Protocol error information is nested in
  -- ProtocolErrorIndicatorWithInfo.
  -- Measurement IEs
  measuredResultsOnRACH             MeasuredResultsOnRACH           OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions           SEQUENCE {}                   OPTIONAL
}

```

```

}

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

CellUpdateConfirm ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo    IntegrityProtectionModeInfo    OPTIONAL,
  cipheringModeInfo              CipheringModeInfo                OPTIONAL,
  new-U-RNTI                     U-RNTI                          OPTIONAL,
  new-C-RNTI                     C-RNTI                          OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  rlc-ResetIndicatorC-Plane      BOOLEAN,
  rlc-ResetIndicatorU-Plane      BOOLEAN,
  -- CN information elements
  cn-InformationInfo             CN-InformationInfo              OPTIONAL,
  -- UTRAN mobility IES
  ura-Identity                   URA-Identity                   OPTIONAL,
  -- Radio bearer IES
  rb-WithPDCP-InfoList          RB-WithPDCP-InfoList           OPTIONAL,
  -- Physical channel IES
  maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power          OPTIONAL,
  prach-RACH-Info               PRACH-RACH-Info                OPTIONAL,
  dl-InformationPerRL           DL-InformationPerRL             OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                    OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- COUNTER CHECK
--
-- *****

CounterCheck ::= SEQUENCE {
  -- Radio bearer IES
  rb-COUNT-C-MSB-InformationList  RB-COUNT-C-MSB-InformationList,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                    OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- COUNTER CHECK RESPONSE
--
-- *****

CounterCheckResponse ::= SEQUENCE {
  -- Radio bearer IES
  rb-COUNT-C-InformationList      RB-COUNT-C-InformationList      OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- DOWNLINK DIRECT TRANSFER
--
-- *****

DownlinkDirectTransfer ::= SEQUENCE {
  -- Core network IES
  cn-DomainIdentity              CN-DomainIdentity,
  nas-Message                    NAS-Message,
  -- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                    OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- DOWNLINK OUTER LOOP CONTROL

```

```

--
-- *****
DownlinkOuterLoopControl ::= SEQUENCE {
  -- Physical channel IEs
  dl-OuterLoopControl          DL-OuterLoopControl,
  dl-DPCH-PowerControlInfo     DL-DPCH-PowerControlInfo     OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension            SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- HANDOVER TO UTRAN COMMAND
--
-- *****

HandoverToUTRANCommand ::= SEQUENCE {
  -- User equipment IEs
  new-U-RNTI                  U-RNTI-Short,
  activationTime              ActivationTime                OPTIONAL,
  cipheringAlgorithm          CipheringAlgorithm           OPTIONAL,
  -- Radio bearer IEs
  rab-Info                    RAB-Info,
  -- Specification mode information
  specificationMode           CHOICE {
    complete                   SEQUENCE {
      re-EstablishmentTimer    Re-EstablishmentTimer,
      srb-InformationSetupList  SRB-InformationSetupList,
      rb-InformationSetupList   RB-InformationSetupList,
      ul-CommonTransChInfo     UL-CommonTransChInfo,
      ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
      dl-CommonTransChInfo     DL-CommonTransChInfo,
      dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
      ul-DPCH-Info             UL-DPCH-Info,
      modeSpecificInfo         CHOICE {
        fdd                   SEQUENCE {
          dl-CommonInformation    DL-CommonInformation,
          dl-PDSCH-Information    DL-PDSCH-Information OPTIONAL,
          cpch-SetInfo           CPCH-SetInfo           OPTIONAL
        },
        tdd                   NULL
      },
      dl-InformationPerRL-List  DL-InformationPerRL-List
    },
    preconfiguration           SEQUENCE {
      predefinedConfigIdentity  PredefinedConfigIdentity,
      ul-DPCH-Info             UL-DPCH-InfoPost,
      modeSpecificInfo         CHOICE {
        fdd                   SEQUENCE {
          dl-CommonInformationPost DL-CommonInformationPost
        },
        tdd                   NULL
      },
      dl-InformationPerRL-List  DL-InformationPerRL-ListPost
    }
  },
  -- Physical channel IEs
  frequencyInfo              FrequencyInfo,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power,
  modeSpecificPhysChInfo     CHOICE {
    fdd                       NULL,
    tdd                       SEQUENCE {
      primaryCCPCH-TX-Power    PrimaryCCPCH-TX-Power
    }
  },
  -- Extension mechanism for non- release99 information
  criticalExtension            SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions        SEQUENCE {}                OPTIONAL
}
-- *****
--
-- HANDOVER TO UTRAN COMPLETE
--
-- *****

```

```

HandoverToUTRANComplete ::= SEQUENCE {
  -- User equipment IEs
  -- TABULAR: the IE below is conditional on history.
  startList          STARTList          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}      OPTIONAL
}

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

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

-- *****
--
-- INTER-SYSTEM HANDOVER COMMAND
--
-- *****

InterSystemHandoverCommand ::= SEQUENCE {
  -- User equipment IEs
  activationTime          ActivationTime          OPTIONAL,
  -- Radio bearer IEs
  remainingRAB-Info      RAB-Info                OPTIONAL,
  -- Other IEs
  interSystemMessage     InterSystemMessage,
  -- Extension mechanism for non- release99 information
  criticalExtension      SEQUENCE {}            OPTIONAL,
  nonCriticalExtensions  SEQUENCE {}            OPTIONAL
}

-- *****
--
-- INTER-SYSTEM HANDOVER FAILURE
--
-- *****

InterSystemHandoverFailure ::= SEQUENCE {
  -- Other IEs
  interSystemHO-Failure  InterSystemHO-Failure  OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {}            OPTIONAL
}

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

MeasurementControl ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber MeasurementIdentityNumber,
  measurementCommand       MeasurementCommand,
  -- TABULAR: The measurement type is included in MeasurementCommand.
  measurementReportingMode MeasurementReportingMode  OPTIONAL,
  additionalMeasurementList AdditionalMeasurementID-List  OPTIONAL,
  -- Physical channel IEs
  dpch-CompressedModeStatusInfo DPCH-CompressedModeStatusInfo  OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension      SEQUENCE {}            OPTIONAL,
  nonCriticalExtensions  SEQUENCE {}            OPTIONAL
}

-- *****

```



```

--
-- MEASUREMENT CONTROL FAILURE
--
-- *****
MeasurementControlFailure ::= SEQUENCE {
  -- User equipment IEs
  failureCause          FailureCauseWithProtErr,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}          OPTIONAL
}
-- *****
--
-- MEASUREMENT REPORT
--
-- *****
MeasurementReport ::= SEQUENCE {
  -- Measurement IEs
  measurementIdentityNumber MeasurementIdentityNumber,
  measuredResults           MeasuredResults          OPTIONAL,
  additionalMeasuredResults MeasuredResultsList     OPTIONAL,
  eventResults              EventResults             OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}          OPTIONAL
}
-- *****
--
-- PAGING TYPE 1
--
-- *****
PagingType1 ::= SEQUENCE {
  -- User equipment IEs
  pagingRecordList       PagingRecordList          OPTIONAL,
  -- Other IEs
  bcch-ModificationInfo BCCH-ModificationInfo     OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}          OPTIONAL
}
-- *****
--
-- PAGING TYPE 2
--
-- *****
PagingType2 ::= SEQUENCE {
  -- User equipment IEs
  pagingCause           PagingCause,
  -- Core network IEs
  cn-DomainIdentity    CN-DomainIdentity,
  pagingRecordTypeID   PagingRecordTypeID,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions SEQUENCE {}          OPTIONAL
}
-- *****
--
-- PHYSICAL CHANNEL RECONFIGURATION
--
-- *****
PhysicalChannelReconfiguration ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo          CipheringModeInfo          OPTIONAL,
  activationTime             ActivationTime             OPTIONAL,
  new-U-RNTI                 U-RNTI                   OPTIONAL,
  new-C-RNTI                 C-RNTI                   OPTIONAL,
  drx-Indicator              DRX-Indicator,
  utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- Core network IEs
  cn-InformationInfo        CN-InformationInfo         OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList     RB-WithPDCP-InfoList     OPTIONAL,
}

```

```

-- Physical channel IEs
frequencyInfo          FrequencyInfo          OPTIONAL,
maxAllowedUL-TX-Power  MaxAllowedUL-TX-Power  OPTIONAL,
ul-ChannelRequirement  UL-ChannelRequirement  OPTIONAL,
-- TABULAR: UL-ChannelRequirement contains the choice
-- between UL DPCH info and PRACH info for RACH.
modeSpecificInfo      CHOICE {
    fdd                SEQUENCE {
        dl-CommonInformation  DL-CommonInformation  OPTIONAL,
        dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL,
        cpch-SetInfo         CPCH-SetInfo         OPTIONAL
    },
    tdd                NULL
},
dl-InformationPerRL-List  DL-InformationPerRL-List  OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension      SEQUENCE {}          OPTIONAL,
nonCriticalExtensions   SEQUENCE {}          OPTIONAL
}

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

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

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

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

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

PhysicalSharedChannelAllocation ::= SEQUENCE {
-- User equipment IEs
c-RNTI                     C-RNTI                     OPTIONAL,
-- Physical channel IEs
ul-TimingAdvance           UL-TimingAdvance           OPTIONAL,
allocationPeriodInfo       AllocationPeriodInfo       OPTIONAL,
pusch-CapacityAllocationInfo  PUSCH-CapacityAllocationInfo  OPTIONAL,
pdsch-Info                 PDSCH-Info                 OPTIONAL,
timeslotList               TimeslotList               OPTIONAL,
-- Extension mechanism for non- release99 information
nonCriticalExtensions      SEQUENCE {}          OPTIONAL
}

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

PUSCHCapacityRequest ::= SEQUENCE {
-- User equipment IEs

```

```

    c-RNTI                                C-RNTI                                OPTIONAL,
-- Measurement IEs
  trafficVolumeMeasuredResultsList
    TrafficVolumeMeasuredResultsList,
    timeslotListWithISCP                  TimeslotListWithISCP                    OPTIONAL,
    primaryCCPCH-RSCP                      PrimaryCCPCH-RSCP                        OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions                    SEQUENCE {}                              OPTIONAL
}

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

RadioBearerReconfiguration ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo             IntegrityProtectionModeInfo              OPTIONAL,
  cipheringModeInfo                       CipheringModeInfo                        OPTIONAL,
  activationTime                           ActivationTime                            OPTIONAL,
  new-U-RNTI                               U-RNTI                                  OPTIONAL,
  new-C-RNTI                               C-RNTI                                  OPTIONAL,
  drx-Indicator                           DRX-Indicator,
  utran-DRX-CycleLengthCoeff              UTRAN-DRX-CycleLengthCoefficient        OPTIONAL,
-- Core network IEs
  cn-InformationInfo                       CN-InformationInfo                       OPTIONAL,
-- Radio bearer IEs
  rb-InformationReconfigList               RB-InformationReconfigList,
  rb-InformationAffectedList               RB-InformationAffectedList              OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo                    UL-CommonTransChInfo                    OPTIONAL,
  ul-deletedTransChInfoList                UL-DeletedTransChInfoList               OPTIONAL,
  ul-AddReconfTransChInfoList              UL-AddReconfTransChInfoList             OPTIONAL,
  modeSpecificTransChInfo                  CHOICE {
    fdd                                     SEQUENCE {
      cpch-SetID                           CPCH-SetID                              OPTIONAL,
      addReconfTransChDRAC-Info             DRAC-StaticInformationList              OPTIONAL
    },
    tdd                                     NULL
  }
  dl-CommonTransChInfo                    DL-CommonTransChInfo                    OPTIONAL,
  dl-DeletedTransChInfoList                DL-DeletedTransChInfoList               OPTIONAL,
  dl-AddReconfTransChInfoList              DL-AddReconfTransChInfo2List            OPTIONAL,
-- Physical channel IEs
  frequencyInfo                            FrequencyInfo                             OPTIONAL,
  maxAllowedUL-TX-Power                    MaxAllowedUL-TX-Power                    OPTIONAL,
  ul-ChannelRequirement                    UL-ChannelRequirement                    OPTIONAL,
  modeSpecificPhysChInfo                    CHOICE {
    fdd                                     SEQUENCE {
      dl-CommonInformation                  DL-CommonInformation                    OPTIONAL,
      dl-PDSCH-Information                  DL-PDSCH-Information                    OPTIONAL,
      cpch-SetInfo                          CPCH-SetInfo                            OPTIONAL
    },
    tdd                                     NULL
  },
  dl-InformationPerRL-List                  DL-InformationPerRL-List,
-- Extension mechanism for non- release99 information
  criticalExtension                         SEQUENCE {}                              OPTIONAL,
  nonCriticalExtensions                     SEQUENCE {}                              OPTIONAL
}

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

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

```

```

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

RadioBearerReconfigurationFailure ::= SEQUENCE {
  -- User equipment IES
  failureCause          FailureCauseWithProtErr,
  -- Radio bearer IES
  potentiallySuccessfulBearerList  RB-IdentityList          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions  SEQUENCE {}                      OPTIONAL
}

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

RadioBearerRelease ::= SEQUENCE {
  -- User equipment IES
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo           CipheringModeInfo          OPTIONAL,
  activationTime              ActivationTime                OPTIONAL,
  new-U-RNTI                  U-RNTI                    OPTIONAL,
  new-C-RNTI                  C-RNTI                    OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  -- Core network IES
  cn-InformationInfo          CN-InformationInfo          OPTIONAL,
  -- Radio bearer IES
  rb-InformationReleaseList   RB-InformationReleaseList,
  rb-InformationAffectedList  RB-InformationAffectedList  OPTIONAL,
  -- Transport channel IES
  ul-CommonTransChInfo       UL-CommonTransChInfo      OPTIONAL,
  ul-deletedTransChInfoList  UL-DeletedTransChInfoList  OPTIONAL,
  ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo    CHOICE {
    fdd          SEQUENCE {
      cpch-SetID          CPCH-SetID          OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd          NULL
  } OPTIONAL,
  dl-CommonTransChInfo       DL-CommonTransChInfo      OPTIONAL,
  dl-DeletedTransChInfoList  DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList  DL-AddReconfTransChInfo2List  OPTIONAL,
  -- Physical channel IES
  frequencyInfo              FrequencyInfo                OPTIONAL,
  maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
  ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
  modeSpecificPhysChInfo    CHOICE {
    fdd          SEQUENCE {
      dl-CommonInformation  DL-CommonInformation  OPTIONAL,
      dl-PDSCH-Information  DL-PDSCH-Information  OPTIONAL,
      cpch-SetInfo         CPCH-SetInfo         OPTIONAL
    },
    tdd          NULL
  },
  dl-InformationPerRL-List   DL-InformationPerRL-List  OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension          SEQUENCE {}                      OPTIONAL,
  nonCriticalExtensions      SEQUENCE {}                      OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo  IntegrityProtActivationInfo  OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.

```

```

    ul-TimingAdvance          UL-TimingAdvance          OPTIONAL,
-- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfo  OPTIONAL,
  rb-WithPDCP-InfoList         RB-WithPDCP-InfoList   OPTIONAL,
-- Extension mechanism for non- release99 information
  nonCriticalExtensions         SEQUENCE {}              OPTIONAL
}

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

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

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

RadioBearerSetup ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo    IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo              CipheringModeInfo             OPTIONAL,
  activationTime                 ActivationTime                 OPTIONAL,
  new-U-RNTI                     U-RNTI                       OPTIONAL,
  new-C-RNTI                     C-RNTI                       OPTIONAL,
  drx-Indicator                  DRX-Indicator,
  utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
-- Core network IEs
  cn-InformationInfo             CN-InformationInfo           OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList       SRB-InformationSetupList     OPTIONAL,
  rab-InformationSetupList       RAB-InformationSetupList,
  rb-InformationAffectedList     RB-InformationAffectedList   OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo        OPTIONAL,
  ul-deletedTransChInfoList      UL-DeletedTransChInfoList   OPTIONAL,
  ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                           SEQUENCE {
      cpch-SetID                  CPCH-SetID                  OPTIONAL,
      addReconfTransChDRAC-Info   DRAC-StaticInformationList  OPTIONAL
    },
    tdd                           NULL
  }
  dl-CommonTransChInfo          DL-CommonTransChInfo        OPTIONAL,
  dl-DeletedTransChInfoList      DL-DeletedTransChInfoList   OPTIONAL,
  dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList  OPTIONAL,
-- Physical channel IEs
  frequencyInfo                  FrequencyInfo                 OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power       OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement       OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                           SEQUENCE {
      dl-CommonInformation        DL-CommonInformation        OPTIONAL,
      dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL,
      cpch-SetInfo                CPCH-SetInfo                OPTIONAL
    },
    tdd                           NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List     OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                  OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                  OPTIONAL
}

-- *****
--

```

```

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

RadioBearerSetupComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  hyperFrameNumber                HyperFrameNumber                OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                    OPTIONAL
}

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

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

-- *****
--
-- RNTI REALLOCATION
--
-- *****

RNTIReallocation ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
  cipheringModeInfo               CipheringModeInfo                OPTIONAL,
  new-U-RNTI                      U-RNTI                          OPTIONAL,
  new-C-RNTI                      C-RNTI                          OPTIONAL,
  drx-Indicator                   DRX-Indicator,
  utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- CN information elements
  cn-InformationInfo              CN-InformationInfo              OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION COMPLETE
--
-- *****

RNTIReallocationComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RNTI REALLOCATION FAILURE
--
-- *****

RNTIReallocationFailure ::= SEQUENCE {
  -- UE information elements
  failureCause                    FailureCauseWithProtErr,

```

```

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

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT
--
-- *****

RRCConnectionReEstablishment ::= SEQUENCE {
-- User equipment IEs
  integrityProtectionModeInfo  IntegrityProtectionModeInfo  OPTIONAL,
  cipheringModeInfo            CipheringModeInfo          OPTIONAL,
  activationTime                ActivationTime              OPTIONAL,
  new-U-RNTI                    U-RNTI                    OPTIONAL,
  new-C-RNTI                    C-RNTI                    OPTIONAL,
  drx-Indicator                 DRX-Indicator,
  utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
  rlc-ResetIndicatorC-plane      BOOLEAN,
  rlc-ResetIndicatorU-plane      BOOLEAN,
-- Core network IEs
  cn-InformationInfo            CN-InformationInfo        OPTIONAL,
-- Radio bearer IEs
  srb-InformationSetupList       SRB-InformationSetupList  OPTIONAL,
  rab-InformationSetupList       RAB-InformationSetupList  OPTIONAL,
  rb-InformationReleaseList      RB-InformationReleaseList  OPTIONAL,
  rb-InformationReconfigList     RB-InformationReconfigList  OPTIONAL,
  rb-InformationAffectedList     RB-InformationAffectedList  OPTIONAL,
-- Transport channel IEs
  ul-CommonTransChInfo          UL-CommonTransChInfo      OPTIONAL,
  ul-deletedTransChInfoList     UL-DeletedTransChInfoList  OPTIONAL,
  ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList  OPTIONAL,
  modeSpecificTransChInfo       CHOICE {
    fdd                          SEQUENCE {
      cpch-SetID                 CPCH-SetID                OPTIONAL,
      addReconfTransChDRAC-Info  DRAC-StaticInformationList  OPTIONAL
    },
    tdd                          NULL
  },
  dl-CommonTransChInfo          DL-CommonTransChInfo      OPTIONAL,
  dl-DeletedTransChInfoList     DL-DeletedTransChInfoList  OPTIONAL,
  dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList  OPTIONAL,
-- Physical channel IEs
  frequencyInfo                 FrequencyInfo              OPTIONAL,
  maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power     OPTIONAL,
  ul-ChannelRequirement          UL-ChannelRequirement     OPTIONAL,
  modeSpecificPhysChInfo        CHOICE {
    fdd                          SEQUENCE {
      dl-CommonInformation        DL-CommonInformation        OPTIONAL,
      dl-PDSCH-Information        DL-PDSCH-Information        OPTIONAL,
      cpch-SetInfo                CPCH-SetInfo                OPTIONAL
    },
    tdd                          NULL
  },
  dl-InformationPerRL-List       DL-InformationPerRL-List   OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension              SEQUENCE {}                                OPTIONAL,
  nonCriticalExtensions          SEQUENCE {}                                OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT for CCCH
--
-- *****

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

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT COMPLETE
--

```

```

-- *****
RRCConnectionReEstablishmentComplete ::= SEQUENCE {
  -- User equipment IEs
  ul-IntegProtActivationInfo      IntegrityProtActivationInfo      OPTIONAL,
  -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
  ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
  hyperFrameNumber                HyperFrameNumber,
  -- Radio bearer IEs
  rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfo            OPTIONAL,
  rb-WithPDCP-InfoList            RB-WithPDCP-InfoList            OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions            SEQUENCE {}                    OPTIONAL
}

-- *****
--
-- RRC CONNECTION RE-ESTABLISHMENT REQUEST
--
-- *****

RRCConnectionReEstablishmentRequest ::= SEQUENCE {
  -- User equipment IEs
  u-RNTI                            U-RNTI,
  hyperFrameNumber                  HyperFrameNumber,
  am-RLC-ErrorIndicationC-plane     BOOLEAN,
  am-RLC-ErrorIndicationU-plane     BOOLEAN,
  protocolErrorIndicator            ProtocolErrorIndicatorWithInfo,
  -- TABULAR: The IE above is MD in tabular, but making a 2-way choice
  -- optional wastes one bit (using PER) and produces no additional
  -- information.
  -- Measurement IEs
  measuredResultsOnRACH              MeasuredResultsOnRACH          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {}                    OPTIONAL
}

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

RRCConnectionReject ::= SEQUENCE {
  -- User equipment IEs
  initialUE-Identity                InitialUE-Identity,
  rejectionCause                    RejectionCause,
  waitTime                          WaitTime,
  redirectionInfo                    RedirectionInfo                OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension                  SEQUENCE {}                    OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                    OPTIONAL
}

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

RRCConnectionRelease ::= SEQUENCE {
  -- User equipment IEs
  rrc-MessageTX-Count               RRC-MessageTX-Count            OPTIONAL,
  -- The IE above is conditional on the UE state.
  releaseCause                       ReleaseCause,
  -- Extension mechanism for non- release99 information
  criticalExtension                  SEQUENCE {}                    OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                    OPTIONAL
}

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

RRCConnectionRelease-CCCH ::= SEQUENCE {
  -- User equipment IEs

```



```

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

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

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

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

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

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

RRCConnectionRequest ::= SEQUENCE {
-- User equipment IEs
    initialUE-Identity      InitialUE-Identity,
    establishmentCause      EstablishmentCause,
    protocolErrorIndicator  ProtocolErrorIndicator,
-- The IE above is MD, but for compactness reasons no default value
-- has been assigned to it.
-- Measurement IEs
    measuredResultsOnRACH   MeasuredResultsOnRACH      OPTIONAL,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions    SEQUENCE {}                OPTIONAL
}

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

RRCConnectionSetup ::= SEQUENCE {
-- User equipment IEs
    initialUE-Identity      InitialUE-Identity,
    activationTime          ActivationTime              OPTIONAL,
    new-U-RNTI              U-RNTI,
    new-c-RNTI              C-RNTI                    OPTIONAL,
    utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient,
    capabilityUpdateRequirement  CapabilityUpdateRequirement  OPTIONAL,
-- TABULAR: If the IE is not present, the default value defined in 10.3.3.2 shall
-- be used.
-- Radio bearer IEs
    srb-InformationSetupList  SRB-InformationSetupList2,
-- Transport channel IEs
    ul-CommonTransChInfo     UL-CommonTransChInfo      OPTIONAL,
    ul-AddReconfTransChInfoList  UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo     DL-CommonTransChInfo      OPTIONAL,
    dl-AddReconfTransChInfoList  DL-AddReconfTransChInfoList,
-- Physical channel IEs
    frequencyInfo            FrequencyInfo              OPTIONAL,
    maxAllowedUL-TX-Power     MaxAllowedUL-TX-Power      OPTIONAL,
    ul-ChannelRequirement     UL-ChannelRequirement      OPTIONAL,
    modeSpecificInfo          CHOICE {
        fdd
            SEQUENCE {
                dl-CommonInformation  DL-CommonInformation  OPTIONAL
            }
    }
}

```

```

    },
    tdd                                NULL
  },
  dl-InformationPerRL-List             DL-InformationPerRL-List             OPTIONAL,
-- Extension mechanism for non- release99 information
  criticalExtension                    SEQUENCE {}                        OPTIONAL,
  nonCriticalExtensions                SEQUENCE {}                        OPTIONAL
}

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

RRCConnectionSetupComplete ::= SEQUENCE {
  -- User equipment IES
  startList                            STARTList,
  ue-RadioAccessCapability              UE-RadioAccessCapability,
  ue-SystemSpecificCapability          InterSystemMessage             OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                SEQUENCE {}                        OPTIONAL
}

-- *****
--
-- RRC STATUS
--
-- *****

RRCStatus ::= SEQUENCE {
  -- Other IES
  protocolErrorInformation             ProtocolErrorInformation,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                SEQUENCE {}                        OPTIONAL
}

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

SecurityModeCommand ::= SEQUENCE {
  -- User equipment IES
  cipheringAlgorithm                  SecurityCapability,
  cipheringModeInfo                   CipheringModeInfo                 OPTIONAL,
  integrityProtectionModeInfo         IntegrityProtectionModeInfo       OPTIONAL,
  -- Core network IES
  cn-DomainIdentity                   CN-DomainIdentity,
  -- Extension mechanism for non- release99 information
  criticalExtension                    SEQUENCE {}                        OPTIONAL,
  nonCriticalExtensions                SEQUENCE {}                        OPTIONAL
}

-- *****
--
-- SECURITY MODE COMPLETE
--
-- *****

SecurityModeComplete ::= SEQUENCE {
  -- User equipment IES
  ul-IntegProtActivationInfo           IntegrityProtActivationInfo        OPTIONAL,
  -- Radio bearer IES
  rb-UL-CiphActivationTimeInfo        RB-ActivationTimeInfoList        OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                SEQUENCE {}                        OPTIONAL
}

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

SecurityModeFailure ::= SEQUENCE {
  -- User equipment IES

```

```

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

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

SignallingConnectionRelease ::= SEQUENCE {
-- Core network IEs
    signallingFlowInfoList          SignallingFlowInfoList,
-- Extension mechanism for non- release99 information
    criticalExtension                SEQUENCE {}                                OPTIONAL,
    nonCriticalExtensions            SEQUENCE {}                                OPTIONAL
}

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

SignallingConnectionReleaseRequest ::= SEQUENCE {
-- Core network IEs
    signallingFlowInfoList          SignallingFlowInfoList,
-- Extension mechanism for non- release99 information
    nonCriticalExtensions            SEQUENCE {}                                OPTIONAL}

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

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

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

SystemInformation-FACH ::= SEQUENCE {
-- Other information elements
    payload                           CHOICE {

```

```

noSegment                NULL,
firstSegment             FirstSegment,
subsequentSegment       SubsequentSegment,
lastSegmentShort        _____LastSegmentShort,
lastAndFirst            SEQUENCE {
    lastSegment          LastSegmentShort,
    firstSegment        FirstSegmentShort
},
lastAndComplete         SEQUENCE {
    completeSIB-List    CompleteSIB-List,
    lastSegment        LastSegment
},
lastAndCompleteAndFirst SEQUENCE {
    lastSegment        LastSegment,
    completeSIB-List  CompleteSIB-List,
    firstSegment      FirstSegmentShort
},
completeSIB-List       CompleteSIB-List,
completeAndFirst       SEQUENCE {
    completeSIB-List   CompleteSIB-List,
    firstSegment      FirstSegmentShort
}
_____
completeSIB             CompleteSIB,
_____
lastSegment             LastSegment
}
}

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

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

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

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

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

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

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

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

```

```

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

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

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

CompleteSIB ::=
    SEQUENCE {
        -- Other information elements
        sib-Type          SIB-Type,
        sib-Data-fixed     SIB-Data-fixed
        -- In case the SIB data is less than 222 bits, padding shall be used
        -- The same padding bits shall be used as defined in clause 12.1
    }
-- *****
--
-- SYSTEM INFORMATION CHANGE INDICATION
--
-- *****

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

TransportChannelReconfiguration ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
    cipheringModeInfo                 CipheringModeInfo             OPTIONAL,
    activationTime                     ActivationTime                 OPTIONAL,
    new-U-RNTI                         U-RNTI                       OPTIONAL,
    new-C-RNTI                         C-RNTI                       OPTIONAL,
    drx-Indicator                      DRX-Indicator,
    utran-DRX-CycleLengthCoeff         UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                 CN-InformationInfo           OPTIONAL,
    -- Radio bearer IEs
    rb-WithPDCP-InfoList               RB-WithPDCP-InfoList        OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo               UL-CommonTransChInfo        OPTIONAL,
    ul-AddReconfTransChInfoList        UL-AddReconfTransChInfoList,
    modeSpecificTransChInfo            CHOICE {
        fdd
            SEQUENCE {
                cpch-SetID                CPCH-SetID                OPTIONAL,
                addReconfTransChDRAC-Info  DRAC-StaticInformationList OPTIONAL
            },
        tdd
            NULL
    } OPTIONAL,
    dl-CommonTransChInfo               DL-CommonTransChInfo        OPTIONAL,
    dl-AddReconfTransChInfoList        DL-AddReconfTransChInfoList,
    -- Physical channel IEs
    frequencyInfo                      FrequencyInfo                 OPTIONAL,
}

```

```

maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power      OPTIONAL,
ul-ChannelRequirement      UL-ChannelRequirement      OPTIONAL,
modeSpecificPhysChInfo    CHOICE {
    fdd                      SEQUENCE {
        dl-CommonInformation      DL-CommonInformation      OPTIONAL,
        dl-PDSCH-Information      DL-PDSCH-Information      OPTIONAL,
        cpch-SetInfo              CPCH-SetInfo              OPTIONAL
    },
    tdd                      NULL
},
dl-InformationPerRL-List  DL-InformationPerRL-List      OPTIONAL,
-- Extension mechanism for non- release99 information
criticalExtension          SEQUENCE {}              OPTIONAL,
nonCriticalExtensions      SEQUENCE {}              OPTIONAL
}

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

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

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

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

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

TransportFormatCombinationControl ::= SEQUENCE {
dpch-TFCS-InUplink              TFC-Subset,
tfc-ControlDuration              TFC-ControlDuration              OPTIONAL,
-- The information element is not included when transmitting the message
-- on the transparent mode signalling DCCH and is optional otherwise
-- Extension mechanism for non- release99 information
nonCriticalExtensions              SEQUENCE {}                      OPTIONAL
}

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

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

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

```

```

--
-- *****
UECapabilityEnquiry ::= SEQUENCE {
  -- User equipment IEs
  capabilityUpdateRequirement      CapabilityUpdateRequirement,
  -- Extension mechanism for non- release99 information
  criticalExtension                  SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION
--
-- *****

UECapabilityInformation ::= SEQUENCE {
  -- User equipment IEs
  ue-RadioAccessCapability          UE-RadioAccessCapability      OPTIONAL,
  -- Other IEs
  ue-SystemSpecificCapability       InterSystemMessage          OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UE CAPABILITY INFORMATION CONFIRM
--
-- *****

UECapabilityInformationConfirm ::= SEQUENCE {
  -- Extension mechanism for non- release99 information
  criticalExtension                  SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions              SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UPLINK DIRECT TRANSFER
--
-- *****

UplinkDirectTransfer ::= SEQUENCE {
  -- Core network IEs
  flowIdentifier                    FlowIdentifier,
  nas-Message                        NAS-Message,
  -- Measurement IEs
  measuredResultsOnRACH              MeasuredResultsOnRACH      OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions              SEQUENCE {}                OPTIONAL
}
-- *****
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- *****

UplinkPhysicalChannelControl ::= SEQUENCE {
  -- Physical channel IEs
  ccTrCH-PowerControlInfo            CcTrCH-PowerControlInfo    OPTIONAL,
  timingAdvance                      UL-TimingAdvance            OPTIONAL,
  individualTS-InterferenceList       IndividualTS-InterferenceList OPTIONAL,
  prach-ConstantValue                 ConstantValue                OPTIONAL,
  dpch-ConstantValue                  ConstantValue                OPTIONAL,
  pusch-ConstantValue                  ConstantValue                OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension                    SEQUENCE {}                OPTIONAL,
  nonCriticalExtensions                SEQUENCE {}                OPTIONAL
}
-- *****
--
-- URA UPDATE
--
-- *****

```

```

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

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

URAUUpdateConfirm ::= SEQUENCE {
  -- User equipment IEs
  integrityProtectionModeInfo IntegrityProtectionModeInfo OPTIONAL,
  cipheringModeInfo           CipheringModeInfo           OPTIONAL,
  new-U-RNTI                  U-RNTI                     OPTIONAL,
  new-C-RNTI                  C-RNTI                     OPTIONAL,
  drx-Indicator               DRX-Indicator,
  utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
  -- CN information elements
  cn-InformationInfo          CN-InformationInfo           OPTIONAL,
  -- UTRAN mobility IEs
  ura-Identity                URA-Identity              OPTIONAL,
  -- Radio bearer IEs
  rb-WithPDCP-InfoList        RB-WithPDCP-InfoList       OPTIONAL,
  -- Extension mechanism for non- release99 information
  criticalExtension            SEQUENCE {}                 OPTIONAL,
  nonCriticalExtensions        SEQUENCE {}                 OPTIONAL
}

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

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

END

```


11.4 Constant definitions

Constant-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```

hiRM                INTEGER ::= 256
maxAC               INTEGER ::= 16
maxAdditionalMeas   INTEGER ::= 4
maxASC             INTEGER ::= 8
maxASCmap          INTEGER ::= 7
maxASCpersist      INTEGER ::= 6
maxCCTrCH          INTEGER ::= 8
maxCellMeas        INTEGER ::= 32
maxCellMeas-1      INTEGER ::= 31

maxCNdomains        INTEGER ::= 4
maxCPCHsets         INTEGER ::= 16
maxDPCH-DLchan      INTEGER ::= 8
maxDPCHcodesPerTS  INTEGER ::= 16

-- **TODO**
maxDPDCH-UL         INTEGER ::= 6
maxDRACclasses      INTEGER ::= 8
-- **TODO**
maxFACH             INTEGER ::= 8
maxFreq             INTEGER ::= 8
maxFrequencybands   INTEGER ::= 4
maxInterSysMessages INTEGER ::= 4
maxLoCHperRLC       INTEGER ::= 2
maxMeasEvent        INTEGER ::= 8
maxMeasIntervals    INTEGER ::= 3
maxMeasParEvent     INTEGER ::= 2
maxNoOfMeas         INTEGER ::= 16
maxOtherRAT         INTEGER ::= 15
maxPage1            INTEGER ::= 8
maxPCPCH-APsig      INTEGER ::= 16
maxPCPCH-APsubCh    INTEGER ::= 12
maxPCPCH-CDsig      INTEGER ::= 16
maxPCPCH-CDsubCh    INTEGER ::= 12
maxPCPCH-SF         INTEGER ::= 7
maxPCPCHs           INTEGER ::= 64
maxPDCPAlgoType     INTEGER ::= 8
maxPDSCH            INTEGER ::= 8
maxPDSCH-TFCIgroups INTEGER ::= 256
maxPRACH            INTEGER ::= 16
maxPUSCH            INTEGER ::= 8
maxRABsetup         INTEGER ::= 16
maxRAT              INTEGER ::= 16

maxRB               INTEGER ::= 32
maxRBallRABs        INTEGER ::= 27
maxRBMuxOptions     INTEGER ::= 8
maxRBperRAB         INTEGER ::= 8
maxRL               INTEGER ::= 8
maxRL-1             INTEGER ::= 7
maxSat              INTEGER ::= 16
maxSCCPCH           INTEGER ::= 16
maxSIB              INTEGER ::= 32
-- **TODO**
maxSIB-FACH         INTEGER ::= 8
maxSIBperMsgsegm    INTEGER ::= 16
maxSig              INTEGER ::= 16
maxSignallingFlow   INTEGER ::= 16
maxSRBsetup         INTEGER ::= 8
maxSubCh            INTEGER ::= 12
maxSystemCapability INTEGER ::= 16
maxTF               INTEGER ::= 32
maxTF-CPCH          INTEGER ::= 16
maxTFC              INTEGER ::= 1024
maxTFCI-2-Combs     INTEGER ::= 512
maxTGPS             INTEGER ::= 6
maxTrCH             INTEGER ::= 32
maxTrCHpreconf      INTEGER ::= 16
maxTS               INTEGER ::= 14
maxURA             INTEGER ::= 8

```

END

CHANGE REQUEST		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.	
25.331 CR 477r1		Current Version: 3.3.0	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑		↑ CR number as allocated by MCC support team	
For submission to: TSG-RAN #9	for approval <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>	(for SMG use only)
list expected approval meeting # here ↑	for information <input type="checkbox"/>	non-strategic <input type="checkbox"/>	

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

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

Source: TSG-RAN WG2 **Date:** 2000-08-24

Subject: Corrections on 8.1.1 resulting from RRC review at R2#14

Work item:

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

(only one category shall be marked with an X)

Reason for change:

This CR includes the following change proposals:

- **“Several (small) editorial changes”:** The following editorial changes are proposed:
 - repetition period is used in all cases (currently repetition rate is used occasionally) clarification is added that in case of SIB 16, IE Predefined configuration identity and value tag is used instead of the PLMN value tag
 - the lowest scheduling level within figure 5 does not include numbers anymore (to avoid confusion that block n can only reference to n.x)
 - the statements in 8.1.1.1.5 about the scheduling of the MIB have been removed since they are already included in table 8.1.1.
- **“Additional clarification”:** Additional clarification is provided concerning the following:
 - For TDD clarification is added that the repetition period for the MIB is not signalled
 - Further clarification is added to the procedure description regarding the use of multiple occurrences which may be used for SIB 16
 - the meaning of column UE mode/ state as used in clause 8.1.1.1.2
 - clarification is added regarding which information (all IEs included in variable SELECTED_PLMN) shall be stored for system information with area scope PLMN
 - some statements have been rephrased to clarify the UE requirements e.g. regarding the handling of SIBs that are not in accordance with scheduling information, UE shall read iso. UE receives (8.1.1.3)
- **“Removal of square brackets for proposed values”:** Square values have been removed, since they indicate FFS while the values have not been commented for a long time
- **“Removal of ambiguities and inconsistencies”:** The following ambiguities and inconsistencies have been removed:

- clarification is added that SIBs for which transmission on FACH applies, should be broadcast on all FACHs
- IE "value tag" and "value tag" has been replaced by value tag since there is no such IE with the name "value tag" (there are 4 different value tag IEs)
- use of ambiguous words like "is" have been replaced with "shall" or "may" e.g. as in 8.1.1.3
- the text about for the UE requirements concerning reading of information with cell and PLMN scope has been aligned & completed for area scope cell
- the statement that different occurrences of for SIB 16 should not be scheduled intermittently has been removed (re- assembly is no problem when using scheduling information). Instead, a statement it added that multiple complete SIB occurrences shall not be used within one SYSTEM INFORMATION message. Otherwise a new rule would be required to unambiguously specify the order in which they should appear in the message e.g. the same order as the corresponding scheduling information (father, sons, brother1, sons of brother 1, ..)
- in parts where this was unclear e.g. 8.1.1.1.2, clarification was added that system information with area scope cell, is valid only within the cell in which it is broadcast
- the statement in 8.1.1.1.3 about concatenation options to be supported is generalised to cover all possible cases

- "Addition of missing information": The following missing details have been added:
 - SIB type 15.1 upto SIB type 15.3 have been added to table 8.1.1
 - statements are added that UE shall discard SIBs received with segmentation errors e.g. out of sequence segments

Rev. 1 of this CR includes the following additional changes

- SIB repetition period for TDD: option 64 has been removed
- Transmission of SIBs on FACH: Clarification is added that transmission of SIB on all FACHs applies only for the MIB

Clauses affected:

8.1.1.1, 8.1.1.1.1, 8.1.1.1.2, 8.1.1.1.3, 8.1.1.1.4, 8.1.1.1.5, 8.1.1.3, 8.1.1.3.1, 8.1.1.3.2, 8.1.1.4, 8.1.1.4.1, 8.1.1.4.2, 8.1.1.4.3, 8.1.1.5.16

Other specs affected:

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

Other comments:

Change in 8.1.1.1.3 regarding concatenation of SIBs is also addressed in R2-001697.



help.doc

<----- [double-click here for help and instructions on how to create a CR.](#)

8 RRC procedures

8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

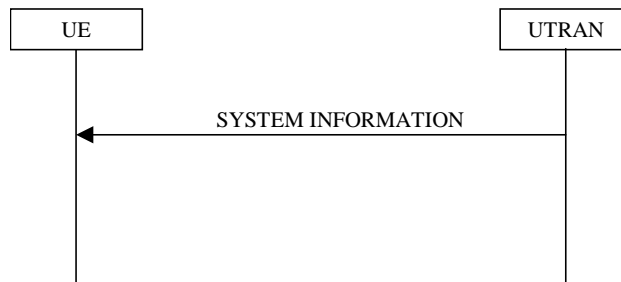


Figure 4: Broadcast of system information

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to ~~idle mode and connected mode~~ UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

The system information is organised as a tree. A *master information block* gives references to a number of system information blocks in a cell, including scheduling information for those system information blocks. The system information blocks contain the actual system information and optionally references to other system information blocks including scheduling information for those system information blocks. The referenced system information blocks must have the same area scope and use the same update mechanism as the parent system information block.

Some system information blocks may occur more than once with different content. In this case scheduling information is provided for each occurrence of the system information block. ~~Presently, this~~ option is only allowed for system information block type 16.

Figure 5 illustrates the relationship between the master information block and the system information blocks in a cell.

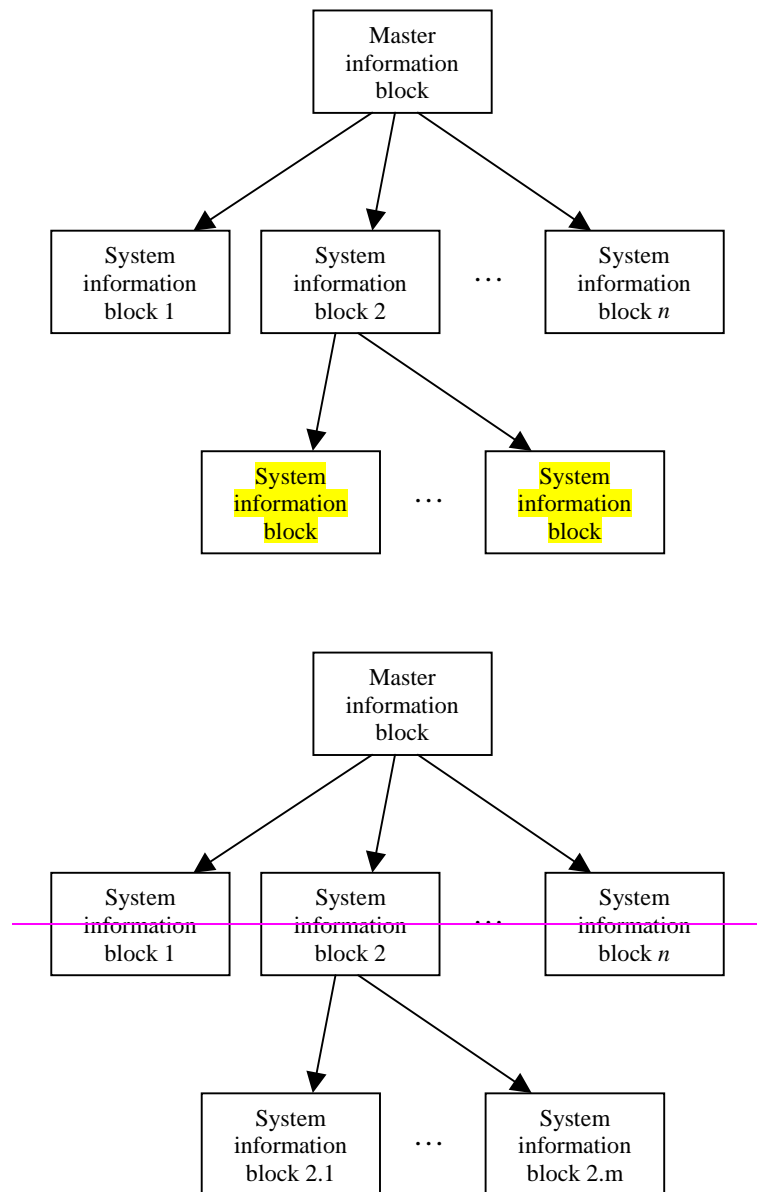


Figure 5: The overall structure of system information

8.1.1.1.2 System information blocks

Table 8.1.1 specifies all system information blocks and their characteristics.

The *area scope column* in table 8.1.1 specifies the area where a system information block is valid. If the area scope is *cell*, the UE shall read-consider the system information block every-time to be valid only in the cell in which it was read, a new cell is selected. If system information blocks are stored for this cell, the UE shall check whether the value tag for the system information block in the entered cell is different compared to the stored value tag. If the area scope is *PLMN*, the UE shall check the value tag for the system information block when a new cell is selected. If the value tag for the system information block in the new cell is different compared to the value tag for the system information block in the old cell, the UE shall re-read the system information block.

System information blocks of which there are multiple occurrences each have their own independent value tag. The UE shall re-read occurrence *n* if the value tag of this occurrence has changed.

The *UE mode/state column* in table 8.1.1 specifies in which UE mode or UE state the IEs in a system information block are valid. In other words, the indicated system information block becomes invalid upon change to a mode/ state that is not included in this column.

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

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

In state *CELL_DCH*, the UEs fulfilling the *Additional requirements column* shall use the IEs given by the system information block when in state *CELL_DCH*.

The *Transport channel* column in table 8.1.1 specifies whether the system information block is broadcast on a BCH or a FACH transport channel.

The *Scheduling information* column in table 8.1.1 specifies the position and repetition period for the SIB.

The *modification of system information* column in table 8.1.1 specifies the update mechanisms applicable for a certain system information block. For system information blocks with a value tag, the UE shall update the information according to subclause 8.1.1.4.1 or 8.1.1.4.3. For system information blocks with an expiration timer, the UE shall update the information according to subclause 8.1.1.4.2.

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state	Transport channel	Scheduling information	Modification of system information	Additional requirements
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	SIB_POS = 0 FDD : SIB_REP = {8} (FDD) TDD : SIB_REP = {8, 16, 32, 64 } (TDD) {SIB_OFF=2}	Value tag	
		CELL_FACH	FACH	Scheduling not applicable	Value tag	
System information block type 1	PLMN	Idle mode	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 2	PLMN	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 3	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 4	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If System information block type 4 is not broadcast in a cell, the connected mode UE shall read System information block type 3
System information block type 5	Cell	Idle mode, (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 6	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If system information block type 6 is not broadcast in a cell, the connected mode UE shall read System information block type 5. If some of the optional IEs are not included in System information block type 6, the UE shall read the corresponding IEs in System information block type 5
System information block type 7	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	
System information block type 8	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 9	Cell	Connected mode	BCH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	

System information block type 10	Cell	CELL_DCH	FACH	Specified by the IE "Scheduling information"	Expiration timer = SIB_REP	This system information block shall only be acquired by UEs with support for simultaneous reception of one SCCPCH and one DPCH. If the system information block is not broadcast in a cell, the DRAC procedures do not apply in this cell. This system information block is used in FDD mode only.
System information block type 11	Cell	Idle mode (CELL_FACH, CELL_PCH, URA_PCH)	BCH	Specified by the IE "Scheduling information"	Value tag	This system information block is used in FDD mode only.
System information block type 12	Cell	CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	If some of the optional IEs are not included in System information block type 12, the UE shall read the corresponding IEs in System information block type 11. This system information block is used in FDD mode only.
System information block type 13	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 13.4	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 14	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	This system information block is used in TDD mode only.
System information block type 15	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.1	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 15.2	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	

System information block type 15.3	Cell	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	
System information block type 16	PLMN	Idle Mode, CELL_FACH, CELL_PCH, URA_PCH	BCH	Specified by the IE "Scheduling information"	Value tag	For this system information block there may be multiple occurrences

8.1.1.1.3 Segmentation and concatenation of system information blocks

A generic SYSTEM INFORMATION message is used to convey the system information blocks on the BCCH. A given BCCH may be mapped onto either a BCH- or a FACH transport channel according to table 8.1.1. The size of the SYSTEM INFORMATION message shall fit the size of a BCH- or a FACH transport block.

The RRC layer in UTRAN performs segmentation and concatenation of encoded system information blocks. If the encoded system information block is larger than the size of a SYSTEM INFORMATION message, it will be segmented and transmitted in several messages. If the encoded system information block is smaller than a SYSTEM INFORMATION message, UTRAN may concatenate [\(parts of\)](#) several ~~complete~~-system information blocks into the same message [as specified in the remainder of this clause](#).

Four different segment types are defined:

- First segment;
- Subsequent segment;
- Last segment;
- Complete.

Each of the types *First-*, *Subsequent-* and *Last segment* are used to transfer segments of a master information block or a system information block. The segment type *Complete* is used to transfer a complete master information block or a complete system information block.

Each segment consists of a header and a data field. The data field carries the encoded system information elements. The header contains the following parameters:

- The number of segments in the system information block (SEG_COUNT). This parameter is only included in the header if the segment type is "First segment".
- SIB type. The SIB type uniquely identifies the master information block or a system information block.
- Segment index. This parameter is only included in the header if the segment type is "Subsequent segment" or "Last segment".

UTRAN may combine one or several segments of variable length in the same SYSTEM INFORMATION message. The following combinations are allowed:

1. No segment
2. First segment;
3. Subsequent segment;
4. Last segment;
5. Last segment + First segment;
6. Last segment + one or several Complete;
7. Last segment + one or several Complete + First segment;
8. One or several Complete;
9. One or several Complete + First segment..

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

~~For system information blocks of which multiple occurrences are used, the segments of different occurrences can not be distinguished. Therefore, the different occurrences should be scheduled in such a manner that they should always be transmitted sequentially; the previous occurrence has to be finished completely before transmission of a new occurrence is started.~~

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

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

8.1.1.1.4 Re-assembly of segments

The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block or system information block shall be assembled in ascending order with respect to the segment index. When all segments have been received, the UE shall perform decoding of the complete master information block or system information block. For system information blocks of which multiple occurrences are used, each occurrence shall be re-assembled independently.

~~The UE shall discard system information blocks of which segments were missing, of which segments were received out of sequence and/ or for which duplicate segments were received.~~

8.1.1.1.5 Scheduling of system information

Scheduling of system information blocks is performed by the RRC layer in UTRAN. If segmentation is used, it should be possible to schedule each segment separately.

To allow the mixing of system information blocks with short repetition period and system information blocks with segmentation over many frames, UTRAN may multiplex segments from different system information blocks. Multiplexing and de-multiplexing is performed by the RRC layer.

The scheduling of each system information block broadcast on a BCH transport channel is defined by the following parameters:

- the number of segments (SEG_COUNT);
- the repetition period (SIB_REP). The same value applies to all segments;
- the position (phase) of the first segment within ~~the repetition period within one cycle of the Cell System Frame Number (SIB_POS(0)). Since system information blocks are repeated with period SIB_REP, the value of SIB_POS must be less than SIB_REP for all segments.~~;
- Offset of the subsequent segments in ascending index order (SIB_OFF(i), i=1, 2, ... SEG_COUNT-1)
The position of the subsequent segments are calculated as: SIB_POS(i) = SIB_POS(i-1) + SIB_OFF(i).

The scheduling is based on the Cell System Frame number (SFN). The frame at which a particular segment (i) of a system information block occurs is defined as follows:

$$\text{SFN mod SIB_REP} = \text{SIB_POS}(i)$$

~~NOTE:— SIB_POS must be less than SIB_REP for all segments.~~

~~In FDD and TDD, the scheduling of the master information block is fixed as defined in Table 8.1.1. For TDD, the UTRAN may apply one of the four values allowed for the master information block's repetition period. The value that UTRAN is using value is not signalled; UE's have to determine it by trial and error, by the pre-defined repetition rate = [8] and the position=0. In TDD, the scheduling of the master information block is fixed to one of the constant repetition rates 8, 16, 32 or 64 and the position=0.~~

8.1.1.2 Initiation

The system information is continuously repeated on a regular basis in accordance with the scheduling defined for each system information block.

The UTRAN may temporarily send information blocks other than those scheduled.

8.1.1.3 Reception of SYSTEM INFORMATION messages by the UE

The UE shall ~~receive~~ read SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode as well as in states CELL_FACH, CELL_PCH and URA_PCH. Further, the UE shall ~~read~~ receive SYSTEM INFORMATION messages broadcast on a FACH transport channel when in CELL_FACH state. In addition, UEs with support for simultaneous reception of one SCCPCH and one DPCH shall ~~read~~ receive system information on a FACH transport channel when in CELL_DCH state.

Idle mode- and connected mode UEs may acquire different combinations of system information blocks. Before each acquisition, the UE should identify which system information blocks that are needed.

The UE may store system information blocks (including their value tag) for different cells and different PLMNs, to be used if the UE returns to these cells. ~~The UE shall consider the system~~ ~~information~~ ~~blocks~~ ~~is~~ valid for a period of 6 hours ~~after from~~ reception. ~~Moreover, the UE shall consider a~~ All stored system information blocks ~~shall be considered~~ as invalid after ~~the UE~~ it has been switched off.

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

When selecting a new PLMN, the UE shall consider all current system information blocks to be invalid. If the UE has stored valid system information blocks for the selected cell of the new PLMN, the UE may set those as current system information blocks. ~~Upon~~ By selection of a new PLMN, the UE shall store ~~all~~ information ~~elements specified within~~ variable ~~SELECTED_PLMN~~ for ~~about~~ the new PLMN ~~within the this~~ variable ~~SELECTED_PLMN~~.

8.1.1.3.1 Reception of SYSTEM INFORMATION messages broadcast on a BCH transport channel

When selecting a new cell, the UE shall read the master information block. The UE may use the pre-defined scheduling information to locate the master information block in the cell.

On reception of the master information block, the UE shall:

- If the "PLMN type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN Type" has the value "GSM-MAP" or "GSM-MAP and ANSI-41", the UE shall check the IE "PLMN identity" in the master information block and verify that it is the selected PLMN, stored as "PLMN identity" in the variable SELECTED_PLMN.
- If the "PLMN type" in the variable SELECTED_PLMN has the value "ANSI-41" and the IE "PLMN Type" has the value "ANSI-41" or "GSM-MAP and ANSI-41", the UE shall store the ANSI-41 Information elements contained in the master information block and perform initial process for ANSI-41.
- Store the ~~"value tag"~~ into the variable VALUE TAG for the master information block.
- Check ~~the value tag~~ and store ~~it the IE "value tag" within the variable VALUE TAG~~ for all system information blocks with PLMN scope ~~that use value tags and~~ that are to be used by the UE ~~in the variable VALUE_TAG~~. If, for any system information blocks, the value tag ~~is different~~ differs from the value of the variable VALUE_TAG for that system information block or if no IEs ~~from for the~~ corresponding system information block ~~have been~~ ~~are~~ stored, the UE shall read and store the IEs of that system information block.
- Check ~~the value tag~~ and store ~~it the IE "value tag" within the variable VALUE TAG~~ for all system information blocks with cell scope that use value tags ~~and~~ that are to be used by the UE. If, for any ~~of these~~ system information blocks, ~~the value tag differs from the value of the variable VALUE_TAG for that system~~ ~~information block or if~~ no IEs ~~from for the~~ corresponding system information block ~~have been~~ ~~are~~ stored, the UE shall read and store the IEs of that system information block.

- For system information blocks of which multiple occurrences are used, check and store the "value tag" for each occurrence of the system information blocks to be used by the UE. If, for any occurrence of the system information blocks, the value tag is different from the value of the variable VALUE_TAG for the same occurrence of the system information block or if no IEs from corresponding occurrence of the system information block have been stored, the UE shall read and store the IEs of that system information block.
- Read and store the IEs of all system information blocks with cell scope that do not use value tags

The UE may use the scheduling information ~~given included within by~~ the master and other system information blocks to locate each system information block to be acquired. However, the UE shall also be able to receive system information blocks other than the ones indicated within the scheduling information.

Upon reception of a system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.3.2 Reception of SYSTEM INFORMATION messages broadcast on a FACH transport channel

Some system information blocks may be broadcast on FACH, as specified in table 8.1.1. In case there is more than one FACH used in a cell, the concerned system information blocks broadcast on FACH and intended to reach all UEs in CELL_FACH state e.g. the master information block, should be broadcast on all FACHs. The master information block ~~is may~~ not be broadcast regularly on FACH. The master information block on FACH indicates the changes of system information block contents on BCH.

When ~~receiving-reading~~ system information blocks on FACH, the UE shall perform the actions as defined in subclause 8.1.1.5.

8.1.1.4 Modification of system information

Different rules apply for the updating of different types of system information blocks. If the system information block has a "value tag" in the master information block or higher level system information block, UTRAN shall indicate when any of the information elements are modified by changing the value of the corresponding "value tag". ~~{~~Even if the value tag does not change, the UE shall consider the system information block to be invalid after a period of 6 hours from reception.~~}~~ In addition to this, there are system information block types that contain information elements changing too frequently to be indicated by change in value tag. This type of system information blocks is not linked to a value tag in the master information block or higher-level system information block. The UE shall consider aAll stored system information blocks ~~shall be considered~~ as invalid after ~~the UE~~it has been switched off. For system information blocks of which multiple occurrences are used, the UE shall handle each occurrence independantly as specified in the previous; that is each occurrence is handled as a seperate system information block.

8.1.1.4.1 Modification of system information blocks using a value tag

When system information is modified, UTRAN shall perform the following actions to indicate the change to the UEs:

- update the actual system information in the corresponding system information block;
- If the updated system information block is linked to a higher level system information block, update the higher level system information block with the "value tag" of the modified system information block;
- update the master information block with the "value tag" of the modified system information block or higher level system information block and change the "value tag" of the master information block;
- start to send the first new master information block on the BCCH mapped on BCH instead of the old master information block and then the updated system information block on the BCCH instead of the old system information block;
- send the new master information block on the BCCH mapped on FACH on all FACHs in order to reach all UEs in state CELL_FACH. UTRAN may repeat the new master information block on ~~the all~~ FACHs to increase the probability of proper reception in all UEs needing the information;
- send the PAGING TYPE 1 message on the PCCH in order to reach idle mode UEs as well as connected mode UEs in state CELL_PCH and URA_PCH. In the IE "BCCH Modification Information" in the PAGING TYPE 1 message, UTRAN shall indicate the new value tag for the master information block. The PAGING TYPE 1 message should be sent in all paging occasions;

- it should be noted that for the proper operation of the BCCH Modification Information sent on the PCH, the System Information should not be changed more frequently than can be accommodated by mobile stations operating at the maximum DRX cycle length supported by the UTRAN.

On reception of the PAGING TYPE 1 message, the UE shall

- check the "value tag" of the master information block indicated in the IE "BCCH Modification information". If the value tag is different from the value stored in the variable VALUE_TAG for the master information block, the UE shall read the new master information.

At reception of the new master information block (received on the BCCH mapped on BCH or FACH), the UE shall:

- store the new "value tag" sent in the variable VALUE_TAG for the master information block;
- check the "value tag" for all system information blocks that are used by the UE. The UE shall read each system information block, for which the value tag is different from the value stored in the variable VALUE_TAG for that system information block. For system information blocks of which multiple occurrences are used, the UE shall handle each occurrence independently as specified in the previous; that is each occurrence is handled as a separate system information block. On reception of a modified system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.4.2 Modification of system information without value tag

When the UE has acquired a system information block not linked to a value tag, a timer shall be started using a value equal to the repetition ~~rate~~period (SIB_REP) for that system information block. When the timer expires, the information carried in the system information block is considered to be invalid and the UE shall acquire the system information block before the system information elements can be used. On reception of a modified system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

8.1.1.4.3 Time critical modification of system information blocks

For modification of some system information elements, e.g. reconfiguration of the channels, it is important for the UE to know exactly when a change occurs. If such case, the UTRAN performs the following actions to indicate the change to the UEs:

- send the message PAGING TYPE 1 on the PCCH in order to reach idle mode UEs as well as connected mode UEs in state CELL_PCH and URA_PCH. In the IE "BCCH Modification Information", UTRAN shall indicate the time when the change will occur and the new value tag that will apply for the master information block after the change has occurred. The PAGING TYPE 1 message shall be sent in all paging occasions.
- send the message SYSTEM INFORMATION CHANGE INDICATION on the BCCH mapped on FACH on all FACHs in order to reach all UEs in state CELL_FACH. In the IE "BCCH Modification Information", UTRAN shall indicate the time when the change will occur and the new value tag that will apply for the master information block after the change has occurred. UTRAN may repeat the SYSTEM INFORMATION CHANGE INDICATION on ~~the~~all FACHs to increase the probability of proper reception in all UEs needing the information.
- update the actual system information in the corresponding system information block.
- if the updated system information block is linked to a higher level system information block, update the higher level system information block with the "value tag" of the modified system information block.
- update the master information block with the "value tag" of the modified system information block or higher level system information block and change the "value tag" of the master information block.
- at the indicated time, start to send first the new master information block on the BCCH mapped on BCH instead of the old master information block and then the updated system information block on the BCCH instead of the old system information block.

At reception of the PAGING TYPE 1 or SYSTEM INFORMATION CHANGE INDICATION message, the UE shall:

- wait until the starting time, indicated in the IE "BCCH Modification Information". When the starting time occurs, the UE shall read the new master information block.

At reception of the new master information block, the UE shall:

- store the new "value tag" of the master information block;
- check the "value tag" for all system information blocks that are used by the UE. The UE shall read each system information block, for which the value tag is different from the value stored in the variable VALUE_TAG for that system information block. At reception of a modified system information block, the UE shall perform the actions specified in subclause 8.1.1.5.

If the UE can not find the master information block, it can assume that a physical reconfiguration has occurred and perform a new cell search.

8.1.1.5 Actions upon reception of system information blocks

8.1.1.5.1 System Information Block type 1

If in idle mode, the UE should store all relevant IEs included in this system information block if the "PLMN Type" in the variable SELECTED_PLMN has the value "GSM-MAP" and the IE "PLMN type" in the Master Information Block has the value "GSM-MAP" or "GSM-MAP and ANSI-41". The UE shall also:

- forward the content of the IE "NAS system info" to the non-access stratum entity indicated by the IE "CN domain identity";
- use the IE "CN domain specific DRX cycle length coefficient" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.
- store the timer and constant values included in the IE "UE Timers and constant used in CELL_DCH". The values shall be used by the UE when entering state CELL_DCH.
- respect the values in the IE "UE Timers and constants in idle mode" for the relevant timers and counters

If in connected mode the UE shall not use the values of the IEs in this system information block (except for the timers and constant values given by the IE "UE Timers and constant in CELL_DCH").

8.1.1.5.2 System Information Block type 2

If in connected mode the UE should store all relevant IEs included in this system information block. The UE shall also

- if in state CELL_FACH or CELL_PCH, start to perform periodical cell updates using the information in the IE "UE timers and constants";
- if in state URA_PCH, start to perform periodical URA updates using the information in the IEs "URA identity" and "UE timers and constants".

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.3 System Information Block type 3

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

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.

8.1.1.5.4 System Information Block type 4

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.

If in idle mode, the UE shall not use the values of the IEs included in this system information block.

8.1.1.5.5 System Information Block type 5

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

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" (FDD only) if given PRACH is used.
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in Idle mode or in CELL/URA_PCH state.
- start to monitor its paging occasions on the PICH if UE is in Idle mode or in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state.
- in TDD: use the IE "Midamble configuration" for receiver configuration.

8.1.1.5.6 System Information Block type 6

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- replace the TFS of the transport channel which has a same transport CH identity with the one stored in the UE if any.
- let the physical channel(s) of type PRACH given by the IE(s) "PRACH info" be the default in uplink. If the IE "PRACH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information to configure the PRACH.
- start to receive the physical channel of type AICH using the parameters given by the IE "AICH info" if given PRACH is used. If the IE "AICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information (FDD only).
- start to receive the physical channel of type PICH using the parameters given by the IE "PICH info" if UE is in CELL/URA_PCH state. If the IE "PICH info" is not included, the UE shall read the corresponding IE in system information block type 5 and use that information.
- start to monitor its paging occasions on the PICH if UE is in CELL/URA_PCH state.
- start to receive the physical channel(s) of type Secondary CCPCH using the parameters given by the IE(s) "Secondary CCPCH info" if UE is in CELL_FACH state. If the IE "Secondary CCPCH info" is not included, the UE shall read the corresponding IE(s) in system information block type 5 and use that information.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.7 System Information Block type 7

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

- start a timer set to the value given by the repetition period (SIB_REP) for that system information block.

8.1.1.5.8 System Information Block type 8

This system information block type is used only for FDD.

If in connected mode, the UE should store all relevant IEs included in this system information block.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.9 System Information Block type 9

This system information block type is used only for FDD.

If in connected mode, the UE should store all relevant IEs included in the system information block. The UE shall also

- start a timer set to the value given by the repetition period (SIB_REP) for that system information block

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.10 System Information Block type 10

This system information block type is used only for FDD.

If in state CELL_DCH, the UE should store all relevant IEs included in this system information block. The UE shall also:

- start a timer set to the value given by the repetition period (SIB_REP) for that system information block;
- perform actions defined in subclause 14.6.

If in idle mode, state CELL_FACH, state CELL_PCH or state URA_PCH, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.11 System Information Block type 11

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

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- for each measurement type start a measurement using the set of IEs specified for that measurement type.
- associate each measurement with the identity number given by the IE "Measurement identity number".
- if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered.
- If IE "HCS Serving cell information" is included, this indicates that HCS is used, and UE shall do the following:
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Intra-frequency Cell Information".
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Inter-frequency Cell Information".

- If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-system Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
- If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-system Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Inter-system Cell Information".
- If IE "HCS Serving cell information" is not included, this indicates that HCS is not used, and any occurrences of IE "HCS neighbouring cell information" in System Information Block Type 11 shall be neglected by UE.

8.1.1.5.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall also

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those IEs in a similar manner as specified for the scheduling information contained within the master information block.
- for each measurement type start (or continue) a measurement using the set of IEs specified for that measurement type.
- remove the intra-frequency cells given by the IE "Removed intra-frequency cells" from the list of intra-frequency cells specified in system information block type 11. Add the intra-frequency cells given by the IE "New intra-frequency cells" to the list of intra-frequency cells specified in system information block type 11.
- if any of the IEs "Intra-frequency measurement quantity", "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" are not included in the system information block, read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement.
- if included in this system information block or in system information block type 11, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered.
- remove the inter-frequency cells given by the IE "Removed inter-frequency cells" from the list of inter-frequency cells specified in system information block type 11. Add the inter-frequency cells given by the IE "New inter-frequency cells" to the list of inter-frequency cells specified in system information block type 11.
- if the IE "Inter-frequency measurement quantity" is not included in the system information block, read the corresponding IE in system information block type 11 and use that information for the inter-frequency measurement.
- remove the inter-system cells given by the IE "Removed inter-system cells" from the list of inter-system cells specified in system information block type 11. Add the inter-system cells given by the IE "New inter-system cells" to the list of inter-system cells specified in system information block type 11.
- if the IE "Inter-system measurement quantity" is not included in the system information block, read the corresponding IE in system information block type 11 and use that information for the inter-system measurement.
- if in state CELL_FACH, start traffic volume measurement reporting as specified in the IE "Traffic volume measurement reporting quantity".
- associate each measurement with the identity number given by the IE "Measurement identity number".
- If IE "HCS Serving cell information" is included, this indicates that HCS is used, and UE shall do the following:
 - If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Intra-frequency Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
 - If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Intra-frequency Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Intra-frequency Cell Information".

- If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-frequency Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
- If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-frequency Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Inter-frequency Cell Information".
- If IE "HCS neighbouring cell information" is not included in the first occurrence of IE "Inter-system Cell Information", UE shall use the default values specified for the IE "HCS neighbouring cell information" for that cell.
- If IE "HCS neighbouring cell information" is not included in other occurrence of IE "Inter-system Cell Information", UE shall for that cell use the same parameter values as used for the preceding IE "Inter-system Cell Information".
- If IE "HCS Serving cell information" is not included, this indicates that HCS is not used, and any occurrences of IE "HCS neighbouring cell information" in System Information Block Type 12 shall be neglected by UE.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

8.1.1.5.13 System Information Block type 13

If in idle or connected mode, the UE should store all relevant IEs included in this system information block except for the IEs "CN domain specific DRX cycle length coefficient", "UE timers in idle mode" and "Capability update requirement" which shall be stored only in the idle mode case. The UE shall read SIB type 13 and the associated SIB type 13.1, 13.2, 13.3 and 13.4 only when the "PLMN Type" in the variable SELECTED_PLMN has the value "ANSI-41" and the IE "PLMN type" in the Master Information Block has the value "ANSI-41" or "GSM-MAP and ANSI-41". The UE shall also:

- forward the content of the IE "NAS(ANSI-41) system info" to the non-access stratum entity indicated by the IE "CN domain identity".
- use the IE "CN domain specific DRX cycle length coefficient" to calculate frame number for the Paging Occasions and Page indicator as specified in TS 25.304.

8.1.1.5.14 System Information Block type 14

This system information block type is used only for TDD.

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

- use the IEs "Primary CCPCH Tx Power", "UL Interference", and "PRACH Constant value", "DPCH Constant value" and "PUSCH Constant value" to calculate PRACH/DPCH/PUSCH transmit power for TDD uplink open loop power control as defined in 8.5.9.

8.1.1.5.15 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 also:

- if IEs containing scheduling information for other system information blocks are included, the UE shall act on those in a similar manner as specified for the scheduling information contained within the master information block.
- if LCS GPS assistance for SIB is included, and the UE has a full or reduced complexity GPS receiver: store the relevant information and apply ciphering as indicated in this IE (refer to 10.3.7.47 for details). The LCS GPS assistance SIB should be applied to SIB type 15.1, type 15.2 and type 15.3. If "Cipher On/Off" is included, it indicates whether ciphering is carried out or not.
- if LCS OTDOA assistance for SIB is included: store the relevant information (refer to 10.3.7.61 for details).

8.1.1.5.15.1 System Information Block type 15.1

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

- interpret a value of "1" of "UTRAN Time Flag" to mean that UTRAN timing information value (SFN) is present, and "0" to mean that only the Reference GPS TOW field value is provided.
- interpret a value of "1" of "NODE B Clock Drift Flag" to mean that NODE B Clock Drift information value is present, and "0" to mean that this IE value is not provided.
- if 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 this IE is not included:
assume the value 0.
- use "Reference Location" as a prior knowledge of the approximate location of the UE.
- 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.
- use "Status/Health" to indicate the status of the differential corrections.
- act on "DGPS information" IEs in a similar manner as specified in [13] except that the scale factors for PRC and RRC are different. In addition, the DGPS information IEs also include Delta PRC2 and Delta RRC2. Delta PRC2 is the difference in the pseudorange correction between the satellite's ephemeris identified by IODE and the previous ephemeris two issues ago IODE-2. Delta RRC2 is the difference in the pseudorange rate-of-change correction between the satellite's ephemeris identified by IODE and IODE-2. These two additional IEs shall extend the life of the raw ephemeris data up to 6 hours.

8.1.1.5.15.2 System Information Block type 15.2

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

- interpret "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast.
- interpret "SatID" as the satellite ID of the data from which this message was obtained.
- act on the rest of the IEs in a similar manner as specified in [12].

8.1.1.5.15.3 System Information Block type 15.3

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

- interpret "Transmission TOW" as a very coarse estimate of the current time, i.e., the approximate GPS time-of-week when the message is broadcast.
- interpret "SatMask" as the satellites that contain the pages being broadcast in this message.
- interpret "LSB TOW" as the least significant 8 bits of the TOW (Figure 20-2 of [12]).
- interpret "SFIO" as the least significant bit of the SubFrame (SF) ID for which the following word 3 through word 10 data applies. Zero indicates subframe ID = 4, and One indicates Subframe ID = 5.
- interpret "Data ID" as the Data ID field contained in the indicated subframe, word 3, most significant 2 bits, as defined by [12].
- interpret "Page No" as the Page ID of the indicated subframe for which the following Word 3 through Word 10 data applies.
- act on the rest of the IEs (Word 3 to Word 10) in a similar manner as specified in [12], excluding non-information bits, "Data ID" and "SV ID" from Word 3 (16 bits left), 2 bit "t" from Word 10 (22 bits left). Word 4 through Word 9 have 24 bits left.

8.1.1.5.16 System Information Block type 16

For SIB 16 multiple occurrences may be used; one occurrence for each predefined configuration. To identify the different predefined configurations, the scheduling information for SIB type 16 includes IE "Predefined configuration identity and value tag" instead of the commonly used IE "PLMN value tag".

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

- if IEs containing scheduling information for other system information blocks are included:
act on those in a similar manner as specified for the scheduling information contained within the master information block.
- compare for each predefined configuration the value tag of the stored predefined configuration, if any, with the preconfiguration value tag included in ~~the IE "Predefined configuration identity and value tag"~~ PLMN value tag for the occurrence of the SIB with the same predefined configuration identity.
- in case the UE has no predefined configuration stored with the same identity or in case the predefined configuration value tag is different:
store the predefined configuration information together with its identity and value tag.
in case a predefined configuration with the same identity was stored:
overwrite this one with the new configuration ~~received-read~~ via system information.
- store the predefined configurations for later use e.g. during handover to UTRAN.

The above handling applies regardless of whether the stored predefined configuration information has been obtained via UTRA or via another RAT.

The UE is not required to complete reading of all occurrences of system information block type 16 before initiating RRC connection establishment.

Clauses affected:

8.1.4, 8.1.4.1, 8.1.4.2, 8.1.4.3, 8.1.4.4, 8.1.4.5, 8.1.4.6, 8.1.4.8, 8.1.5, 8.1.5.4, 8.3.1, 8.3.1.4, 8.3.2, 8.3.2.4, 10.2.42, 11.2

Other specs affected:

Other 3G core specifications
Other GSM core specifications
MS test specifications
BSS test specifications
O&M specifications

→ List of CRs:
→ List of CRs:
→ List of CRs:
→ List of CRs:
→ List of CRs:

--

Other comments:

Changes compared to old revision are done with a second user visible in another colour.



help.doc

<----- [double-click here for help and instructions on how to create a CR.](#)

8.1.4 RRC connection release

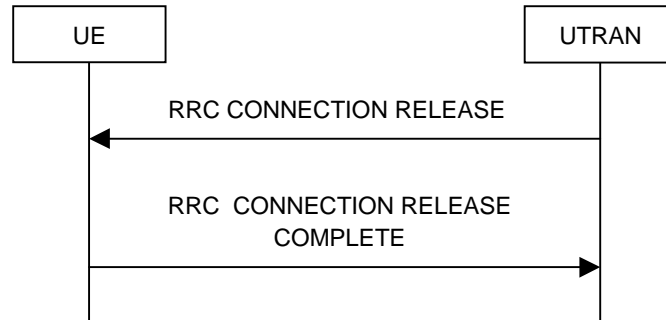


Figure 9: RRC Connection Release procedure on the DCCH



Figure 9: RRC Connection Release procedure on the CCCH

8.1.4.1 General

The purpose with this procedure is to release the RRC connection including the signalling link and all radio bearers between the UE and the UTRAN. By doing so, all established signalling flows and signalling connections will be released.

8.1.4.2 Initiation

When the UE is in state CELL_DCH or CELL_FACH, the UTRAN can at anytime initiate a RRC connection release by transmitting an RRC CONNECTION RELEASE message using unacknowledged mode. When UTRAN transmits an RRC CONNECTION RELEASE message as response to a received RRC CONNECTION RE-ESTABLISHMENT REQUEST (subclause 8.1.5), CELL UPDATE (subclause 8.3.1) or URA UPDATE (subclause 8.3.2) message from the UE, UTRAN should use the downlink CCCH to transmit the message. In all other cases the downlink DCCH should be used, even if although the downlink CCCH may be used as well.

UTRAN may transmit several RRC CONNECTION RELEASE messages to increase the probability of proper reception of the message by the UE. The number of repeated messages and the interval between the messages is a network option.

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall:

- When in state CELL_DCH, transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode on the DCCH to the UTRAN and start timer T308. The UE shall initialise the counter V308 with the value of the IE "Number of RRC Message Transmissions", which indicates the number of times to send the RRC CONNECTION RELEASE COMPLETE message.
- When in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the DCCH, transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode on the DCCH to the UTRAN.

When in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the CCCH, the UE shall not transmit an RRC CONNECTION RELEASE COMPLETE message.

Any succeeding RRC CONNECTION RELEASE messages that are received by the UE shall be ignored.

~~The UE shall indicate release of all current signalling flows and radio access bearers to the non-access stratum and pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to the non-access stratum. A release indication should be given to the non-access stratum.~~

~~From this point the time of the indication of release to the non-access stratum until the UE has entered idle mode, any requests from the non-access stratum request to establish a new RRC connection shall be queued. This new request may be processed only after the UE has entered idle mode.~~

~~When in state CELL_FACH and if the RRC CONNECTION RELEASE message was received on the CCCH, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.~~

~~When in CELL_DCH state, UE shall initialise the counter V308 with the value of the IE "Number of RRC Message Transmissions", which indicates the number of times to send the RRC CONNECTION RELEASE COMPLETE message.~~

8.1.4.4 Invalid RRC CONNECTION RELEASE message

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 16, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

- ~~Ignore the~~ Ignore any IE(s) causing the error but treat the rest of the ~~invalid~~ RRC CONNECTION RELEASE message as normal according to subclause 8.1.4.3, with an addition of the following actions;
- ~~— Transmit an RRC STATUS message on the uplink DCCH using AM RLC;~~
- If the RRC CONNECTION RELEASE message was received on the DCCH, include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with
 - the IE "Failure cause" set to the cause value "Protocol error" and
 - the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION;
- ~~— Proceed with the RRC connection release procedure normally.~~
- ~~— Include the IE "Protocol error information" with contents according to clause 16;~~
- ~~— When the transmission of the RRC STATUS message has been confirmed by RLC, the UE shall resume normal operation as if the invalid RRC CONNECTION RELEASE message has not been received.~~

8.1.4.5 Expiry of timer T308, unacknowledged mode transmission in CELL_DCH state

When in state CELL_DCH and the timer T308 expires, the UE shall decrease V308 by one. If V308 is greater than zero, the UE shall retransmit the RRC CONNECTION RELEASE COMPLETE message. If V308 is equal to zero, the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2

8.1.4.6 Successful transmission of the RRC CONNECTION RELEASE COMPLETE message, acknowledged mode transmission in CELL_FACH state

When ~~the UE is in state CELL_FACH and acknowledged mode was used and~~ RLC has confirmed the transmission of the RRC CONNECTION RELEASE COMPLETE message ~~it~~ the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.7 Reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

When UTRAN receives a RRC CONNECTION RELEASE COMPLETE message from the UE, it should release all UE dedicated resources and the procedure ends on the UTRAN side.

8.1.4.8 Unsuccessful transmission of the RRC CONNECTION RELEASE COMPLETE message-acknowledged mode transmissionin CELL_FACH state

When acknowledged mode was used ~~the UE is in state CELL_FACH~~ and RLC does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message, ~~it~~the UE shall release all its radio resources, enter idle mode and the procedure ends on the UE side. Actions the UE shall perform when entering idle mode are given in subclause 8.5.2.

8.1.4.9 Detection of dedicated physical channel release by UTRAN in CELL_DCH state

If the release is performed from the state CELL_DCH, and UTRAN detects loss of a the dedicated physical channel according to subclause 8.5.6, UTRAN may release all UE dedicated resources, even if no RRC CONNECTION RELEASE COMPLETE message has been received.

8.1.4.10 No reception of an RRC CONNECTION RELEASE COMPLETE message by UTRAN

If UTRAN does not receive any RRC CONNECTION RELEASE COMPLETE message, it should release all UE dedicated resources.

8.1.5 RRC connection re-establishment

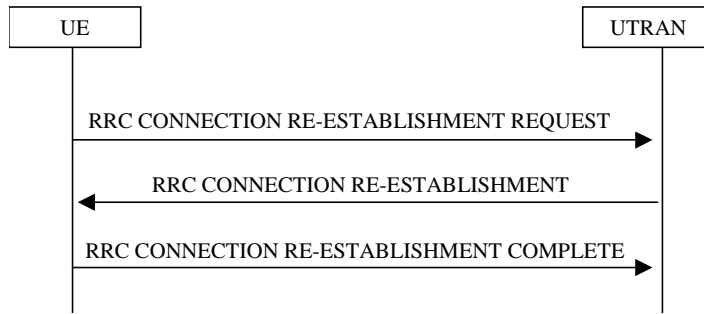


Figure 10: RRC Connection Re-establishment, successful case

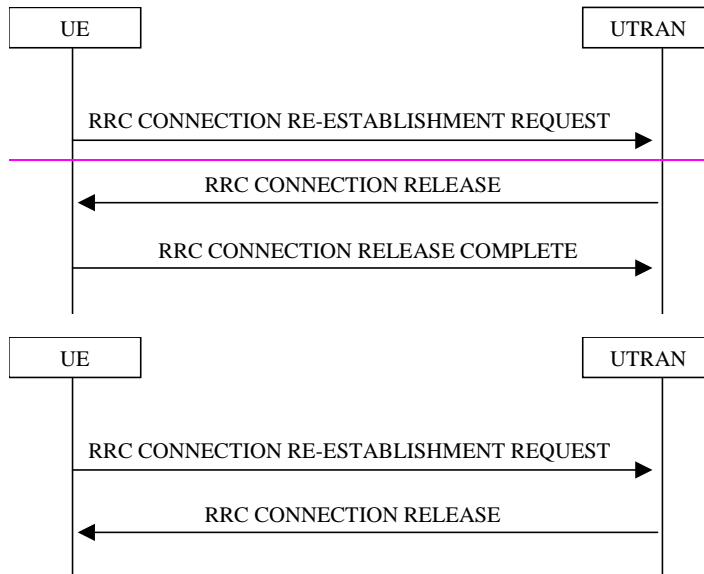


Figure 11: RRC Connection Re-establishment, failure case

8.1.5.4 Reception of an RRC CONNECTION RE-ESTABLISHMENT REQUEST message by the UTRAN

UTRAN may either:

- initiate the RRC connection re-establishment procedure and transmit an RRC CONNECTION RE-ESTABLISHMENT message on the downlink DCCH on FACH; or
- initiate the RRC connection release procedure ([see subclause 8.1.4](#)) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH on FACH.

When the UTRAN detects AM_RLC unrecoverable error (amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK), it waits for RRC CONNECTION RE-ESTABLISHMENT REQUEST message from the UE and when the UTRAN receives it, UTRAN commands the UE to reset AM_RLC by sending RRC CONNECTION RE-ESTABLISHMENT message.

8.3.1 Cell update

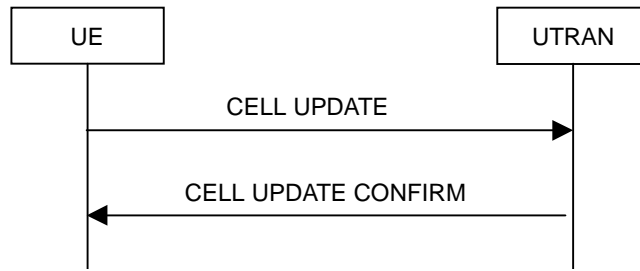


Figure 38: Cell update procedure, basic flow

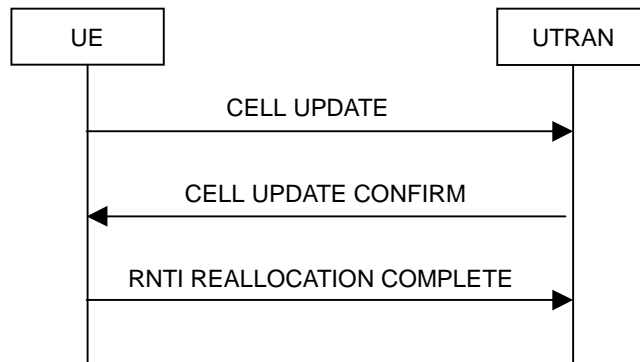


Figure 39: Cell update procedure with RNTI reallocation

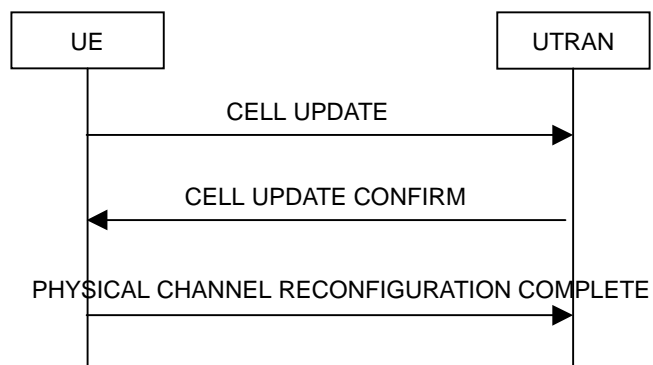


Figure 40: Cell update procedure with physical channel reconfiguration

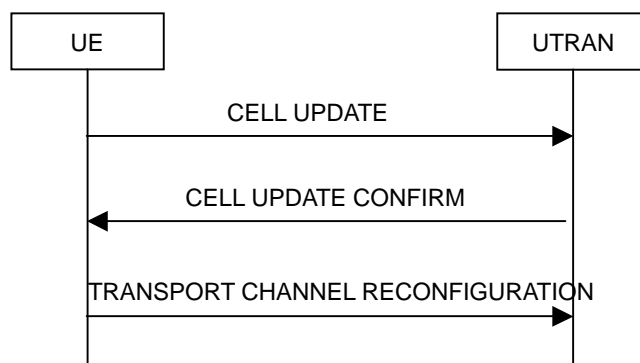


Figure 41: Cell update procedure with transport channel reconfiguration

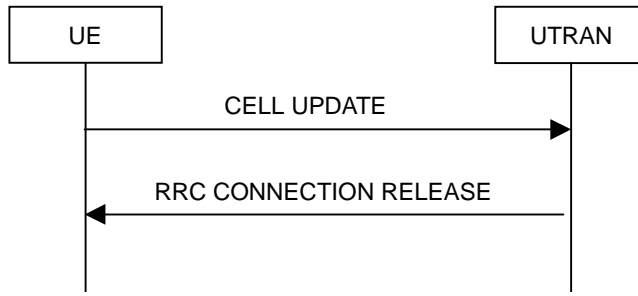


Figure 41a: Cell update procedure, failure case

8.3.1.4 Reception of an CELL UPDATE message by the UTRAN

When the UTRAN receives a CELL UPDATE message, it ~~should~~ may either

- transmit a CELL UPDATE CONFIRM message on the downlink DCCH.
- initiate an RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

When the UTRAN detects AM_RLC unrecoverable error (Amount of the retransmission of RESET PDU reaches the value of Max DAT and receives no ACK), it waits for CELL UPDATE message from the UE and when the UTRAN receives it, UTRAN commands the UE to reset AM_RLC by sending CELL UPDATE CONFIRM message. This procedure can be used not only in the case of AM_RLC unrecoverable error but also in the case that UTRAN wants to reset AM_RLC for other reasons such as in the case when SRNC Relocation is initiated without keeping RLC status (current counters) from old SRNC to new SRNC.

8.3.2 URA update

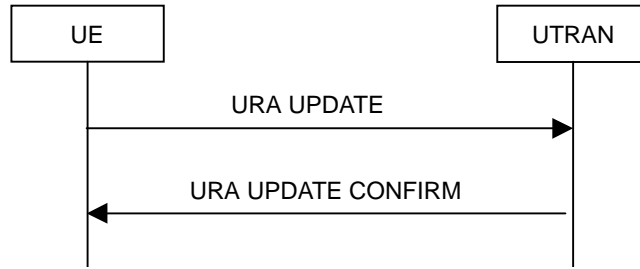


Figure 42: URA update procedure, basic flow

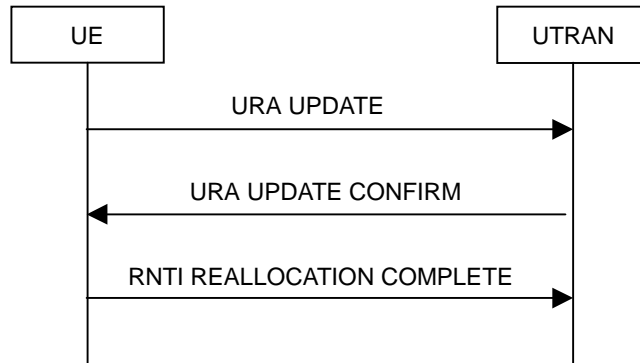


Figure 43: URA update procedure with RNTI reallocation

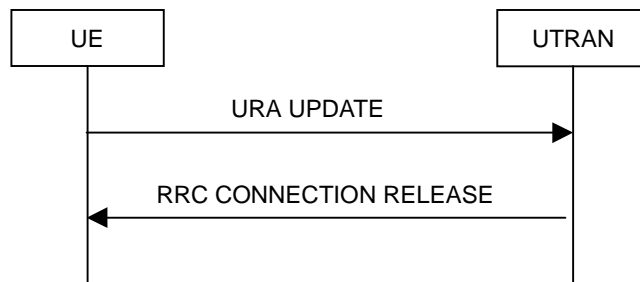


Figure 43a: URA update procedure, failure case

8.3.2.4 Reception of an URA UPDATE message by the UTRAN

When the UTRAN receives a URA UPDATE message, it ~~should~~ may either

- transmit a URA UPDATE CONFIRM message on the downlink CCCH or DCCH. The UTRAN should include the IE "URA identity" in the URA UPDATE CONFIRM message in a cell where multiple URAs are valid.
- initiate an RRC connection release procedure (see subclause 8.1.4) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

~~The UTRAN should assign the URA ID to the UE in the URA UPDATE CONFIRM message in a cell where multiple URAs are valid.~~

10.2.42 RRC CONNECTION RELEASE COMPLETE

This message is sent by UE to confirm that the RRC connection has been released.

RLC-SAP: AM or UM or TM

Logical channel: CCCH or DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
U-RNTI	CV-CCCH		U-RNTI 10.3.3.45	
Integrity check info	CH		Integrity check info 10.3.3.15	
<u>Error indication</u>	<u>OP</u>		<u>Failure cause and error information</u> 10.3.3.12	

Condition	Explanation
<i>CCCH</i>	This IE is only sent when CCCH is used.

11.2 PDU definitions

. . .

```

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

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

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

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

```


8.1.3.2 Initiation

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

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

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

The UE shall perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.15, and shall apply the given Access Service Class when accessing the RACH.

The UE shall set the IE "Establishment cause" ~~according to indications reflecting the cause of establishment in~~from the upper layers. ~~Specifically, if the RRC connection was released due to a "Directed signalling connection re-establishment", the non-access stratum may trigger an establishment of a new RRC connection immediately. In this case, the cause for establishment shall be "Call re-establishment".~~

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

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

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

8.1.4.3 Reception of an RRC CONNECTION RELEASE message by the UE

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message, it shall:

- When in state CELL_DCH, transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode to the UTRAN and start timer T308.
- When in state CELL_FACH, transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the UTRAN.

Any succeeding RRC CONNECTION RELEASE messages that are received by the UE shall be ignored.

~~If the value of the IE "Release cause" is "Directed signalling connection re-establishment", the non-access stratum may trigger an establishment of a new RRC connection immediately.~~ A release indication should be given to the non-access stratum.

When in CELL_DCH state, UE shall initialise the counter V308 with the value of the IE "Number of RRC Message Transmissions", which indicates the number of times to send the RRC CONNECTION RELEASE COMPLETE message.

10.3.3.32 Release cause

Cause for release of RRC connection.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Release cause	MP		Enumerated (normal event, unspecified, pre-emptive release, congestion, re-establishment reject, directed signalling connection re-establishment)	At least 310 spare values, Criticality: reject, are needed

11.3.3 User equipment information elements

. . .

```
ReleaseCause ::=
    ENUMERATED {
        normalEvent,
        unspecified,
        pre-emptiveRelease,
        congestion,
        re-establishmentReject,
        directed signalling connection re-establishment,
        spare1, spare2, spare3,
        spare4, spare5, spare6,
        spare7, spare8, spare9, spare10 }
```

. . .

CHANGE REQUEST

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

25.331 CR 480r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**

list expected approval meeting # here ↑

for approval

for information

strategic

non-strategic

(for SMG use only)

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

Proposed change affects:

(at least one should be marked with an X)

(U)SIM

ME

UTRAN / Radio

Core Network

Source:

TSG-RAN WG2

Date:

23/08/2000

Subject:

Correction to IE Midamble Shift and Burst Type

Work item:

Category:

(only one category shall be marked with an X)

F Correction

A Corresponds to a correction in an earlier release

B Addition of feature

C Functional modification of feature

D Editorial modification

Release:

Phase 2

Release 96

Release 97

Release 98

Release 99

Release 00

Reason for change:

- Modification of IE Midamble shift and Burst type for UTRA TDD in order to support the use of a variable midamble shift for the DL common midamble case.
- Alignment with TS25.221.
- Addition of a note in order to clarify the usage of the different midamble allocation strategies in DL and UL.
- A third burst type for UL TDD transmissions has been introduced in WG1 for handover between unsynchronised cells. The IE Midamble Shift and Burst Type is extended to support configuration of this burst type in NodeB.

Clauses affected:

10.3.6.35, 11.3.6

Other specs

Affected:

Other 3G core specifications

Other GSM core specifications

MS test specifications

BSS test specifications

O&M specifications

→ List of CRs:

→ List of CRs:

→ List of CRs:

→ List of CRs:

→ List of CRs:

Other

comments:

10.3.6.35 Midamble shift and burst type

NOTE: Only for TDD.

This information element indicates burst type and midamble allocation. Three different midamble allocation schemes exist:

Default midamble: the midamble shift is selected by layer 1 depending on the associated channelisation code (DL and UL)

Common midamble: the midamble shift is chosen by layer 1 depending on the number of channelisation codes (possible in DL only)

UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE Burst Type	MP			
>Type 1				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	At least 1 spare value (criticality = reject) required.
>>Midamble Shift	MDCV UE		Integer(0..15)	Default value is the midamble shift selected by layer 1.
>Type 2				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, Common midamble, UE specific midamble)	At least 1 spare value (criticality = reject) required.
>>Midamble Shift	MDCV UE		Integer(0..5)	Default value is the midamble shift selected by layer 1.
>Type 3				
>>Midamble Allocation Mode	MP		Enumerated (Default midamble, UE specific midamble)	
>>Midamble Shift	CV UE		Integer(0..745)	

Condition	Explanation
<u>UE</u>	This information element is only sent when the value of the "Midamble Allocation Mode" IE is "UE-specific midamble".

11.3.6 Physical channel information elements

PhysicalChannel-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

maxASC,
maxASCmap,
maxASCpersist,
maxCCTrCH,
maxCPCHsets,
maxDPCH-DLchan,
maxDPCHcodesPerTS,
maxDPDCH-UL,
maxFACH,
maxPCPCH-APsig,
maxPCPCH-ApSubCh,
maxPCPCH-CDsig,
maxPCPCH-CDsubCh,
maxPCPCH-SF,
maxPCPCHS,
maxPDSCH,
maxPDSCH-TFCIgroups,
maxPRACH,
maxPUSCH,
maxRL,
maxRL-1,
maxSCCPCH,
maxSig,
maxSubCh,
maxTF-CPCH,
maxTFCI-2-Combs,
maxTGPS,
maxTS

FROM Constant-definitions

ActivationTime

FROM UserEquipment-IEs

CPCH-SetID,
TFCS,
TFCS-Identity,
TransportChannelIdentity,
TransportFormatSet

FROM TransportChannel-IEs

SIB-ReferenceListFACH

FROM Other-IEs;

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

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

AccessServiceClass ::= SEQUENCE {
availableSignatureStartIndex INTEGER (0..15),
availableSignatureEndIndex INTEGER (0..15),
availableSubChannelStartIndex INTEGER (0..11),
availableSubChannelEndIndex INTEGER (0..11)
}

AccessServiceClassIndex ::= INTEGER (1..8)

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

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

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

```

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

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

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

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

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

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

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

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

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

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

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

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

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

AvailableSignatureList ::= SEQUENCE (SIZE (1..maxSig)) OF
    Signature

AvailableSubChannelNumber ::= INTEGER (0..11)

AvailableSubChannelNumberList ::= SEQUENCE (SIZE (1..maxSubCh)) OF
    AvailableSubChannelNumber

BurstType ::= ENUMERATED {
    short1, long2 }

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

BurstType2 ::= ENUMERATED { ms3, ms6 }

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

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

```

```

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

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

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

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

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

CellParametersID ::= INTEGER (0..127)

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

ChannelisationCode256 ::= INTEGER (0..255)

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

ClosedLoopTimingAdjMode ::= ENUMERATED {
    slot1, slot2 }

CodeNumberDSCH ::= INTEGER (0..255)

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

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

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

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

-- Values from -10 to 10 are used in Release 99
ConstantValue ::= INTEGER (-10..21)

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

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

```

```

CPCH-SetInfo ::=
    cpch-SetID
    transportFormatSet
    tfcs
    ap-PreambleScramblingCode
    ap-AICH-ScramblingCode
    ap-AICH-ChannelisationCode
    cd-PreambleScramblingCode
    cd-CA-ICH-ScramblingCode
    cd-CA-ICH-ChannelisationCode
    cd-AccessSlotSubchannelList
    cd-SignatureCodeList
    deltaPp-m
    ul-DPCCH-SlotFormat
    n-StartMessage
    n-EOT
    channelAssignmentActive
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    cpch-StatusIndicationMode
    pcpch-ChannelInfoList
}

SEQUENCE {
    CPCH-SetID,
    TransportFormatSet,
    TFCS,
    AP-PreambleScramblingCode,
    SecondaryScramblingCode
    AP-AICH-ChannelisationCode,
    CD-PreambleScramblingCode,
    SecondaryScramblingCode
    CD-CA-ICH-ChannelisationCode,
    CD-AccessSlotSubchannelList
    CD-SignatureCodeList
    DeltaPp-m,
    UL-DPCCH-SlotFormat,
    N-StartMessage,
    N-EOT,
    ChannelAssignmentActive,
    CPCH-StatusIndicationMode,
    PCPCH-ChannelInfoList
}

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

CPCH-StatusIndicationMode ::= ENUMERATED {
    pcpch-Availability,
    pcpch-AvailabilityAndMinAvailableSF }

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

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

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

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

DL-CCTrCh ::= SEQUENCE {
    tfcs-Identity
    timeInfo
    commonTimeslotInfo
    individualTS-InfoDL-CCTrCHList
}

TFCS-Identity
TimeInfo
CommonTimeslotInfo
IndividualTS-InfoDL-CCTrCHList

DL-CCTrCh-Post ::= SEQUENCE {
    timeInfo
    commonTimeslotInfo
    individualTS-InfoDL-CCTrCHList
}

TimeInfo
CommonTimeslotInfo
IndividualTS-InfoDL-CCTrCHList

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

DL-ChannelisationCode ::= SEQUENCE {
    secondaryScramblingCode
    sf-AndCodeNumber
    scramblingCodeChange
}

SecondaryScramblingCode
SF512-AndCodeNumber
ScramblingCodeChange

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

DL-CommonInformation ::= SEQUENCE {
    dl-DPCH-InfoCommon
    defaultDPCH-OffsetValue
}

DL-DPCH-InfoCommon
DefaultDPCH-OffsetValue

```

```

    dpch-CompressedModeInfo      DPCH-CompressedModeInfo      OPTIONAL,
    tx-DiversityMode             TX-DiversityMode             OPTIONAL,
    ssdt-Information             SSDT-Information             OPTIONAL
}

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

DL-CommonInformationPredef ::=
    dl-DPCH-InfoCommon          SEQUENCE {
                                DL-DPCH-InfoCommonPredef     OPTIONAL,
                                defaultDPCH-OffsetValue       OPTIONAL
    }

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

DL-DPCH-InfoCommon ::=
    dl-DPCH-PowerControlInfo    SEQUENCE {
                                DL-DPCH-PowerControlInfo     OPTIONAL,
                                spreadingFactorAndPilot       SF512-AndPilot,
                                -- TABULAR: The number of pilot bits is nested inside the spreading factor.
                                positionFixedOrFlexible        PositionFixedOrFlexible,
                                tfci-Existence                 BOOLEAN
    }

DL-DPCH-InfoCommonPost ::=
    dl-DPCH-PowerControlInfo    SEQUENCE {
                                DL-DPCH-PowerControlInfo     OPTIONAL
    }

DL-DPCH-InfoCommonPredef ::=
    spreadingFactorAndPilot     SEQUENCE {
                                SF512-AndPilot,
                                -- TABULAR: The number of pilot bits is nested inside the spreading factor.
                                positionFixedOrFlexible        PositionFixedOrFlexible,
                                tfci-Existence                 BOOLEAN
    }

DL-DPCH-InfoPerRL ::=
    fdd                          CHOICE {
                                SEQUENCE {
                                    PCPICH-UsageForChannelEst,
                                    dcpch-FrameOffset,
                                    secondaryCPICH-Info       OPTIONAL,
                                    dl-ChannelisationCodeList,
                                    tpc-CombinationIndex,
                                    ssdt-CellIdentity           OPTIONAL,
                                    closedLoopTimingAdjMode     OPTIONAL
                                },
                                tdd                             DL-CCTrChList
    }

DL-DPCH-InfoPerRL-Post ::=
    fdd                          CHOICE {
                                SEQUENCE {
                                    PCPICH-UsageForChannelEst  OPTIONAL,
                                    dl-ChannelisationCode,
                                    tpc-CombinationIndex
                                },
                                tdd                             SEQUENCE {
                                    dl-CCTrCh-Post
                                }
    }

DL-DPCH-PowerControlInfo ::=
    -- TABULAR: DPC-Mode is applicable for FDD mode only.
    dpc-Mode                     SEQUENCE {
                                DPC-Mode                       OPTIONAL
    }

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

```

```

DL-InformationPerRL ::=
    modeSpecificInfo
        fdd
            primaryCPICH-Info
            pdsch-SHO-DCH-Info
            pdsch-CodeMapping
        },
        tdd
            PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL
    secondaryCCPCH-Info
    tfcs
    fach-PCH-InformationList
    sib-ReferenceList
}

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

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

DL-InformationPerRL-Post ::=
    modeSpecificInfo
        fdd
            primaryCPICH-Info
        },
        tdd
            primaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL
}

DL-OuterLoopControl ::=
    ENUMERATED {
        increaseAllowed, increaseNotAllowed }

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

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

DL-TS-ChannelisationCodeList ::=
    SEQUENCE (SIZE (1..maxDPCHcodesPerTS)) OF
        DL-TS-ChannelisationCode

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

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

DPCH-CompressedModeInfo ::=
    tgp-SequenceList
}

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

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

DSCH-Mapping ::=
    maxTFCI-Field2Value
    MaxTFCI-Field2Value,

```



```

    spreadingFactor          SF-PDSCH,
    codeNumber               CodeNumberDSCH,
    multiCodeInfo           MultiCodeInfo
}

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

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

DurationTimeInfo ::=     INTEGER (1..4096)

DynamicPersistenceLevel ::= INTEGER (1..8)

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

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

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

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

FrequencyInfo ::=         SEQUENCE {
    modeSpecificInfo       CHOICE {
        fdd                SEQUENCE {
            uarfcn-UL      UARFCN,
            uarfcn-DL      UARFCN                                OPTIONAL
        },
        tdd                SEQUENCE {
            uarfcn-Nt      UARFCN
        }
    }
}

IndividualTimeslotInfo ::= SEQUENCE {
    timeslotNumber         TimeslotNumber,
    tfci-Existence        BOOLEAN                                OPTIONAL,
    burstType           CHOICE {
      type-1             SEQUENCE {
        midambleShift     MidambleShiftLong                       OPTIONAL
      },
      type-2             SEQUENCE {
        midambleShift     MidambleShiftShort                       OPTIONAL
      }
    midambleShiftAndBurstType MidambleShiftandBurstType
}

IndividualTS-InfoDL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    dl-TS-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoDL-CCTrCHList ::= SEQUENCE (SIZE (1..maxTS)) OF
                                    IndividualTS-InfoDL-CCTrCH

IndividualTS-InfoPDSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,
    pdsch-ChannelisationCodeList DL-TS-ChannelisationCodeList
}

IndividualTS-InfoPDSCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                IndividualTS-InfoPDSCH

IndividualTS-InfoPUSCH ::= SEQUENCE {
    individualTimeslotInfo IndividualTimeslotInfo,

```

```

    ul-ChannelisationCode      UL-TS-ChannelisationCodeList
  }

IndividualTS-InfoPUSCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                IndividualTS-InfoPUSCH

IndividualTS-InfoUL-CCTrCH ::= SEQUENCE {
    individualTimeslotInfo      IndividualTimeslotInfo,
    channelisationCodeList      UL-TS-ChannelisationCodeList
}

IndividualTS-InfoUL-CCTrCH-List ::= SEQUENCE (SIZE (1..maxTS)) OF
                                    IndividualTS-InfoUL-CCTrCH

IndividualTS-Interference ::= SEQUENCE {
    timeslot                    TimeslotNumber,
    ul-TimeslotInterference      UL-Interference
}

IndividualTS-InterferenceList ::= SEQUENCE (SIZE (1..maxTS)) OF
                                    IndividualTS-Interference

ITP ::= ENUMERATED {
    mode0, mode1 }

-- Value range of -50..33 is used for Release 99
MaxAllowedUL-TX-Power ::= INTEGER (-50..77)

MaxAvailablePCPCH-Number ::= INTEGER (1..64)

MaxTFCI-Field2Value ::= INTEGER (1..1023)

MidambleConfiguration ::= SEQUENCE {
    burstType1                  BurstType1                                DEFAULT ms8,
    -- TABULAR: The default value for BurstType2 has not been specified due to
    -- compactness reasons.
    burstType2                  BurstType2
}

MidambleShiftAndBurstType ::= SEQUENCE {
    burstType                    CHOICE {
        type1                    SEQUENCE {
            midambleAllocationMode CHOICE {
                defaultMidamble    NULL,
                commonMidamble      NULL,
                ueSpecificMidamble  SEQUENCE {
                    midambleShift    MidambleShiftLong
                }
            }
        },
        type2                    SEQUENCE {
            midambleAllocationMode CHOICE {
                defaultMidamble    NULL,
                commonMidamble      NULL,
                ueSpecificMidamble  SEQUENCE {
                    midambleShift    MidambleShiftShort
                }
            }
        },
        type3                    SEQUENCE {
            midambleAllocationMode CHOICE {
                defaultMidamble    NULL,
                ueSpecificMidamble  SEQUENCE {
                    midambleShift    MidambleShiftLongMedium
                }
            }
        }
    }
}

MidambleShiftLong ::= INTEGER (0..15)

MidambleShiftMedium ::= INTEGER (0..7)

MidambleShiftShort ::= INTEGER (0..5)

```

```

MinimumSpreadingFactor ::=          ENUMERATED {
                                     sf4, sf8, sf16, sf32,
                                     sf64, sf128, sf256 }

MultiCodeInfo ::=                  INTEGER (1..16)

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

N-GAP ::=                          ENUMERATED {
                                     f2, f4, f8 }

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

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

NB01 ::=                          INTEGER (0..50)

NF-Max ::=                         INTEGER (1..64)

NumberOfDPDCH ::=                 INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=              INTEGER (1..2)

PagingIndicatorLength ::=         ENUMERATED {
                                     pi2, pi4, pi8 }

PC-Preamble ::=                   ENUMERATED {
                                     pcp0, pcp15 }

PCP-Length ::=                    ENUMERATED {
                                     as0, as8 }

PCPCH-ChannelInfo ::=             SEQUENCE {
    pcpch-UL-ScramblingCode         INTEGER (0..79),
    pcpch-DL-ChannelisationCode     INTEGER (0..511),
    pcpch-DL-ScramblingCode         SecondaryScramblingCode      OPTIONAL,
    pcp-Length                      PCP-Length,
    ucsm-Info                       UCSM-Info                       OPTIONAL
}

PCPCH-ChannelInfoList ::=         SEQUENCE (SIZE (1..maxPCPCHs)) OF
    PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=     ENUMERATED {
    mayBeUsed,
    shallNotBeUsed }

PDSCH-CodeInfo ::=               SEQUENCE {
    spreadingFactor                 SF-PDSCH,
    codeNumber                      CodeNumberDSCH,
    multiCodeInfo                   MultiCodeInfo
}

PDSCH-CodeInfoList ::=           SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    PDSCH-CodeInfo

PDSCH-CodeMap ::=                SEQUENCE {
    spreadingFactor                 SF-PDSCH,
    multiCodeInfo                   MultiCodeInfo
}

PDSCH-CodeMapList ::=            SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
    PDSCH-CodeMap

PDSCH-CodeMapping ::=            SEQUENCE {
    dl-ScramblingCode               SecondaryScramblingCode      OPTIONAL,
    signallingMethod                CHOICE {
        codeRange                   CodeRange,
        tfci-Range                  DSCH-MappingList,
        explicit                     PDSCH-CodeInfoList,
        replace                      ReplacedPDSCH-CodeInfoList
    }
}

```

```

}
}

PDSCH-Info ::=
    tfcs-Identity          SEQUENCE {
                           TFCS-Identity          OPTIONAL,
                           sfn-TimeInfo           OPTIONAL,
                           commonTimeslotInfo     OPTIONAL,
                           individualTimeslotInfoList OPTIONAL
    }

PDSCH-SHO-DCH-Info ::=
    dsch-RadioLinkIdentifier SEQUENCE {
                           DSCH-RadioLinkIdentifier,
                           tfci-CombiningSet       OPTIONAL,
                           rl-IdentifierList       OPTIONAL
    }

PDSCH-SysInfo ::=
    pdsch-Info
    dsch-TFS
    dsch-TFCS
}

PDSCH-SysInfoList ::=
    SEQUENCE (SIZE (1..maxPDSCH)) OF
        PDSCH-SysInfo

PersistenceScalingFactor ::=
    ENUMERATED {
        psf0-9, psf0-8, psf0-7, psf0-6,
        psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=
    SEQUENCE (SIZE (1..maxASCPersist)) OF
        PersistenceScalingFactor

PI-CountPerFrame ::=
    ENUMERATED {
        e18, e36, e72, e144 }

PICH-Info ::=
    fdd
        secondaryScramblingCode SEQUENCE {
                                SecondaryScramblingCode OPTIONAL,
                                channelisationCode256,
                                pi-CountPerFrame,
                                sttd-Indicator          BOOLEAN
        },
    tdd
        channelisationCode SEQUENCE {
                                TDD-PICH-CCode          OPTIONAL,
                                timeslotNumber          OPTIONAL,
                                burstType               CHOICE {
                                    type-1               MidambleShiftLong,
                                    type-2               MidambleShiftShort
                                }
        }
        repetitionPeriodLengthOffset RepPerLengthOffset-PICH OPTIONAL,
        pagingIndicatorLength        PagingIndicatorLength  DEFAULT pi2,
        n-GAP                         N-GAP                  DEFAULT f4,
        n-PCH                         N-PCH                   DEFAULT 2
    }

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

PilotBits128 ::=
    ENUMERATED {
        pb4, pb8 }

PilotBits256 ::=
    ENUMERATED {
        pb2, pb4, pb8 }

PositionFixedOrFlexible ::=
    ENUMERATED {
        fixed,
        flexible }

PowerControlAlgorithm ::=
    CHOICE {
        algorithm1 TPC-StepSize,
        algorithm2 NULL
    }

PowerOffsetP0 ::=
    INTEGER (1..8)

PRACH-Midamble ::=
    ENUMERATED {

```

```

        direct,
        direct-Inverted }

PRACH-Partitioning ::=
    fdd
        CHOICE {
            SEQUENCE (SIZE (1..maxASC)) OF
                AccessServiceClass,
            tdd
                SEQUENCE (SIZE (1..maxASC)) OF
                    ASC
        }

PRACH-PowerOffset ::=
    powerOffsetP0
    preambleRetransMax
}

PRACH-RACH-Info ::=
    modeSpecificInfo
        fdd
            availableSignatureList
            availableSF
            scramblingCodeWordNumber
            puncturingLimit
            availableSubChannelNumberList
        },
        tdd
            timeslot
            channelisationCode
            prach-Midamble
        }
}

PRACH-SystemInformation ::=
    prach-RACH-Info
    transportChannelIdentity
    rach-TransportFormatSet
    rach-TFCS
    prach-Partitioning
    persistenceScalingFactorList
    ac-To-ASC-MappingTable
    modeSpecificInfo
        fdd
            primaryCPICH-TX-Power
            constantValue
            prach-PowerOffset
            rach-TransmissionParameters
            aich-Info
        },
        tdd
            NULL
    }

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

PreambleRetransMax ::=
    INTEGER (1..64)

PreDefPhyChConfiguration ::=
    ul-DPCH-InfoPredef
    modeSpecificInfo
        fdd
            dl-CommonInformationPredef
        },
        tdd
            NULL
    }

PrimaryCCPCH-Info ::=
    fdd
        tx-DiversityIndicator
    },
    tdd
        syncCase
        CHOICE {

```

```

        syncCase1                SEQUENCE {
            timeslot                TimeslotNumber
        },
        syncCase2                SEQUENCE {
            timeslotSync2          TimeslotSync2
        }
    }
    cellParametersID            CellParametersID            OPTIONAL,
    blockSTTD-Indicator         BOOLEAN                    OPTIONAL,
}

PrimaryCCPCH-TX-Power ::=      INTEGER (6..43)

PrimaryCPICH-Info ::=         SEQUENCE {
    primaryScramblingCode      PrimaryScramblingCode
}

-- Value range -10 .. 50 used for Release 99
PrimaryCPICH-TX-Power ::=     INTEGER (-10..53)

PrimaryScramblingCode ::=     INTEGER (0..511)

PuncturingLimit ::=          ENUMERATED {
    p10-40, p10-44, p10-48, p10-52, p10-56,
    p10-60, p10-64, p10-68, p10-72, p10-76,
    p10-80, p10-84, p10-88, p10-92, p10-96, p11 }

PUSCH-CapacityAllocationInfo ::= SEQUENCE {
    pusch-Allocation            CHOICE {
        pusch-AllocationPending NULL,
        pusch-AllocationAssignment SEQUENCE {
            pusch-PowerControlInfo UL-TargetSIR            OPTIONAL,
            pusch-Info              PUSCH-Info
        }
    }
}

PUSCH-Info ::=               SEQUENCE {
    tfcs-Identity               TFCS-Identity            OPTIONAL,
    sfn-timeInfo                SFN-TimeInfo              OPTIONAL,
    commonTimeslotInfo          CommonTimeslotInfo        OPTIONAL,
    timeslotInfoList            IndividualTS-InfoPUSCH-List OPTIONAL
}

PUSCH-SysInfo ::=            SEQUENCE {
    pusch-Info                  PUSCH-Info,
    usch-TFS                    TransportFormatSet,
    usch-TFCS                    TFCS
}

PUSCH-SysInfoList ::=        SEQUENCE (SIZE (1..maxPUSCH)) OF
    PUSCH-SysInfo

RACH-TransmissionParameters ::= SEQUENCE {
    mmax                        INTEGER (1..32),
    nb01Min                     NB01,
    nb01Max                     NB01
}

ReducedScramblingCodeNumber ::= INTEGER (0..8191)

RepetitionPeriodAndLength ::= CHOICE {
    repetitionPeriod1           NULL,
    repetitionPeriod2           INTEGER (1..1),
    -- repetitionPeriod2 could just as well be NULL also.
    repetitionPeriod4           INTEGER (1..3),
    repetitionPeriod8           INTEGER (1..7),
    repetitionPeriod16          INTEGER (1..15),
    repetitionPeriod32          INTEGER (1..31),
}

```

```

    repetitionPeriod64                INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1                NULL,
    repetitionPeriod2                SEQUENCE {
        length                        NULL,
        offset                        INTEGER (0..1)
    },
    repetitionPeriod4                SEQUENCE {
        length                        INTEGER (1..3),
        offset                        INTEGER (0..3)
    },
    repetitionPeriod8                SEQUENCE {
        length                        INTEGER (1..7),
        offset                        INTEGER (0..7)
    },
    repetitionPeriod16               SEQUENCE {
        length                        INTEGER (1..15),
        offset                        INTEGER (0..15)
    },
    repetitionPeriod32               SEQUENCE {
        length                        INTEGER (1..31),
        offset                        INTEGER (0..31)
    },
    repetitionPeriod64               SEQUENCE {
        length                        INTEGER (1..63),
        offset                        INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::=          SEQUENCE {
    tfci-Field2                      MaxTFCI-Field2Value,
    spreadingFactor                  SF-PDSCH,
    codeNumber                        CodeNumberDSCH,
    multiCodeInfo                    MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::=     SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
    ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::=        CHOICE {
    rpp4-2                           INTEGER (0..3),
    rpp8-2                           INTEGER (0..7),
    rpp8-4                           INTEGER (0..7),
    rpp16-2                          INTEGER (0..15),
    rpp16-4                          INTEGER (0..15),
    rpp32-2                          INTEGER (0..31),
    rpp32-4                          INTEGER (0..31),
    rpp64-2                          INTEGER (0..63),
    rpp64-4                          INTEGER (0..63)
}

RL-AdditionInformation ::=          SEQUENCE {
    primaryCPICH-Info                PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL               DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator          BOOLEAN,
    secondaryCCPCH-Info              SecondaryCCPCH-Info           OPTIONAL,
    tfcs                             TFCS                       OPTIONAL,
    fach-PCH-InformationList         FACH-PCH-InformationList     OPTIONAL,
    sib-ReferenceListFACH             SIB-ReferenceListFACH       OPTIONAL
}

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

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

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

RPP ::=                            ENUMERATED {
    mode0, model }

S-Field ::=                        ENUMERATED {
    e1bit, e2bits }

```

```

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

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

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

SCCPCH-SystemInformationList ::=   SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                     SCCPCH-SystemInformation

ScramblingCodeChange ::=          ENUMERATED {
                                     codeChange, noCodeChange }

ScramblingCodeType ::=            ENUMERATED {
                                     shortSC,
                                     longSC }

ScramblingCodeWordNumber ::=      INTEGER (0..15)

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

SecondaryCPICH-Info ::=            SEQUENCE {
    secondaryDL-ScramblingCode      SecondaryScramblingCode                OPTIONAL,
    channelisationCode              ChannelisationCode256
}

-- Value range 1..15 used for Release 99
SecondaryScramblingCode ::=        INTEGER (1..16)

SecondInterleavingMode ::=        ENUMERATED {
    frameRelated, timeslotRelated }

SelectionIndicator ::=             ENUMERATED {
    on, off }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::=           CHOICE {
    sf4                             INTEGER (0..3),
    sf8                             INTEGER (0..7),
    sf16                            INTEGER (0..15),
    sf32                            INTEGER (0..31),
    sf64                            INTEGER (0..63),
}

```



```

    sf128                INTEGER (0..127),
    sf256                INTEGER (0..255)
}

-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::= CHOICE {
    sf4                  INTEGER (0..3),
    sf8                  INTEGER (0..7),
    sf16                 INTEGER (0..15),
    sf32                 INTEGER (0..31),
    sf64                 INTEGER (0..63),
    sf128                INTEGER (0..127),
    sf256                INTEGER (0..255),
    sf512                INTEGER (0..511)
}

-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::= CHOICE {
    sfd4                 NULL,
    sfd8                 NULL,
    sfd16                NULL,
    sfd32                NULL,
    sfd64                NULL,
    sfd128               PilotBits128,
    sfd256               PilotBits256,
    sfd512               NULL
}
SF-PDSCH ::= ENUMERATED {
    sfp4, sfp8, sfp16, sfp32,
    sfp64, sfp128, sfp256, spare }

SF-PRACH ::= ENUMERATED {
    sfpr32, sfpr64, sfpr128, sfpr256 }

SFN-TimeInfo ::= SEQUENCE {
    activationTime      INTEGER (0..4094)           OPTIONAL,
    physChDuration      DurationTimeInfo           OPTIONAL
}

Signature ::= INTEGER (0..15)

SpreadingFactor ::= ENUMERATED {
    sf4, sf8, sf16, sf32,
    sf64, sf128, sf256 }

SSDT-CellIdentity ::= ENUMERATED {
    ssdt-id-a, ssdt-id-b, ssdt-id-c,
    ssdt-id-d, ssdt-id-e, ssdt-id-f,
    ssdt-id-g, ssdt-id-h }

SSDT-Information ::= SEQUENCE {
    s-Field              S-Field,
    codeWordSet          CodeWordSet
}

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

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

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

```

```

TDD-PRACH-CCodeList ::=
    sf8
    sf16
}
CHOICE {
    SEQUENCE (SIZE (1..8)) OF
        TDD-PRACH-CCode8,
    SEQUENCE (SIZE (1..8)) OF
        TDD-PRACH-CCode16
}

TFC-ControllDuration ::=
    ENUMERATED {
        tfc-cd1, tfc-cd16, tfc-cd24, tfc-cd32,
        tfc-cd48, tfc-cd64, tfc-cd128,
        tfc-cd192, tfc-cd256, tfc-cd512,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

TFCI-Coding ::=
    ENUMERATED {
        tfci-bits-4, tfci-bits-8,
        tfci-bits-16, tfci-bits-32 }

-- **TODO**, not defined
TFCI-CombiningSet ::=
    SEQUENCE {
}

TGCFN ::=
    INTEGER (0..255)

-- The value 270 represents "undefined" in the tabular description.
TGD ::=
    INTEGER (15..270)

TGL ::=
    INTEGER (1..14)

TGMP ::=
    ENUMERATED {
        tdd-Measurement, fdd-Measurement,
        gsm-Measurement, otherMP }

TGP-Sequence ::=
    tgpsi
    tgps-StatusFlag
    tgps-ConfigurationParams
}
SEQUENCE {
    TGPSI,
    TGPS-StatusFlag,
    TGPS-ConfigurationParams
} OPTIONAL

TGP-SequenceList ::=
    SEQUENCE (SIZE (1..maxTGPS)) OF
        TGP-Sequence

TGP-SequenceShort ::=
    tgpsi
    tgps-StatusFlag
}
SEQUENCE {
    TGPSI,
    TGPS-StatusFlag
}

TGPL ::=
    INTEGER (1..144)

-- TABULAR: The value 0 represents "infinity" in the tabular description.
TGPRC ::=
    INTEGER (0..63)

TGPS-ConfigurationParams ::=
    tgmp
    tgprc
    tgcfn
    tgsn
    tg11
    tg12
    tgd
    tgpl1
    tgpl2
    rpp
    itp
    ul-DL-Mode
    -- TABULAR: Compressed mode method is nested inside UL-DL-Mode
    dl-FrameType
    deltaSIR1
    deltaSIRAfter1
    deltaSIR2
    deltaSIRAfter2
}
SEQUENCE {
    TGMP,
    TGPRC,
    TGCFN,
    TGSN,
    TGL,
    TGL
} OPTIONAL,
    {
    TGD,
    TGPL,
    TGPL
} OPTIONAL,
    {
    RPP,
    ITP,
    UL-DL-Mode,
    DL-FrameType,
    DeltaSIR,
    DeltaSIR,
    DeltaSIR
} OPTIONAL,
    {
    DeltaSIR
} OPTIONAL

```

```

}

TGPS-StatusFlag ::=          ENUMERATED {
                               tgpsActive, tgpsInactive }

TGPSI ::=                    INTEGER (1..maxTGPS)

TGSN ::=                      INTEGER (0..14)

TimeInfo ::=                  SEQUENCE {
                               activationTime          OPTIONAL,
                               durationTimeInfo        OPTIONAL
}

TimeslotList ::=              SEQUENCE (SIZE (1..maxTS)) OF
                               TimeslotNumber

TimeslotNumber ::=            INTEGER (0..14)

TimeslotSync2 ::=             INTEGER (0..6)

-- Actual value = IE value * 256
TimingOffset ::=              INTEGER (0..149)

TPC-CombinationIndex ::=      INTEGER (0..5)

TPC-StepSize ::=              INTEGER (0..1)

TX-DiversityMode ::=          ENUMERATED {
                               noDiversity,
                               sttd,
                               closedLoopMode1,
                               closedLoopMode2 }

UARFCN ::=                    INTEGER (0..16383)

UCSM-Info ::=                 SEQUENCE {
                               minimumSpreadingFactor  MinimumSpreadingFactor,
                               nf-Max                  NF-Max,
                               channelReqParamsForUCSM ChannelReqParamsForUCSM
}

UL-CCTrCH ::=                 SEQUENCE {
                               tfcs-Identity            TFCS-Identity          OPTIONAL,
                               timeInfo                 TimeInfo                OPTIONAL,
                               commonTimeslotInfo       CommonTimeslotInfo      OPTIONAL,
                               timeslotInfoList         IndividualTS-InfoUL-CCTrCH-List OPTIONAL
}

UL-CCTrCHList ::=             SEQUENCE (SIZE (1..maxCCTrCH)) OF
                               UL-CCTrCH

UL-ChannelRequirement ::=     CHOICE {
                               ul-DPCH-Info            UL-DPCH-Info,
                               prach-RACH-Info         PRACH-RACH-Info,
                               spare                    NULL
}

UL-CompressedModeMethod ::=   ENUMERATED {
                               sf-2, noCompressing,
                               higherLayerScheduling }

UL-DL-Mode ::=                CHOICE {
                               ul                      UL-CompressedModeMethod,
                               dl                      DL-CompressedModeMethod
}

UL-DPCCH-SlotFormat ::=       ENUMERATED {
                               slf0, slf1, slf2 }

UL-DPCH-Info ::=              SEQUENCE {
                               ul-DPCH-PowerControlInfo UL-DPCH-PowerControlInfo OPTIONAL,

```

```

modeSpecificInfo          CHOICE {
  fdd                     SEQUENCE {
    scramblingCodeType    ScramblingCodeType,
    scramblingCode         UL-ScramblingCode,
    numberOfDPDCH         NumberOfDPDCH           DEFAULT 1,
    spreadingFactor       SpreadingFactor,
    tfci-Existence        BOOLEAN,
    numberOfFBI-Bits      NumberOfFBI-Bits      OPTIONAL,
    -- The IE above is conditional based on history
    puncturingLimit       PuncturingLimit
  },
  tdd                     SEQUENCE {
    ul-TimingAdvance      UL-TimingAdvance      OPTIONAL,
    ul-CCTrCHList         UL-CCTrCHList
  }
}
}

```

```

UL-DPCH-InfoPost ::= SEQUENCE {
  ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfoPost,
  modeSpecificInfo          CHOICE {
    fdd                     SEQUENCE {
      scramblingCodeType    ScramblingCodeType,
      reducedScramblingCodeNumber  ReducedScramblingCodeNumber,
      spreadingFactor       SpreadingFactor
    },
    tdd                     SEQUENCE {
      ul-TimingAdvance      UL-TimingAdvance      OPTIONAL,
      timeInfo              TimeInfo,
      commonTimeslotInfo    CommonTimeslotInfo,
      timeslotInfoList      IndividualTS-InfoUL-CCTrCH-List
    }
  }
}

```

```

UL-DPCH-InfoPredef ::= SEQUENCE {
  ul-DPCH-PowerControlInfo  UL-DPCH-PowerControlInfoPredef,
  modeSpecificInfo          CHOICE {
    fdd                     SEQUENCE {
      tfci-Existence        BOOLEAN,
      puncturingLimit       PuncturingLimit
    },
    tdd                     NULL
  }
}

```

```

UL-DPCH-PowerControlInfo ::= CHOICE {
  fdd                     SEQUENCE {
    dpccch-PowerOffset     DPCCCH-PowerOffset,
    pc-Preamble            PC-Preamble,
    powerControlAlgorithm  PowerControlAlgorithm
    -- TABULAR: TPC step size nested inside PowerControlAlgorithm
  },
  tdd                     SEQUENCE {
    ul-TargetSIR           UL-TargetSIR,
    handoverGroup          SEQUENCE {
      individualTS-InterferenceList  IndividualTS-InterferenceList,
      dpch-ConstantValue             ConstantValue
    }
  }
}

```

```

UL-DPCH-PowerControlInfoPost ::= SEQUENCE {
  modeSpecificInfo          CHOICE {
    fdd                     SEQUENCE {
      powerControlAlgorithm  PowerControlAlgorithm
      -- TABULAR: TPC step size nested inside PowerControlAlgorithm
    },
    tdd                     SEQUENCE {
      ul-TargetSIR           UL-TargetSIR,
      individualTS-InterferenceList  IndividualTS-InterferenceList
    }
  }
}

```

```
UL-DPCH-PowerControlInfoPredef ::= CHOICE {
  fdd SEQUENCE {
    dpch-PowerOffset DPCCH-PowerOffset,
    pc-Preamble PC-Preamble
  },
  tdd SEQUENCE {
    dpch-ConstantValue ConstantValue
  }
}

-- Value range -110 .. -70 used for Release 99
UL-Interference ::= INTEGER (-110..-47)

--
UL-ScramblingCode ::= INTEGER (0..16777215)

-- Actual value = (IE value * 0.5) - 11
UL-TargetSIR ::= INTEGER (0..62)

UL-TimingAdvance ::= INTEGER (0..63)

UL-TS-ChannelisationCode ::= ENUMERATED {
  cc1-1, cc2-1, cc2-2,
  cc4-1, cc4-2, cc4-3, cc4-4,
  cc8-1, cc8-2, cc8-3, cc8-4,
  cc8-5, cc8-6, cc8-7, cc8-8,
  cc16-1, cc16-2, cc16-3, cc16-4,
  cc16-5, cc16-6, cc16-7, cc16-8,
  cc16-9, cc16-10, cc16-11, cc16-12,
  cc16-13, cc16-14, cc16-15, cc16-16 }

UL-TS-ChannelisationCodeList ::= SEQUENCE (SIZE (1..2)) OF
  UL-TS-ChannelisationCode
END
```

CHANGE REQUEST

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

25.331 CR 481r1

Current Version: **3.3.0**

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

↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #9**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic *(for SMG Use only)*

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

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

Source: TSG-RAN WG2 **Date:** 2000-08-17

Subject: Correction in RLC info

Work item:

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

Reason for change: Some editorial corrections and corrections to ASN related to RLC info.
+

Clauses affected: 10.3.4.22, 11.3.4

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

Other comments:



help.doc

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

10.3.4.22 Transmission RLC Discard

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE SDU Discard Mode	MP			Different modes for discharge the RLC buffer on the transmitter side; "Timer based with explicit signalling", "Timer based without explicit signalling", "Discard after Max_DAT retransmissions" or "No_discard". For unacknowledged mode and transparent mode only Timer based without explicit signalling is applicable. If "No_discard" is used, reset procedure shall be done after Max_DAT retransmissions
>Timer based explicit				
>>Timer_MRW	MP		Integer(50,60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	It is used to trigger the retransmission of a STATUS PDU containing an MRW SUFI field. 16 spare values needed, criticality: reject
>>Timer_discard	MP		Integer(100, 250, 500, 750, 1000, 1250, 1500, 1750, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 7500)	Elapsed time in milliseconds before a SDU is discarded.
>>MaxMRW	MP		Integer(1, 4, 6, 8, 12, 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command 8 spare values needed, criticality: ffs
>Timer based no explicit				
>>Timer_discard	MP		Integer(10,20,30,40,50,60,70,80,90,100)	Elapsed time in milliseconds before a SDU is discarded.
>Max DAT retransmissions				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded.
>>Timer_MRW	MP		Integer(50, 60, 70, 80,	It is used to trigger the retransmission of a STATUS

			90, 100, 120, 140, 160, 180, 200, 300, 400, 500, 700, 900)	PDU containing an MRW SUFI field. 16 spare values needed, criticality: reject
>>MaxMRW	MP		Integer(1, 4, 6, 8, 12 16, 24, 32)	It is the maximum value for the number of retransmissions of a MRW command 8 spare values needed, criticality: ffs
>No discard				
>> Max_DAT	MP		Integer(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40)	Number of retransmissions of a PU before a SDU is discarded <u>the RLC re entity is reset.</u>

11.3.4 Radio bearer information elements

RadioBearer-IEs DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

CN-DomainIdentity,
RAB-Identity
FROM CoreNetwork-IEs

Re-EstablishmentTimer
FROM UserEquipment-IEs

PreDefTransChConfiguration,
TransportChannelIdentity
FROM TransportChannel-IEs

PreDefPhyChConfiguration
FROM PhysicalChannel-IEs

maxLoCHperRLC,
maxPDCPAlgoType,
maxRABsetup,
maxRB,
maxRBallRABs,
maxRBMuxOptions,
maxRBperRAB,
maxSRBsetup
FROM Constant-definitions;

```
AlgorithmSpecificInfo ::= CHOICE {
    rfc2507-Info          RFC2507-Info,
    spare1                NULL,
    spare2                NULL,
    spare3                NULL,
    spare4                NULL,
    spare5                NULL,
    spare6                NULL,
    spare7                NULL
}
```

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

```
-- Upper limit is 2^25 - 1
```



```

COUNT-C-MSB ::= INTEGER (0..33554431)

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

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

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

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

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

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

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

ExpectReordering ::= ENUMERATED {
    reorderingNotExpected,
    reorderingExpected }

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

HeaderCompressionInfo ::= SEQUENCE {
    algorithmSpecificInfo     AlgorithmSpecificInfo
}

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

LogicalChannelIdentity ::= INTEGER (1..15)

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

```

```

        lcm90, lcm95, lcm100 }

LosslessSRNS-RelocSupport ::=
    CHOICE {
        supported
        notSupported
    }

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

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

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

MaxMRW ::=
    ENUMERATED {
        mm1, mm4, mm6, mm8, mm12, mm16,
        mm24, mm32, spare1, spare2, spare3,
        spare4, spare5, spare6, spare7, spare8 }

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

MaxRST ::=
    ENUMERATED {
        rst1, rst4, rst6, rst8, rst12,
        rst16, rst24, rst32,
        spare1, spare2, spare3, spare4,
        spare5, spare6, spare7, spare8 }

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

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

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

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

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

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

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

```

```

PollingInfo ::=
    timerPollProhibit
    timerPoll
    poll-PU
    poll-SDU
    lastTransmissionPU-Poll
    lastRetransmissionPU-Poll
    pollWindow
    timerPollPeriodic
}

PollWindow ::=
    pw50, pw60, pw70, pw80, pw85,
    pw90, pw95, pw99,
    spare1, spare2, spare3, spare4,
    spare5, spare6, spare7, spare8 }

PredefinedConfigIdentity ::=
    INTEGER (0..15)

PredefinedConfigValueTag ::=
    INTEGER (0..15)

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

PreDefRadioConfiguration ::=
    -- User equipment IEs
    re-EstablishmentTimer
    -- Radio bearer IEs
    predefinedRB-Configuration
    -- Transport channel IEs
    preDefTransChConfiguration
    -- Physical channel IEs
    preDefPhyChConfiguration
}

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

RAB-InformationSetup ::=
    rab-Info
    rb-InformationSetupList
}

RAB-InformationSetupList ::=
    SEQUENCE (SIZE (1..maxRABsetup)) OF
        RAB-InformationSetup

RB-ActivationTimeInfo ::=
    rb-Identity
    rlc-SequenceNumber
}

RB-ActivationTimeInfoList ::=
    SEQUENCE (SIZE (1..maxRB)) OF
        RB-ActivationTimeInfo

RB-COUNT-C-Information ::=
    rb-Identity
    count-C-UL
    count-C-DL
}

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

```

RB-COUNT-C-Information

```

RB-COUNT-C-MSB-Information ::= SEQUENCE {
    rb-Identity          RB-Identity,
    count-C-MSB-UL      COUNT-C-MSB,
    count-C-MSB-DL      COUNT-C-MSB
}

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

RB-Identity ::= INTEGER (0..31)

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

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

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

RB-InformationReconfig ::= SEQUENCE {
    rb-Identity          RB-Identity,
    pdcp-Info           PCDCP-InfoReconfig          OPTIONAL,
    rlc-InfoChoice      RLC-InfoChoice              OPTIONAL,
    rb-MappingInfo      RB-MappingInfo              OPTIONAL,
    rb-SuspendResume    RB-SuspendResume           OPTIONAL
}

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

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

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

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

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

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

RB-SuspendResume ::= ENUMERATED {
    suspend, resume }

RB-WithPCDCP-Info ::= SEQUENCE {
    rb-Identity          RB-Identity,
    pdcp-SN-Info        PCDCP-SN-Info
}

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

```

```

ReceivingWindowSize ::=          ENUMERATED {
                                   rw1, rw8, rw16, rw32, rw128, rw256,
                                   rw512, rw768, rw1024, rw1536, rw2047,
                                   rw2560, rw3072, rw3584, rw4095, spare1 }

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

RLC-Info ::=                    SEQUENCE {
    ul-RLC-Mode                  UL-RLC-Mode                    OPTIONAL,
    dl-RLC-Mode                  DL-RLC-Mode                    OPTIONAL
}

RLC-InfoChoice ::=             CHOICE {
    rlc-Info                     RLC-Info,
    spare                         NULL
}

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

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

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

SRB-InformationSetupList2 ::= SEQUENCE (SIZE (4..5)) OF
                               SRB-InformationSetup

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

TimerEPC ::=                 ENUMERATED {
    te50, te60, te70, te80, te90,
    te100, te120, te140, te160, te180,
    te200, te300, te400, te500, te700,
    te900, spare1, spare2, spare3,
    spare4, spare5, spare6, spare7,
    spare8, spare9, spare10, spare11,
    spare12, spare13, spare14, spare15,
    spare16 }

TimerMRW ::=                 ENUMERATED {
    te50, te0, te70, te80, te90, te100,
    te120, te140, te160, te180, te200,
    te300, te400, te500, te700, te900,
    spare1, spare2, spare3, spare4, spare5,
    spare6, spare7, spare8, spare9, spare10,
}

```

```
    spare11, spare12, spare13, spare14,  
    spare15, spare16 }
```

TimerPoll ::=

```
ENUMERATED {  
    tp10, tp20, tp30, tp40, tp50,  
    tp60, tp70, tp80, tp90, tp100,  
    tp110, tp120, tp130, tp140, tp150,  
    tp160, tp170, tp180, tp190, tp200,  
    tp210, tp220, tp230, tp240, tp250,  
    tp260, tp270, tp280, tp290, tp300,  
    tp310, tp320, tp330, tp340, tp350,  
    tp360, tp370, tp380, tp390, tp400,  
    tp410, tp420, tp430, tp440, tp450,  
    tp460, tp470, tp480, tp490, tp500,  
    tp510, tp520, tp530, tp540, tp550,  
    tp600, tp650, tp700, tp750, tp800,  
    tp850, tp900, tp950, tp1000,  
  
    spare1, spare2, spare3, spare4, spare5,  
    spare6, spare7, spare8, spare9, spare10,  
    spare11, spare12, spare13, spare14,  
    spare15, spare16 }
```

TimerPollPeriodic ::=

```
ENUMERATED {  
    tper100, tper200, tper300, tper400,  
    tper500, tper750, tper1000, tper2000,  
    spare1, spare2, spare3, spare4,  
    spare5, spare6, spare7, spare8 }
```

TimerPollProhibit ::=

```
ENUMERATED {  
    tpp10, tpp20, tpp30, tpp40, tpp50,  
    tpp60, tpp70, tpp80, tpp90, tpp100,  
    tpp110, tpp120, tpp130, tpp140, tpp150,  
    tpp160, tpp170, tpp180, tpp190, tpp200,  
    tpp210, tpp220, tpp230, tpp240, tpp250,  
    tpp260, tpp270, tpp280, tpp290, tpp300,  
    tpp310, tpp320, tpp330, tpp340, tpp350,  
    tpp360, tpp370, tpp380, tpp390, tpp400,  
    tpp410, tpp420, tpp430, tpp440, tpp450,  
    tpp460, tpp470, tpp480, tpp490, tpp500,  
    tpp510, tpp520, tpp530, tpp540, tpp550,  
    tpp600, tpp650, tpp700, tpp750, tpp800,  
    tpp850, tpp900, tpp950, tpp1000,  
    spare1, spare2, spare3, spare4, spare5,  
    spare6, spare7, spare8, spare9, spare10,  
    spare11, spare12, spare13, spare14,  
    spare15, spare16 }
```

TimerRST ::=

```
ENUMERATED {  
    tr50, tr100, tr150, tr200, tr250, tr300,  
    tr350, tr400, tr450, tr500, tr550,  
    tr600, tr700, tr800, tr900, tr1000,  
    spare1, spare2, spare3, spare4, spare5,  
    spare6, spare7, spare8, spare9, spare10,  
    spare11, spare12, spare13, spare14,  
    spare15, spare16 }
```

TimerStatusPeriodic ::=

```
ENUMERATED {  
    tsp100, tsp200, tsp300, tsp400, tsp500,  
    tsp750, tsp1000, tsp2000 }
```

TimerStatusProhibit ::=

```
ENUMERATED {  
    tsp10, tsp20, tsp30, tsp40, tsp50,  
    tsp60, tsp70, tsp80, tsp90, tsp100,  
    tsp110, tsp120, tsp130, tsp140, tsp150,  
    tsp160, tsp170, tsp180, tsp190, tsp200,  
    tsp210, tsp220, tsp230, tsp240, tsp250,  
    tsp260, tsp270, tsp280, tsp290, tsp300,
```

```

tsp310,tsp320,tsp330,tsp340,tsp350,
tsp360,tsp370,tsp380,tsp390,tsp400,
tsp410,tsp420,tsp430,tsp440,tsp450,
tsp460,tsp470,tsp480,tsp490,tsp500,
tsp510,tsp520,tsp530,tsp540,tsp550,
tsp600,tsp650,tsp700,tsp750,tsp800,
tsp850,tsp900,tsp950,tsp1000,
spare1, spare2, spare3, spare4, spare5,
spare6, spare7, spare8, spare9, spare10,
spare11, spare12, spare13, spare14,
spare15, spare16 }

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

TransmissionWindowSize ::=           ENUMERATED {
    tw1, tw8, tw16, tw32, tw128, tw256,
    tw512, tw768, tw1024, tw1536, tw2047,
    tw2560, tw3072, tw3584, tw4095, spare1 }

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

UL-LogicalChannelMapping ::=         SEQUENCE {
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType            UL-TransportChannelType,
    logicalChannelIdentity              LogicalChannelIdentity                OPTIONAL,
    mac-LogicalChannelPriority          MAC-LogicalChannelPriority,
    logicalChannelMaxLoss              LogicalChannelMaxLoss                DEFAULT 1cm0
}

UL-LogicalChannelMapping2 ::=        SEQUENCE {
    rlc-LogicalChannelMappingIndicator BOOLEAN,
    -- TABULAR: UL-TransportChannelType contains TransportChannelIdentity as well.
    ul-TransportChannelType            UL-TransportChannelType,
    logicalChannelIdentity              LogicalChannelIdentity                OPTIONAL,
    mac-LogicalChannelPriority          MAC-LogicalChannelPriority,
    logicalChannelMaxLoss              LogicalChannelMaxLoss                DEFAULT 1cm0
}

UL-LogicalChannelMappingList ::=     SEQUENCE (SIZE (maxLoChperRLC)) OF
    UL-LogicalChannelMapping2

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

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

```

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

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

UL-TransportChannelType ::= CHOICE {
    dch          TransportChannelIdentity,
    rach         NULL,
    cpch         NULL,
    usch         NULL
}

END
```




help.doc

<----- [double-click here for help and instructions on how to create a CR.](#)

8.5.7.3.6 Configuration of CTCH occasions

The CTCH, carrying CBS data -is mapped onto only one S-CCPCH, which is the same as carrying the PCH. If more than one CTCH are defined, the first CTCH that is configured in the list of S-CCPCHs is the one that is used for CBS data.

The CTCH occasions are identified by the first radio frame of the TTI which can contain CTCH data. The CTCH occasions are fixed on the system frame number cycle 0 .. 4095 (i.e. no modulo calculation) and thus repeated cyclically.

The CTCH occasions are determined by a set of parameters.

M_{TTI} : number of radio frames in the TTI of the FACH used for CTCH

N: period of CTCH allocation on S-CCPCH, integer number of radio frames,

$M_{TTI} \leq N \leq \text{MaxSFN} - K$, where N is a multiple of M_{TTI} (cf. 3G TS 25.212 and 3G TS 25.222).

MaxSFN: maximum system frame number = 4096 (cf. 3G TS 25.402).

K: CBS frame offset, integer number of radio frames $0 \leq K \leq N-1$ where K is a multiple of M_{TTI} .

The CTCH occasions are calculated as follows:

$\text{SFN} = (K + m N)$, $m = 0, 1, \dots, M$, M chosen that $K+mN \leq \text{MaxSFN}$.

The parameters N and K are broadcast as system information.

10.3.6.17 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.53	
>>DPCH frame offset	MP		Integer(0..381 44 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in TS 25.211
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.63	
>>DL channelisation code	MP	1 to <maxDPC H-DLchan>		SF of the channelisation code of the data part for each DPCH
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.64	Default is the same scrambling code as for the Primary CPICH
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenum with "code number" in ASN.1
>>>Code number	MP		Integer(0..Spreading factor - 1)	
>>> Scrambling code change	CH SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.
>>TPC combination index	MP		TPC combination index 10.3.6.73	
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.66	
>>Closed loop timing adjustment mode	CH TxDiversity Mode		Integer(1, 2)	It is present if current TX Diversity Mode in UE is "closed loop mode 1" or "closed loop mode 2". Value in slots
>TDD				
>>DL CCTrCh List	MP	1..<maxCC TrCH>		
>>>TFCS Identity	MD		Transport Format Combination Set Identity 10.3.5.21	Identity of this CCTrCh. Default is specified in 10.3.5.21
>>>Time info	MP		Time Info 10.3.6.71	
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.7	Default is the current Common timeslot info
>>>Individual Timeslot info list	MD	1 to <maxTS>		Default is the current Timeslot info list

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>>>Individual timeslot info	MP		Individual timeslot info 10.3.6.31	
>>>>Channelisation code list	MP	1 to <maxDPC HcodesPer TS>		The first instance of the parameter Channelisation code corresponds to the first DPCH in that timeslot that shall be used first by the physical layer, the second to the DPCH in that timeslot that shall be used second and so on.
>>>>>Channelisation code	MP		Enumerated ((16/1)...(16/16))	
>>>>UL CCTrCH TPC List	<u>MD</u>	<u>1..<maxCC TrCH></u>		<u>UL CCTrCH identities for TPC commands associated with this DL CCTrCH. Default is previous list or all defined UL CCTrCH's</u>
>>>>>UL TPC TFCS Identity	<u>MP</u>		<u>Transport Format Combination Set Identity 10.3.5.21</u>	

10.2.23 PHYSICAL SHARED CHANNEL ALLOCATION

NOTE: Only for TDD.

This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE.

RLC-SAP: TM or UM on SHCCH, UM on DCCH

Logical channel: SHCCH or DCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message type	
C-RNTI	OP		C-RNTI 10.3.3.8	
Uplink timing advance	MD		Uplink Timing Advance 10.3.6.82	Default value is the existing value for uplink timing advance
Allocation period info	OP		Allocation period info 10.3.6.4	
PUSCH capacity allocation info	OP		PUSCH Capacity Allocation info 10.3.6.55	
PDSCH <u>capacity allocation</u> info	OP		PDSCH <u>Capacity Allocation</u> info 10.3.6. 37 xx	
Timeslot list	OP	1 to maxTS		
>Timeslot number	MP		Timeslot number 10.3.6.72	Timeslot numbers, for which the UE shall report the timeslot ISCP in PUSCH CAPACITY REQUEST message.

10.3.6.xx PDSCH Capacity Allocation info

NOTE: Only for TDD.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>PDSCH power control info</u>	<u>OP</u>		<u>PDSCH power control info</u> 10.3.6.xx	
<u>PDSCH info</u>	<u>MP</u>		<u>PDSCH info</u> 10.3.6.37	

10.3.6.xx PDSCH Power Control info

NOTE: Only for TDD.

<u>Information Element/Group name</u>	<u>Need</u>	<u>Multi</u>	<u>Type and reference</u>	<u>Semantics description</u>
<u>TPC Step Size</u>	<u>OP</u>		<u>Integer</u> (1, 2, 3)	<u>In dB</u>
<u>UL CCH TrCH TPC List</u>	<u>MD</u>	<u>1..<maxCC TrCH></u>		<u>UL CCH TrCH identities for TPC commands associated with this DL CCH TrCH. Default is previous list or all defined UL CCH TrCH's</u>
<u>>UL TPC TFCS Identity</u>	<u>MP</u>		<u>Transport Format Combination Set Identity</u> 10.3.5.21	

11.2 PDU definitions

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

```

--
-- *****
PhysicalSharedChannelAllocation ::= SEQUENCE {
  -- User equipment IEs
  c-RNTI                               C-RNTI                               OPTIONAL,
  -- Physical channel IEs
  ul-TimingAdvance                     UL-TimingAdvance                     OPTIONAL,
  allocationPeriodInfo                 AllocationPeriodInfo                 OPTIONAL,
  pusch-CapacityAllocationInfo         PUSCH-CapacityAllocationInfo        OPTIONAL,
  pdsch-CapacityAllocationInfo         PDSCH-CapacityAllocationInfo        OPTIONAL,
  timeslotList                         TimeslotList                         OPTIONAL,
  -- Extension mechanism for non- release99 information
  nonCriticalExtensions                 SEQUENCE {}                          OPTIONAL
}

```

11.3.6 Physical channel information elements

```

DL-CCTrCh ::= SEQUENCE {
  tfcs-Identity                         TFCS-Identity                         OPTIONAL,
  timeInfo                               TimeInfo,
  commonTimeslotInfo                   CommonTimeslotInfo                   OPTIONAL,
  individualTS-InfoDL-CCTrCHList       IndividualTS-InfoDL-CCTrCHList       OPTIONAL,
  ul-CCTrChTPCList                     UL-CCTrChTPCList                     OPTIONAL
}

```

```

UL-CCTrChTPCList ::= SEQUENCE (SIZE (1..maxCCTrCh)) OF
tfcs-identity TFCS-Identity

```

```

PDSCH-CapacityAllocationInfo ::= SEQUENCE {
pdsch-PowerControlInfo PDSCH-PowerControlInfo OPTIONAL,
pdsch-Info PDSCH-Info
}

```

```

PDSCH-PowerControlInfo ::= SEQUENCE {
tpc-StepSize TPC-StepSize OPTIONAL,
ul-CCTrChTPCList UL-CCTrChTPCList OPTIONAL
}

```


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

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

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

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

And for uplink dedicated physical channels:

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

And for uplink shared physical channels:

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

Where:

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

L_{PCCPCH} : Measure representing path loss in dB (reference transmit power "Primary CCPCH Tx Power" is broadcast on BCH in system information blocks 5 & 6-14 or individually signaled to each UE in the Uplink DPCH Power Control IE).

L_0 : Long term average of path loss in dB

I_{BTS} : Interference signal power level at cell's receiver in dBm ("UL Interference" is broadcast on BCH in system information block 14 or individually signaled to each UE in the Uplink DPCH Power Control IE for each active uplink timeslot).

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

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

RACH Constant value: This value is broadcast on BCH and shall be read on system information blocks 5 & 6-14.

DPCH Constant value: This value is broadcast on BCH and shall be read on system information blocks 5 & 6-14 or individually signaled to each UE in the Uplink DPCH Power Control IE.

USCH Constant Value: This value is broadcast on BCH and shall be read on system information blocks 5 & 6-14.

If in the Uplink DPCH Power Control IE the "CHOICE UL OL PC info" has the value "Broadcast UL OL PC info" the UE shall

- Acquire Reference Power, Constant Values from SIB's 5 & 6, and I_{BTS} for all active UL timeslots from SIB 14 on the BCH

Otherwise the UE shall

- Acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from the Uplink DPCH Power Control IE

For PUSCH and PRACH power control the UE shall acquire Reference Power, Constant Values and I_{BTS} for all active UL timeslots from SIB's 5,6 & 14 on the BCH.

10.3.6.79 Uplink DPCH power control info

Parameters used by UE to set DPCH initial output power and to use for closed-loop power control in FDD and parameters for uplink open loop power control in TDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE <i>mode</i>	MP			
>FDD				
>>DPCCH Power offset	MP		Integer(-164,..-6 by step of 2)	In dB
>>PC Preamble	MP		Integer (0, 15)	
>>>Power Control Algorithm	MP		Enumerated (algorithm 1, algorithm 2)	Specifies algorithm to be used by UE to interpret TPC commands
>>>TPC step size	CV algo		Integer (1, 2)	In dB
>TDD				
>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>CHOICE UL OL PC info	MP			
>>>>Broadcast UL OL PC info			Null	No data
>>>>Individually Signalled	OP			
>>>>>Individual timeslot interference info	MPQP	1 to <maxTS>		
>>>>> Individual timeslot interference	MP		Individual timeslot interference 10.3.6.32	
>>>>>DPCH Constant Value	OP		Constant Value 10.3.6.8	Quality Margin
>>>>>Primary CCPCH Tx Power	OP		Primary CCPCH Tx Power 10.3.6.50	For Pathloss Calculation

11.3.6 Physical channel information elements

```

UL-DPCH-PowerControlInfo ::=
  CHOICE {
    fdd
      SEQUENCE {
        dpcch-PowerOffset          DPCCH-PowerOffset,
        pc-Preamble                PC-Preamble,
        powerControlAlgorithm      PowerControlAlgorithm
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
      },
    tdd
      SEQUENCE {
        ul-TargetSIR              UL-TargetSIR,
        ul-OL-PC-Signalling        CHOICE {
          broadcast-UL-OL-PC-info  NULL,
          handoverGroup            SEQUENCE {
            individualTS-InterferenceList  IndividualTS-InterferenceList,
            dpch-ConstantValue            ConstantValue,
            primaryCCPCH-TX-Power        PrimaryCCPCH-TX-Power
          }
        }
      }
  }
OPTIONAL

```