3GPP TSG-T (Terminals) Meeting #19
Birmingham, UK
12 - 14 March, 2003

TP-030010

TSG-RAN meeting #18
New Orleans, US 3-6 December 2002

RP-020904

Title:	**LS on requirement to test non transmission of newly defined IEs in RRC protocol for Early UE handling**
Release:	**REL-99**
Source:	TSG RAN
To:	T, T1
Cc:	SA

Contact Person:
    Name: Denis Fauconnier
    Tel. Number:
    E-mail Address: dfauconn@nortelnetworks.com

Attachments: CRs

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1. Overall Description:

RAN has agreed to include two new IEs for future handling of Early UE in the RRC CONNECTION REQUEST and INTER RAT HANDOVER INFO messages.

The CRs says:
****
    8.1.3.3   **RRC CONNECTION REQUEST message contents to set**

….

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

    8.1.16.3   **INTER RAT HANDOVER INFO message contents to set**

….

1> The UE shall not include the IE "UE Specific Behaviour Information 1 interRAT".
****

The approval of these CRs were conditional on the fact that the procedure i.e. the non sending of these IEs in the current protocol, would be tested in the T1 specifications.

TSG RAN would kindly request the inclusion of tests on the expected UE behaviour. It is RAN's opinion that the test(s) should be part of a high priority test case(s).

2. Actions:

To T,T1 group.

ACTION: Confirm to TSG RAN that the test will be defined.

3. Date of Next RAN Meetings:

Meeting #	Date	Host	Location

Meeting #	Date	Host	Location
Early UE Ad Hoc	29, 30 January 2003	ETSI	Sophia Antipolis, France
19	11 - 14 March 2003	UK Friends of 3GPP	Birmingham, UK
20	03 - 06 June 2003	Nokia	Hämeenlinna, Finland
21	16 - 19 September 2003	Siemens	Berlin, Germany

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** CR **1758** ⌘rev **2** ⌘ Current version: **3.12.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network **X** Core Network ☐

Title: ⌘	Early UE Specific Behaviour Information in RRC Connection Request / inter RAT info	
Source: ⌘	Alcatel, Fujitsu, Motorola, NEC, Orange, Siemens	

Work item code: ⌘	TEI	***Date:*** ⌘	05/11/2002

Category: ⌘	**B**	***Release:*** ⌘	R99

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

Use <u>one</u> of the following releases:
  2   *(GSM Phase 2)*
  R96 *(Release 1996)*
  R97 *(Release 1997)*
  R98 *(Release 1998)*
  R99 *(Release 1999)*
  Rel-4 *(Release 4)*
  Rel-5 *(Release 5)*
  Rel-6 *(Release 6)*

Reason for change: ⌘	It is currently not possible to identify and handle faulty UE implementations
Summary of change: ⌘	Two transparent containers "UE Specific Behaviour Information 1 idle" (current assumtion 4bits, tbc) and "UE Specific Behaviour Information 1 interRAT" (8bits) are added to the early messages at call setup and to the appropriate messages for SRNS relocation and inter rat handover, i.e. to the following messages: RRC Connection Request, Inter RAT Handover Info, Inter RAT Handover Info with Inter RAT Capabilities, SRNS Relocation Info, If UTRAN implements the CR but UE doesn't: - No impact. The RNC might not be able to adapt to specific UE behavior. If UE implements the CR but UTRAN doesn't: - No impact. UTRAN will ignore the unknown extension and treat all UEs in the same way If neither UE nor UTRAN implement the CR: - No impact.
Consequences if not approved: ⌘	Errors discovered in UEs can not be handled appropriately

Clauses affected: ⌘	8.1.3.3, 8.1.16.3, 10.2.16b, 10.2.39, 10.3.3.51 (new), 10.3.3.52 (new), 11.2, 11.3, 11.5, 14.12.4.1, 14.12.4.2

	Y	**N**	
Other specs ⌘		**X**	Other core specifications ⌘

affected:		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:

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

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

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

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

8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;

1> include a measurement report in the IE "Measured results on RACH", 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; and

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported; and

1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

8.1.16.3 INTER RAT HANDOVER INFO message contents to set

The UE shall:

1> include the IE "Predefined configuration status information" and the IE "UE security information";

1> include the IE "UE capability container", containing the IE "UE radio access capability" and the IE "UE radio access capability extension", in accordance with the following:

  2> if the UE supports multiple UTRA FDD Frequency Bands; or

  2> if the UE supports a single UTRA FDD Frequency Band different from 2100 MHz:

    3> include the IE "UE radio access capability", excluding IEs "RF capability FDD" and "Measurement capability";

    3> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

  2> else:

    3> include the IE "UE radio access capability", including the IEs "RF capability FDD" and "Measurement capability" associated with the 2100 MHz UTRA FDD frequency band;

    3> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

1> The UE shall not include the IE "UE Specific Behaviour Information 1 interRAT".

1> initiate the transfer of the INTER RAT HANDOVER INFO message via the other radio access technology, using radio access technology-specific procedures;

1> store the IE "Predefined configuration status information", the IE "UE security information", the IE "UE radio access capability" and the IE "UE radio access capability extension", if included in the INTER RAT HANDOVER MESSAGE, in variable INTER_RAT_HANDOVER_INFO_TRANSFERRED;

1> and the procedure ends.

10.2.16d INTER RAT HANDOVER INFO

This message is sent by the UE via another radio access technology to provide information to the target RNC when preparing for a handover to UTRAN.

> RLC-SAP: N/A (Sent through a different RAT)

> Logical channel: N/A (Sent through a different RAT)

> Direction: UE → UTRAN

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1

10.2.39 RRC CONNECTION REQUEST

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

> RLC-SAP: TM

> Logical channel: CCCH

> Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
Initial UE identity	MP		Initial UE identity 10.3.3.15	
Establishment cause	MP		Establishment cause 10.3.3.11	
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information 1 idle 10.3.3.51	This IE shall not be included in this version of the protocol
Measurement information elements				
Measured results on RACH	OP		Measured results on RACH 10.3.7.45	

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

10.3.3.51 UE Specific Behaviour Information 1 idle

This IE indicates the UE conformance typically for RRC connection establishment from idle mode.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE Specific Behaviour Information 1 idle	MP		bit string([4])	

10.3.3.52 UE Specific Behaviour Information 1 interRAT

This IE indicates the UE conformance typically for RRC connection establishment from another RAT.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE Specific Behaviour Information 1 interRAT	MP		bit string(8)	

11.2 PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IEs :
    URA-Identity,
-- User Equipment IEs :
    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DSCH-RNTI,
    EstablishmentCause,
    FailureCauseWithProtErr,
    FailureCauseWithProtErrTrId,
    UESpecificBehaviourInformation1interRAT,
    UESpecificBehaviourInformation1idle,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    N-308,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithMoreInfo,
    Rb-timer-indicator,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-StateIndicator,
    RRC-TransactionIdentifier,
    SecurityCapability,
    START-Value,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    DL-PhysChCapabilityFDD-v380ext,
    UE-ConnTimersAndConstants,
    UE-ConnTimersAndConstants-v3a0ext,
    UE-SecurityInformation,
    URA-UpdateCause,
    UTRAN-DRX-CycleLengthCoefficient,
    WaitTime,
-- Radio Bearer IEs :
    DefaultConfigIdentity,
    DefaultConfigMode,
    DL-CounterSynchronisationInfo,
    PredefinedConfigIdentity,
    PredefinedConfigStatusList,
    RAB-Info,
    RAB-Info-Post,
    RAB-InformationList,
    RAB-InformationReconfigList,
    RAB-InformationSetupList,
    RB-ActivationTimeInfoList,
    RB-COUNT-C-InformationList,
    RB-COUNT-C-MSB-InformationList,
    RB-IdentityList,
    RB-InformationAffectedList,
    RB-InformationReconfigList,
    RB-InformationReleaseList,
    SRB-InformationSetupList,
    SRB-InformationSetupList2,
    UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
    CPCH-SetID,
    DL-AddReconfTransChInfo2List,
```

```
        DL-AddReconfTransChInfoList,
        DL-CommonTransChInfo,
        DL-DeletedTransChInfoList,
        DRAC-StaticInformationList,
        TFC-Subset,
        TFCS-Identity,
        UL-AddReconfTransChInfoList,
        UL-CommonTransChInfo,
        UL-DeletedTransChInfoList,
-- Physical Channel IEs :
        Alpha,
        CCTrCH-PowerControlInfo,
        ConstantValue,
        ConstantValueTdd,
        CPCH-SetInfo,
        DL-CommonInformation,
        DL-CommonInformationPost,
        DL-InformationPerRL,
        DL-InformationPerRL-List,
        DL-InformationPerRL-ListPostFDD,
        DL-InformationPerRL-PostTDD,
        DL-PDSCH-Information,
        DPCH-CompressedModeStatusInfo,
        FrequencyInfo,
        FrequencyInfoFDD,
        FrequencyInfoTDD,
        MaxAllowedUL-TX-Power,
        PDSCH-CapacityAllocationInfo,
        PDSCH-Identity,
        PrimaryCCPCH-TX-Power,
        PUSCH-CapacityAllocationInfo,
        PUSCH-Identity,
        RL-AdditionInformationList,
        RL-RemovalInformationList,
        SpecialBurstScheduling,
        SSDT-Information,
        TFC-ControlDuration,
        TimeslotList,
        TX-DiversityMode,
        UL-ChannelRequirement,
        UL-ChannelRequirementWithCPCH-SetID,
        UL-DPCH-Info,
        UL-DPCH-InfoPostFDD,
        UL-DPCH-InfoPostTDD,
        UL-TimingAdvance,
        UL-TimingAdvanceControl,
-- Measurement IEs :
        AdditionalMeasurementID-List,
        Frequency-Band,
        EventResults,
        InterRAT-TargetCellDescription,
        MeasuredResults,
        MeasuredResults-v390ext,
        MeasuredResultsList,
        MeasuredResultsOnRACH,
        MeasurementCommand,
        MeasurementIdentity,
        MeasurementReportingMode,
        PrimaryCCPCH-RSCP,
        SFN-Offset-Validity,
        TimeslotListWithISCP,
        TrafficVolumeMeasuredResultsList,
        UE-Positioning-GPS-AssistanceData,
        UE-Positioning-Measurement-v390ext,
        UE-Positioning-OTDOA-AssistanceData,
        UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
        BCCH-ModificationInfo,
        CDMA2000-MessageList,
        GSM-MessageList,
        InterRAT-ChangeFailureCause,
        InterRAT-HO-FailureCause,
        InterRAT-UE-RadioAccessCapabilityList,
        InterRAT-UE-SecurityCapList,
        IntraDomainNasNodeSelector,
        ProtocolErrorMoreInformation,
        Rplmn-Information,
        SegCount,
        SegmentIndex,
        SFN-Prime,
```

```
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements

    maxSIBperMsg
FROM Constant-definitions;


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

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




-- **************************************************
--
-- INTER RAT HANDOVER INFO
--
-- **************************************************

InterRATHandoverInfo ::= SEQUENCE {
    -- This structure is defined for historical reasons, backward compatibility with 04.18
    predefinedConfigStatusList      CHOICE {
        absent                          NULL,
        present                         PredefinedConfigStatusList
    },
    uE-SecurityInformation          CHOICE {
        absent                          NULL,
        present                         UE-SecurityInformation
    },
    ue-CapabilityContainer          CHOICE {
        absent                          NULL,
        -- present is an octet aligned string containing IE UE-RadioAccessCapabilityInfo
        present                         OCTET STRING (SIZE (0..63))
    },
    -- Non critical extensions
    v390NonCriticalExtensions       CHOICE {
        absent                          NULL,
        present                         SEQUENCE {
            interRATHandoverInfo-v390ext    InterRATHandoverInfo-v390ext-IEs,
            -- Reserved for future non critical extension
            v3a0NonCriticalExtensions           SEQUENCE {
                interRATHandoverInfo-v3a0ext    InterRATHandoverInfo-v3a0ext-IEs,
                v3d0NonCriticalExtensions       SEQUENCE {
                interRATHandoverInfo-v3d0ext    InterRATHandoverInfo-v3d0ext-IEs,
                -- Reserved for future non critical extension
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }
    }
}

InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext        OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

InterRATHandoverInfo-v3a0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext        OPTIONAL
}

InterRATHandoverInfo-v3d0ext-IEs ::= SEQUENCE {
```

```
    -- User equipment IEs
        uESpecificBehaviourInformation1interRAT     UESpecificBehaviourInformation1interRAT
    OPTIONAL
}

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

RRCConnectionRequest ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        establishmentCause              EstablishmentCause,
        -- protocolErrorIndicator is MD, but for compactness reasons no default value
        -- has been assigned to it.
        protocolErrorIndicator          ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
    -- Non critical Extensions
        v3d0NonCriticalExtensions           SEQUENCE {
        rRCConnectionRequest-v3d0ext    RRCConnectionRequest-v3d0ext-IEs,
        -- Reserved for future non critical extensionExtension mechanism for non- release99
information
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        }           OPTIONAL
}

RRCConnectionRequest-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1idle     UESpecificBehaviourInformation1idle     OPTIONAL
}

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

RRCConnectionSetupComplete ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        startList                       STARTList,
        ue-RadioAccessCapability        UE-RadioAccessCapability           OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
    -- Non critical extensions
        v370NonCriticalExtensions           SEQUENCE {
            rrcConnectionSetupComplete-v370ext  RRCConnectionSetupComplete-v370ext,
            v380NonCriticalExtensions           SEQUENCE {
                rrcConnectionSetupComplete-v380ext  RRCConnectionSetupComplete-v380ext-IEs,
                -- Reserved for future non critical extension
                v3a0NonCriticalExtensions           SEQUENCE {
                    rrcConnectionSetupComplete-v3a0ext  RRCConnectionSetupComplete-v3a0ext-IEs,
                    nonCriticalExtensions               SEQUENCE {}             OPTIONAL
                }           OPTIONAL
            }           OPTIONAL
        }           OPTIONAL
}

RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v370ext    UE-RadioAccessCapability-v370ext    OPTIONAL
}

RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext    OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

RRCConnectionSetupComplete-v3a0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext    OPTIONAL
}
```

11.3 Information element definitions

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

-- TABULAR : for ActivationTime, value 'now' always appears as default, and is encoded
-- by absence of the field
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-RadioCapabilityFDDUpdateRequirement  BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement  BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

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

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

CipheringAlgorithm ::=              ENUMERATED {
                                        uea0, uea1 }

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

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

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

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

CompressedModeMeasCapability ::=    SEQUENCE {
    fdd-Measurements                    BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- 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
}

CompressedModeMeasCapabFDDList ::=  SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                    CompressedModeMeasCapabFDD

CompressedModeMeasCapabFDD ::=      SEQUENCE {
    radioFrequencyBandFDD              RadioFrequencyBandFDD   OPTIONAL,
    dl-MeasurementsFDD                 BOOLEAN,
    ul-MeasurementsFDD                 BOOLEAN
}

CompressedModeMeasCapabTDDList ::=  SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
                                    CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::=      SEQUENCE {
    radioFrequencyBandTDD              RadioFrequencyBandTDD,
    dl-MeasurementsTDD                 BOOLEAN,
    ul-MeasurementsTDD                 BOOLEAN
}

CompressedModeMeasCapabGSMList ::=  SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
                                    CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::=      SEQUENCE {
    radioFrequencyBandGSM              RadioFrequencyBandGSM,
    dl-MeasurementsGSM                 BOOLEAN,
    ul-MeasurementsGSM                 BOOLEAN
}

CompressedModeMeasCapabMC ::=       SEQUENCE {
    dl-MeasurementsMC                  BOOLEAN,
    ul-MeasurementsMC                  BOOLEAN
}

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

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

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

DL-PhysChCapabilityFDD-v380ext ::=          SEQUENCE {
    supportOfDedicatedPilotsForChEstimation    SupportOfDedicatedPilotsForChEstimation    OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::=         ENUMERATED { true }

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

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

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

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

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

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

EstablishmentCause ::=              ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interRAT-CellReselection,
                                        interRAT-CellChangeOrder,
                                        registration,
                                        detach,
                                        originatingHighPrioritySignalling,
                                        originatingLowPrioritySignalling,
                                        callRe-establishment,
                                        terminatingHighPrioritySignalling,
                                        terminatingLowPrioritySignalling,
                                        terminatingCauseUnknown,
                                        spare12,
                                        spare11,
                                        spare10,
                                        spare9,
                                        spare8,
                                        spare7,
                                        spare6,
                                        spare5,
                                        spare4,
                                        spare3,
                                        spare2,
                                        spare1 }

FailureCauseWithProtErr ::=         CHOICE {
    configurationUnsupported            NULL,
    physicalChannelFailure              NULL,
    incompatibleSimultaneousReconfiguration
                                        NULL,
    compressedModeRuntimeError          TGPSI,
    protocolError                       ProtocolErrorInformation,
    cellUpdateOccurred                  NULL,
    invalidConfiguration                NULL,
    configurationIncomplete             NULL,
    unsupportedMeasurement              NULL,
    spare7                              NULL,
    spare6                              NULL,
    spare5                              NULL,
    spare4                              NULL,
    spare3                              NULL,
    spare2                              NULL,
    spare1                              NULL
}

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

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


AccessStratumReleaseIndicator ::=   ENUMERATED {
```

```
                                                    r99 }

UESpecificBehaviourInformation1idle ::= BIT STRING (SIZE ([4]))

UESpecificBehaviourInformation1interRAT ::= BIT STRING (SIZE (8))



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 (1..maxASC)) OF
                                       NS-IP

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

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

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

IntegrityProtectionAlgorithm ::=  ENUMERATED {
                                       uia1 }
```

11.5   RRC information between network nodes

```
-- **************************************************
--
-- Handover to UTRAN information
--
-- **************************************************

InterRATHandoverInfoWithInterRATCapabilities ::= CHOICE {
    r3                             SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        interRAThandoverInfo-r3          InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        v390NonCriticalExtensions        SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
    InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions        SEQUENCE {} OPTIONAL
        }         OPTIONAL
    },
    criticalExtensions             SEQUENCE {}
}

InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=    SEQUENCE {
        -- The order of the IEs may not reflect the tabular format
        -- but has been chosen to simplify the handling of the information in the BSC
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
        -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
        -- actual information.  This makes it possible for BSS to transparently handle information
        -- received via GSM air interface even when it includes non critical extensions.
        -- The octet string shall include the InterRATHandoverInfo information
```

```
            -- The BSS can re-use the 04.18 length field received from the MS
            interRATHandoverInfo            OCTET STRING (SIZE (0..255))
}


-- **************************************************
--
-- SRNC Relocation information
--
-- **************************************************

SRNC-RelocationInfo ::= CHOICE {
    r3                              SEQUENCE {
        sRNC-RelocationInfo-r3          SRNC-RelocationInfo-r3-IEs,
        v380NonCriticalExtensions           SEQUENCE {
            sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
            -- Reserved for future non critical extension
            v390NonCriticalExtensions           SEQUENCE {
                sRNC-RelocationInfo-v390ext         SRNC-RelocationInfo-v390ext-IEs,
                v3a0NonCriticalExtensions           SEQUENCE {
                    sRNC-RelocationInfo-v3a0ext         SRNC-RelocationInfo-v3a0ext-IEs,
                    v3b0NonCriticalExtensions           SEQUENCE {
                        sRNC-RelocationInfo-v3b0ext         SRNC-RelocationInfo-v3b0ext-IEs,
                        v3c0NonCriticalExtensions           SEQUENCE {
                            sRNC-RelocationInfo-v3c0ext         SRNC-RelocationInfo-v3c0ext-IEs,
                            v3d0NonCriticalExtensions           SEQUENCE {
                                sRNC-RelocationInfo-v3d0ext         SRNC-RelocationInfo-v3d0ext-IEs,
                                -- Reserved for future non critical extension
                                nonCriticalExtensions           SEQUENCE {} OPTIONAL
                            } OPTIONAL
                        } OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

SRNC-RelocationInfo-r3-IEs ::=              SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC                          StateOfRRC,
        stateOfRRC-Procedure                StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus                     CipheringStatus,
        calculationTimeForCiphering     CalculationTimeForCiphering         OPTIONAL,
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in the IE "Signalling RB information list" and in the
        -- IE "RAB information list". The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List             CipheringInfoPerRB-List             OPTIONAL,
        count-C-List                        COUNT-C-List                        OPTIONAL,
        integrityProtectionStatus           IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo       SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams        ImplementationSpecificParams        OPTIONAL,
    -- User equipment IEs
        u-RNTI                              U-RNTI,
        c-RNTI                              C-RNTI                              OPTIONAL,
        ue-RadioAccessCapability            UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos         UE-Positioning-LastKnownPos         OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability            InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                        URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo        NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList            CN-DomainInformationList            OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList                  OngoingMeasRepList                  OPTIONAL,
    -- Radio bearer IEs
        predefinedConfigStatusList          PredefinedConfigStatusList,
        srb-InformationList                 SRB-InformationSetupList,
        rab-InformationList                 RAB-InformationSetupList            OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo                UL-CommonTransChInfo                OPTIONAL,
        ul-TransChInfoList                  UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificInfo                    CHOICE {
            fdd                                 SEQUENCE {
```

```
                cpch-SetID                        CPCH-SetID                   OPTIONAL,
                transChDRAC-Info                  DRAC-StaticInformationList  OPTIONAL
            },
            tdd                               NULL
        },
        dl-CommonTransChInfo              DL-CommonTransChInfo              OPTIONAL,
        dl-TransChInfoList               DL-AddReconfTransChInfoList       OPTIONAL,
    -- Measurement report
        measurementReport                MeasurementReport                 OPTIONAL
}

SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
        cn-DomainIdentity                CN-DomainIdentity,
        cipheringStatusList              CipheringStatusList
}

SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
        cn-DomainInformationList-v390ext   CN-DomainInformationList-v390ext     OPTIONAL,
        ue-RadioAccessCapability-v370ext   UE-RadioAccessCapability-v370ext     OPTIONAL,
        ue-RadioAccessCapability-v380ext   UE-RadioAccessCapability-v380ext     OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext     DL-PhysChCapabilityFDD-v380ext,
        failureCauseWithProtErr            FailureCauseWithProtErr              OPTIONAL
}

SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        cipheringInfoForSRB1-v3a0ext       CipheringInfoPerRB-List-v3a0ext,
        ue-RadioAccessCapability-v3a0ext   UE-RadioAccessCapability-v3a0ext     OPTIONAL,
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
        startValueForCiphering-v3a0ext     START-Value
}

SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
        cn-DomainIdentity                CN-DomainIdentity,
        -- the remaining start values are contained in IE startValueForCiphering-v3b0ext
        startValueForCiphering-v3b0ext     STARTList2                           OPTIONAL
}

SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
        rb-IdentityForHOMessage          RB-Identity          OPTIONAL
}


SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1idle      UESpecificBehaviourInformation1idle      OPTIONAL,
        uESpecificBehaviourInformation1interRAT    UESpecificBehaviourInformation1interRAT
    OPTIONAL
}
```

14.12.4.1   INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES

This RRC message is sent between network nodes when preparing for an inter RAT handover to UTRAN.

Direction: source RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access	Although this IE is not always required, the need has been

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			capability extension 10.3.3.42a	set to MP to align with the ASN.1
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.51	This IE shall not be included in this version of the protocol
Non RRC IEs				
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Other Information elements				
UE system specific capability	OP	1 to <maxSystemCapability>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier handover to UTRAN request
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

Condition	Explanation
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.

NOTE: The above table does not need to reflect the order of the information elements in the actual encoded message. The order, that is reflected in the ASN.1, should be chosen in a manner that avoids that network nodes need to perform reordering of information elements.

14.12.4.2   SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved".
>State of RRC	MP		RRC state indicator, 10.3.3.35a	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfigurat ion Complete, await Transport CH Reconfigurat ion Complete, await Physical CH Reconfigurat ion Complete, await Active Set Update Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others)	
Ciphering related information				
>Ciphering status for each CN domain	MP	<1 to maxCNDo mains>		
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>Ciphering status	MP		Enumerated(Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV-*Ciphering*			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
				included in the active set of the current call
>>SFN	MP		Integer(0..4095)	
>COUNT-C list	OP	1 to <maxCNdomains>		COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxRB>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-*SRB1*		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated(Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-*IP*	4 to <maxSRBsetup>		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>>Uplink RRC Message sequence number	MP		Integer (0..15)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC Message sequence number	MP		Integer (0..15)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific parameters	OP		Bit string (1..512)	
RRC IEs				
UE Information elements				
>U-RNTI	MP		U-RNTI 10.3.3.47	
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position	OP			

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>SFN	MP		Integer (0..4095)	Time when position was estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE *Position estimate*	MP			
>>>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>>>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>>>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>>>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information idle 1 10.3.3.51	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
Other Information elements				
>UE system specific capability	OP	1 to <maxSystemCapability>		
>>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
UTRAN Mobility Information elements				
>URA Identifier	OP		URA identity 10.3.2.6	
CN Information Elements				
>CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>CN domain related information	OP	1 to <MaxCNdomains>		CN related information to be provided for each CN domain

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>CN domain identity	MP			
>>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	
>>CN domain specific DRX cycle length coefficient	MP		CN domain specific DRX cycle length coefficient, 10.3.3.6	
Measurement Related Information elements				
>For each ongoing measurement reporting	OP	1 to <MaxNoOf Meas>		
>>Measurement Identity	MP		Measurement identity 10.3.7.48	
>>Measurement Command	MP		Measurement command 10.3.7.46	
>>Measurement Type	CV-*Setup*		Measurement type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measurement reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measurements list 10.3.7.1	
>>CHOICE *Measurement*	OP			
>>>Intra-frequency				
>>>>Intra-frequency cell info	OP		Intra-frequency cell info list 10.3.7.33	
>>>>Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
>>>>Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>Inter-frequency				
>>>>Inter-frequency cell info	OP		Inter-frequency cell info list 10.3.7.13	
>>>>Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Inter-RAT				
>>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>>Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
>>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Traffic Volume				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>>Traffic volume measurement Object	OP		Traffic volume measurement object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
>>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
>>>>CHOICE *report criteria*	OP			
>>>>>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Quality				
>>>>Quality measurement Object	OP		Quality measurement object	
>>>>CHOICE *report criteria*	OP			
>>>>>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE internal				
>>>>UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
>>>>UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
>>>>CHOICE *report criteria*	OP			
>>>>>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE positioning				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>>LCS reporting quantity	OP		LCS reporting quantity 10.3.7.111	
>>>>CHOICE *report criteria*	OP			
>>>>>LCS reporting criteria			LCS reporting criteria 10.3.7.110	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting				
Radio Bearer Information Elements				
>Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxSRBsetup>		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	OP	1 to <maxRABsetup>		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <MaxTrCH>		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE *mode*	OP			
>>FDD				
>>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <MaxTrCH>		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Downlink transport channels				
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <MaxTrCH >		
>>DL transport channel information	MP		Added or reconfigured DL TrCH information 10.3.5.1	
>Measurement report	OP		MEASUREMENT REPORT 10.2.17	
Other Information elements				
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a)
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

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

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

CR-Form-v7

CHANGE REQUEST

⌘ **25.331 CR 1759** ⌘ **rev 2** ⌘ Current version: **4.7.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Early UE Specific Behaviour Information in RRC Connection Request / inter RAT info
Source:	⌘	Alcatel, Fujitsu, Motorola, NEC, Orange, Siemens
Work item code:⌘	TEI	***Date:*** ⌘ 05/11/2002

Category: ⌘ **B**	***Release:*** ⌘ *Rel-4*

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

Use one of the following releases:
2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
Rel-4   *(Release 4)*
Rel-5   *(Release 5)*
Rel-6   *(Release 6)*

Reason for change:	⌘	It is currently not possible to identify and handle faulty UE implementations
Summary of change:⌘		Two transparent containers "UE Specific Behaviour Information 1 idle" (current assumtion 4bits, tbc) and "UE Specific Behaviour Information 1 interRAT" (8bits) are added to the early messages at call setup and to the appropriate messages for SRNS relocation and inter rat handover, i.e. to the following messages: RRC Connection Request, Inter RAT Handover Info, Inter RAT Handover Info with Inter RAT Capabilities, SRNS Relocation Info, If UTRAN implements the CR but UE doesn't: - No impact. The RNC might not be able to adapt to specific UE behavior. If UE implements the CR but UTRAN doesn't: - No impact. UTRAN will ignore the unknown extension and treat all UEs in the same way If neither UE nor UTRAN implement the CR: - No impact.
Consequences if not approved:	⌘	Errors discovered in UEs can not be handled appropriately

Clauses affected:	⌘	8.1.3.3, 8.1.16.3, 10.2.16b, 10.2.39, 10.3.3.51 (new), 10.3.3.52 (new), 11.2, 11.3, 11.5, 14.12.4.1, 14.12.4.2

		Y	**N**	
Other specs	⌘		**X**	Other core specifications ⌘

affected:		**X** Test specifications	
		X O&M Specifications	
Other comments:	⌘		

How to create CRs using this form:

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

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

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

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

8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;

1> include a measurement report in the IE "Measured results on RACH", 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; and

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported; and

1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

8.1.16.3 INTER RAT HANDOVER INFO message contents to set

The UE shall:

1> include the IE "Predefined configuration status information" and the IE "UE security information";

1> include the IE "UE capability container", containing the IE "UE radio access capability" and the IE "UE radio access capability extension", in accordance with the following:

  2> if the UE supports multiple UTRA FDD Frequency Bands; or

  2> if the UE supports a single UTRA FDD Frequency Band different from 2100 MHz:

    3> include the IE "UE radio access capability", excluding IEs "RF capability FDD" and "Measurement capability";

    3> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

  2> else:

    3> include the IE "UE radio access capability", including the IEs "RF capability FDD" and "Measurement capability" associated with the 2100 MHz UTRA FDD frequency band;

    3> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

1> The UE shall not include the IE "UE Specific Behaviour Information 1 interRAT".

1> initiate the transfer of the INTER RAT HANDOVER INFO message via the other radio access technology, using radio access technology-specific procedures;

1> store the IE "Predefined configuration status information", the IE "UE security information", the IE "UE radio access capability" and the IE "UE radio access capability extension", if included in the INTER RAT HANDOVER MESSAGE, in variable INTER_RAT_HANDOVER_INFO_TRANSFERRED;

1> and the procedure ends.

10.2.16d INTER RAT HANDOVER INFO

This message is sent by the UE via another radio access technology to provide information to the target RNC when preparing for a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UE → UTRAN

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1

10.2.39 RRC CONNECTION REQUEST

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
Initial UE identity	MP		Initial UE identity 10.3.3.15		
Establishment cause	MP		Establishment cause 10.3.3.11		
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information 1	This IE shall not be included in this version of the protocol	

			idle 10.3.3.51		
Measurement information elements					
Measured results on RACH	OP		Measured results on RACH 10.3.7.45		
Access stratum release indicator	MP		Enumerated(REL-4)	Absence of the IE implies R99. The IE also indicates the release of the RRC transfer syntax supported by the UE 15 spare values are needed	REL-4

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

10.3.3.51 UE Specific Behaviour Information 1 idle

This IE indicates the UE conformance typically for RRC connection establishment from idle mode.

Information Element/Group name	**Need**	**Multi**	**Type and Reference**	**Semantics description**
UE Specific Behaviour Information 1	MP		bit string([4])	

10.3.3.52 UE Specific Behaviour Information 1 interRAT

This IE indicates the UE conformance typically for RRC connection establishment from another RAT.

Information Element/Group name	**Need**	**Multi**	**Type and Reference**	**Semantics description**
UE Specific Behaviour Information 1 interRAT	MP		bit string(8)	

11.2 PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
```

```
        CN-InformationInfo,
        CN-InformationInfoFull,
        NAS-Message,
        PagingRecordTypeID,
-- UTRAN Mobility IEs :
        CellIdentity,
        CellIdentity-PerRL-List,
        URA-Identity,
-- User Equipment IEs :
        ActivationTime,
        C-RNTI,
        CapabilityUpdateRequirement,
        CapabilityUpdateRequirement-r4,
        CapabilityUpdateRequirement-r4-ext,
        CellUpdateCause,
        CipheringAlgorithm,
        CipheringModeInfo,
        DSCH-RNTI,
        EstablishmentCause,
        FailureCauseWithProtErr,
        FailureCauseWithProtErrTrId,
        UESpecificBehaviourInformation1idle,
        UESpecificBehaviourInformation1interRAT,
        InitialUE-Identity,
        IntegrityProtActivationInfo,
        IntegrityProtectionModeInfo,
        N-308,
        PagingCause,
        PagingRecordList,
        ProtocolErrorIndicator,
        ProtocolErrorIndicatorWithMoreInfo,
        Rb-timer-indicator,
        RedirectionInfo,
        RejectionCause,
        ReleaseCause,
        RRC-StateIndicator,
        RRC-TransactionIdentifier,
        SecurityCapability,
        START-Value,
        STARTList,
        U-RNTI,
        U-RNTI-Short,
        UE-RadioAccessCapability,
        UE-RadioAccessCapability-r4-ext,
        UE-RadioAccessCapability-v370ext,
        UE-RadioAccessCapability-v380ext,
        UE-RadioAccessCapability-v3a0ext,
        UE-RadioAccessCapability-v4xyext,
        DL-PhysChCapabilityFDD-v380ext,
        UE-ConnTimersAndConstants,
        UE-ConnTimersAndConstants-v3a0ext,
        UE-SecurityInformation,
        URA-UpdateCause,
        UTRAN-DRX-CycleLengthCoefficient,
        WaitTime,
-- Radio Bearer IEs :
        DefaultConfigIdentity,
        DefaultConfigIdentity-r4,
        DefaultConfigMode,
        DL-CounterSynchronisationInfo,
        PredefinedConfigIdentity,
        PredefinedConfigStatusList,
        RAB-Info,
        RAB-Info-Post,
        RAB-InformationList,
        RAB-InformationReconfigList,
        RAB-InformationSetupList,
        RAB-InformationSetupList-r4,
        RB-ActivationTimeInfoList,
        RB-COUNT-C-InformationList,
        RB-COUNT-C-MSB-InformationList,
        RB-IdentityList,
        RB-InformationAffectedList,
        RB-InformationReconfigList,
        RB-InformationReconfigList-r4,
        RB-InformationReleaseList,
        SRB-InformationSetupList,
        SRB-InformationSetupList2,
        UL-CounterSynchronisationInfo,
```

```
    -- Transport Channel IEs:
        CPCH-SetID,
        DL-AddReconfTransChInfo2List,
        DL-AddReconfTransChInfoList,
        DL-AddReconfTransChInfoList-r4,
        DL-CommonTransChInfo,
        DL-CommonTransChInfo-r4,
        DL-DeletedTransChInfoList,
        DRAC-StaticInformationList,
        TFC-Subset,
        TFCS-Identity,
        UL-AddReconfTransChInfoList,
        UL-CommonTransChInfo,
        UL-CommonTransChInfo-r4,
        UL-DeletedTransChInfoList,
    -- Physical Channel IEs :
        Alpha,
        CCTrCH-PowerControlInfo,
        CCTrCH-PowerControlInfo-r4,
        ConstantValue,
        ConstantValueTdd,
        CPCH-SetInfo,
        DL-CommonInformation,
        DL-CommonInformation-r4,
        DL-CommonInformationPost,
        DL-InformationPerRL,
        DL-InformationPerRL-List,
        DL-InformationPerRL-List-r4,
        DL-InformationPerRL-ListPostFDD,
        DL-InformationPerRL-PostTDD,
        DL-InformationPerRL-PostTDD-LCR-r4,
        DL-PDSCH-Information,
        DPCH-CompressedModeStatusInfo,
        FrequencyInfo,
        FrequencyInfoFDD,
        FrequencyInfoTDD,
        MaxAllowedUL-TX-Power,
        OpenLoopPowerControl-IPDL-TDD-r4,
        PDSCH-CapacityAllocationInfo,
        PDSCH-CapacityAllocationInfo-r4,
        PDSCH-Identity,
        PrimaryCCPCH-TX-Power,
        PUSCH-CapacityAllocationInfo,
        PUSCH-CapacityAllocationInfo-r4,
        PUSCH-Identity,
        RL-AdditionInformationList,
        RL-RemovalInformationList,
        SpecialBurstScheduling,
        SSDT-Information,
        TFC-ControlDuration,
        SSDT-UL-r4,
        TimeslotList,
        TimeslotList-r4,
        TX-DiversityMode,
        UL-ChannelRequirement,
        UL-ChannelRequirement-r4,
        UL-ChannelRequirementWithCPCH-SetID,
        UL-ChannelRequirementWithCPCH-SetID-r4,
        UL-DPCH-Info,
        UL-DPCH-Info-r4,
        UL-DPCH-InfoPostFDD,
        UL-DPCH-InfoPostTDD,
        UL-DPCH-InfoPostTDD-LCR-r4,
        UL-SynchronisationParameters-r4,
        UL-TimingAdvance,
        UL-TimingAdvanceControl,
        UL-TimingAdvanceControl-r4,
    -- Measurement IEs :
        AdditionalMeasurementID-List,
        Frequency-Band,
        EventResults,
        InterFreqEventResults-LCR-r4-ext,
        InterRAT-TargetCellDescription,
        MeasuredResults,
        MeasuredResults-v390ext,
        MeasuredResultsList,
        MeasuredResultsList-LCR-r4-ext,
        MeasuredResultsOnRACH,
        MeasurementCommand,
```

```
    MeasurementCommand-r4,
    MeasurementIdentity,
    MeasurementReportingMode,
    PrimaryCCPCH-RSCP,
    SFN-Offset-Validity,
    TimeslotListWithISCP,
    TrafficVolumeMeasuredResultsList,
    UE-Positioning-GPS-AssistanceData,
    UE-Positioning-Measurement-v390ext,
    UE-Positioning-OTDOA-AssistanceData,
    UE-Positioning-OTDOA-AssistanceData-r4ext,
    UE-Positioning-OTDOA-AssistanceData-UEB,
    UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-MessageList,
    InterRAT-ChangeFailureCause,
    InterRAT-HO-FailureCause,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-SecurityCapList,
    IntraDomainNasNodeSelector,
    ProtocolErrorMoreInformation,
    Rplmn-Information,
    Rplmn-Information-r4,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements

    maxSIBperMsg
FROM Constant-definitions;


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

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

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

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        intraDomainNasNodeSelector      IntraDomainNasNodeSelector,
        nas-Message                     NAS-Message,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
        v3a0NonCriticalExtensions       SEQUENCE {
        initialDirectTransfer-v3a0ext   InitialDirectTransfer-v3a0ext,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }       OPTIONAL
}

InitialDirectTransfer-v3a0ext ::= SEQUENCE {
    -- start-value shall always be included in this version of the protocol
    start-Value                     START-Value                         OPTIONAL
}
```

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

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
                                        HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE nonCriticalExtensions when it sets
        -- the IE gsm-message included in handoverFromUTRANCommand-GSM-r3 to single-GSM-Message
        -- The UE behaviour upon receiving a message including this combination of IE values is
        -- not specified
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                  OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                        OPTIONAL,
    -- Measurement IEs
        frequency-band                  Frequency-Band,
    -- Other IEs
        gsm-message                     CHOICE {
            -- In the single-GSM-Message case the following rules apply:
            -- 1> the GSM message directly follows the basic production; the final padding that
            --     results when PER encoding the abstract syntax value is removed prior to appending
            --     the GSM message.
            -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
            --     there is no explicit parameter indicating the size of the included GSM message.
            -- 3> depending on need, final padding (all "0"s) is added to ensure the final result
            --     comprises a full number of octets
            single-GSM-Message              SEQUENCE {},
            gsm-MessageList                 SEQUENCE {
                gsm-Messages                    GSM-MessageList
            }
        }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
                                        HandoverFromUTRANCommand-CDMA2000-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

-- **************************************************
--
-- HANDOVER FROM UTRAN FAILURE
--
-- **************************************************

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
```

```
    -- Other IEs
        interRAT-HO-FailureCause          InterRAT-HO-FailureCause          OPTIONAL,
        interRATMessage                   CHOICE {
            gsm                                  SEQUENCE {
                gsm-MessageList                      GSM-MessageList
            },
            cdma2000                             SEQUENCE {
                cdma2000-MessageList                 CDMA2000-MessageList
            }
        }                    OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions             SEQUENCE {}    OPTIONAL
}

-- **************************************************
--
-- INTER RAT HANDOVER INFO
--
-- **************************************************

InterRATHandoverInfo ::= SEQUENCE {
    -- This structure is defined for historical reasons, backward compatibility with 04.18
    predefinedConfigStatusList     CHOICE {
        absent                           NULL,
        present                          PredefinedConfigStatusList
    },
    uE-SecurityInformation         CHOICE {
        absent                           NULL,
        present                          UE-SecurityInformation
    },
    ue-CapabilityContainer         CHOICE {
        absent                           NULL,
        -- present is an octet aligned string containing IE UE-RadioAccessCapabilityInfo
        present                          OCTET STRING (SIZE (0..63))
    },
    -- Non critical extensions
    v390NonCriticalExtensions      CHOICE {
        absent                           NULL,
        present                          SEQUENCE {
            interRATHandoverInfo-v390ext    InterRATHandoverInfo-v390ext-IEs,
            v3a0NonCriticalExtensions       SEQUENCE {
                interRATHandoverInfo-v3a0ext    InterRATHandoverInfo-v3a0ext,
                v3d0NonCriticalExtensions           SEQUENCE {
                    interRATHandoverInfo-v3d0ext    InterRATHandoverInfo-v3d0ext-IEs,
                    v4xyNonCriticalExtensions       SEQUENCE {
                    interRATHandoverInfo-v4xyext    InterRATHandoverInfo-v4xyext-IEs,
                    -- Reserved for future non critical extension
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    }
}

InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext         OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

InterRATHandoverInfo-v3a0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext         OPTIONAL
}


InterRATHandoverInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1interRAT     UESpecificBehaviourInformation1interRAT
    OPTIONAL
}

InterRATHandoverInfo-v4xyext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}
```

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

RRCConnectionRequest ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity                  InitialUE-Identity,
        establishmentCause                  EstablishmentCause,
        -- protocollErrorIndictator is MD, but for compactness reasons no default value
        -- has been assigned to it.
        protocolErrorIndicator              ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH               MeasuredResultsOnRACH                OPTIONAL,
    -- Non critical Extensions
        v3d0NonCriticalExtensions           SEQUENCE {
            rRCConnectionRequest-v3d0ext    RRCConnectionRequest-v3d0ext-IEs,
        -- Reserved for future non critical extension
            v4xyNonCriticalExtensions           SEQUENCE {
                rrcConnectionRequest-v4xyext        RRCConnectionRequest-v4xyext-IEs,
                -- Reserved for future non critical extension
                nonCriticalExtensions               SEQUENCE {}     OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
}

RRCConnectionRequest-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1idle     UESpecificBehaviourInformation1idle     OPTIONAL
}

RRCConnectionRequest-v4xyext-IEs ::=    SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}

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

RRCConnectionSetup ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionSetup-r3           RRCConnectionSetup-r3-IEs,
        v4xyNonCriticalExtensions       SEQUENCE {
            rrcConnectionSetup-v4xyext      RRCConnectionSetup-v4xyext-IEs,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions               SEQUENCE {}                 OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionSetup-r4           RRCConnectionSetup-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

RRCConnectionSetup-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI,
        new-c-RNTI                      C-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient,
        -- TABULAR: If capacityUpdateRequest is not present, the default value
        -- defined in 10.3.3.2 shall be used.
        capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
```

```
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList2,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
        -- NOTE: ul-AddReconfTransChInfoList should be optional in later versions of
        -- this message
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        -- NOTE: dl-AddReconfTransChInfoList should be optional in later versions
        -- of this message
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement             OPTIONAL,
        dl-CommonInformation            DL-CommonInformation              OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List          OPTIONAL
}

RRCConnectionSetup-v4xyext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext  OPTIONAL,
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
        ssdt-UL                         SSDT-UL-r4                         OPTIONAL,
        -- The order of the RLs in IE cell-id-PerRL-List is the same as
        -- in IE DL-InformationPerRL-List included in this message
        cell-id-PerRL-List              CellIdentity-PerRL-List           OPTIONAL
}

RRCConnectionSetup-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
        activationTime                  ActivationTime                    OPTIONAL,
        new-U-RNTI                      U-RNTI,
        new-c-RNTI                      C-RNTI                            OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient,
        -- TABULAR: If capabilityUpdateRequirements is not present, the default value
        -- defined in 10.3.3.2 shall be used.
        capabilityUpdateRequirement     CapabilityUpdateRequirement-r4    OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList2,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo               OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList        OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4            OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                     OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power             OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r4          OPTIONAL,
        dl-CommonInformation            DL-CommonInformation-r4           OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4       OPTIONAL
}

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

RRCConnectionSetupComplete ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        startList                       STARTList,
        ue-RadioAccessCapability        UE-RadioAccessCapability          OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
    -- Non critical extensions
        v370NonCriticalExtensions       SEQUENCE {
            rrcConnectionSetupComplete-v370ext RRCConnectionSetupComplete-v370ext,
            v380NonCriticalExtensions       SEQUENCE {
                rrcConnectionSetupComplete-v380ext RRCConnectionSetupComplete-v380ext-IEs,
                -- Reserved for future non critical extension
                v3a0NonCriticalExtensions       SEQUENCE {
                    rrcConnectionSetupComplete-v3a0ext RRCConnectionSetupComplete-v3a0ext,
                    v4xyNonCriticalExtensions       SEQUENCE {
                        rrcConnectionSetupComplete-v4xyext RRCConnectionSetupComplete-v4xyext-IEs,
```

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```
                               nonCriticalExtensions                    SEQUENCE {}       OPTIONAL
                   }            OPTIONAL
               }            OPTIONAL
           }            OPTIONAL
       }            OPTIONAL
}

RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v370ext    UE-RadioAccessCapability-v370ext    OPTIONAL
}

RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext        OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

RRCConnectionSetupComplete-v3a0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext    OPTIONAL
}

RRCConnectionSetupComplete-v4xyext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-r4-ext     UE-RadioAccessCapability-r4-ext     OPTIONAL
}

-- **************************************************
--
-- RRC FAILURE INFO
--
-- **************************************************

RRC-FailureInfo ::= CHOICE {
    r3                                      SEQUENCE {
        rRC-FailureInfo-r3                      RRC-FailureInfo-r3-IEs,
        nonCriticalExtensions                   SEQUENCE {} OPTIONAL
    },
    criticalExtensions                      SEQUENCE {}
}

RRC-FailureInfo-r3-IEs ::=      SEQUENCE {
    -- Non-RRC IEs
        failureCauseWithProtErr                         FailureCauseWithProtErr
}


END
```

11.3   Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

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

BEGIN

IMPORTS

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

```
    maxDPDCH-UL,
    maxDRACclasses,
    maxFACHPCH,
    maxFreq,
    maxFreqBandsFDD,
    maxFreqBandsTDD,
    maxFreqBandsGSM,
    maxInterSysMessages,
    maxLoCHperRLC,
    maxMeasEvent,
    maxMeasIntervals,
    maxMeasParEvent,
    maxNumCDMA2000Freqs,
    maxNumFDDFreqs,
    maxNumGSMFreqRanges,
    maxNumTDDFreqs,
    maxOtherRAT,
    maxOtherRAT-16,
    maxPage1,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDCPAlgoType,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPRACH-FPACH,
    maxPredefConfig,
    maxPUSCH,
    maxRABsetup,
    maxRAT,
    maxRB,
    maxRBallRABs,
    maxRBMuxOptions,
    maxRBperRAB,
    maxReportedGSMCells,
    maxSRBsetup,
    maxRL,
    maxRL-1,
    maxROHC-PacketSizes-r4,
    maxROHC-Profile-r4,
    maxSCCPCH,
    maxSat,
    maxSIB,
    maxSIB-FACH,
    maxSystemCapability,
    maxTF,
    maxTF-CPCH,
    maxTFC,
    maxTFCsub,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTrCH,
    maxTrCHpreconf,
    maxTS,
    maxTS-1,
    maxTS-LCR,
    maxTS-LCR-1,
    maxURA
FROM Constant-definitions;



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

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

UESpecificBehaviourInformation1idle ::= BIT STRING (SIZE ([4]))

UESpecificBehaviourInformation1interRAT ::= BIT STRING (SIZE (8))
```

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```
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 (1..maxASC)) OF
                                          NS-IP


END
```

11.5 RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS


    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    CN-DRX-CycleLengthCoefficient,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements,
    FailureCauseWithProtErr,
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    NetworkAssistedGPS-Supported,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI,
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    UE-RadioAccessCapabBandFDDList,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v4xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
```

```
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    MeasurementType-r4,
    AdditionalMeasurementID-List,
    PositionEstimate,
    UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
    InterRAT-UE-RadioAccessCapabilityList

FROM InformationElements

    maxCNdomains,
    maxNoOfMeas,

    maxRB,
    maxSRBsetup
FROM Constant-definitions
;

-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped

-- **************************************************
--
-- RRC information, to target RNC
--
-- **************************************************
-- RRC Information to target RNC sent either from source RNC or from another RAT

ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo                InterRATHandoverInfoWithInterRATCapabilities-r3,
    srncRelocation                      SRNC-RelocationInfo-r3,
    extension                           NULL
}

-- **************************************************
--
-- RRC information, target RNC to source RNC
--
-- **************************************************


Target-RNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup                 RadioBearerSetup,
    radioBearerReconfiguration       RadioBearerReconfiguration,
    radioBearerRelease               RadioBearerRelease,
    transportChannelReconfiguration  TransportChannelReconfiguration,
    physicalChannelReconfiguration   PhysicalChannelReconfiguration,
    rrc-FailureInfo                  RRC-FailureInfo-r3-IEs,
    -- IE dl-DCCHmessage consists of an octet string that includes
    -- the IE DL-DCCH-Message
    dL-DCCHmessage                   OCTET STRING,
    extension                        NULL
}

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order
```

```
-- **************************************************
--
-- Handover to UTRAN information
--
-- **************************************************

InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
    r3                              SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        interRATHandoverInfo-r3         InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        v390NonCriticalExtensions           SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
    InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }       OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=       SEQUENCE {
        -- The order of the IEs may not reflect the tabular format
        --  but has been chosen to simplify the handling of the information in the BSC
    --  Other IEs
        ue-RATSpecificCapability     InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
        -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
        -- actual information.  This makes it possible for BSS to transparently handle information
        -- received via GSM air interface even when it includes non critical extensions.
        -- The octet string shall include the InterRATHandoverInfo information
        -- The BSS can re-use the 04.18 length field received from the MS
        interRATHandoverInfo            OCTET STRING (SIZE (0..255))
}

InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        failureCauseWithProtErr         FailureCauseWithProtErr              OPTIONAL
}

-- **************************************************
--
-- SRNC Relocation information
--
-- **************************************************

SRNC-RelocationInfo-r3 ::= CHOICE {
    r3                              SEQUENCE {
        sRNC-RelocationInfo-r3      SRNC-RelocationInfo-r3-IEs,
            v380NonCriticalExtensions       SEQUENCE {
                sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
                -- Reserved for future non critical extension
                v390NonCriticalExtensions           SEQUENCE {
                    sRNC-RelocationInfo-v390ext      SRNC-RelocationInfo-v390ext-IEs,
                    v3a0NonCriticalExtensions           SEQUENCE {
                        sRNC-RelocationInfo-v3a0ext      SRNC-RelocationInfo-v3a0ext-IEs,
                        v3b0NonCriticalExtensions           SEQUENCE {
                            sRNC-RelocationInfo-v3b0ext      SRNC-RelocationInfo-v3b0ext-IEs,
                            v3c0NonCriticalExtensions           SEQUENCE {
                                sRNC-RelocationInfo-v3c0ext      SRNC-RelocationInfo-v3c0ext-IEs,
                                v3d0NonCriticalExtensions           SEQUENCE {
                                    sRNC-RelocationInfo-v3d0ext      SRNC-RelocationInfo-v3d0ext-IEs,
                                    v4xyNonCriticalExtensions           SEQUENCE {
                                        sRNC-RelocationInfo-v4xyext      SRNC-RelocationInfo-
    v4xyext-IEs,
                                        -- Reserved for future non critical extension
                                        nonCriticalExtensions       SEQUENCE {} OPTIONAL
                                    }       OPTIONAL
                                }   OPTIONAL
                            }       OPTIONAL
                        }       OPTIONAL
                    }   OPTIONAL
                }   OPTIONAL
            }       OPTIONAL
    },
    later-than-r3                   CHOICE {
        r4                              SEQUENCE {
            sRNC-RelocationInfo-r4      SRNC-RelocationInfo-r4-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
            },
```

```
            criticalExtensions                SEQUENCE {}
    }
}


SRNC-RelocationInfo-r3-IEs ::=        SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC                       StateOfRRC,
        stateOfRRC-Procedure             StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus                  CipheringStatus,
        calculationTimeForCiphering      CalculationTimeForCiphering        OPTIONAL,
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in the IE "Signalling RB information list" and in the
        -- IE "RAB information list". The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List          CipheringInfoPerRB-List            OPTIONAL,
        count-C-List                     COUNT-C-List                       OPTIONAL,
        integrityProtectionStatus        IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo    SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams     ImplementationSpecificParams       OPTIONAL,
    -- User equipment IEs
        u-RNTI                           U-RNTI,
        c-RNTI                           C-RNTI                             OPTIONAL,
        ue-RadioAccessCapability         UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos      UE-Positioning-LastKnownPos        OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability         InterRAT-UE-RadioAccessCapabilityList  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                     URA-Identity                       OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo     NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList         CN-DomainInformationList           OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList               OngoingMeasRepList                 OPTIONAL,
    -- Radio bearer IEs
        predefinedConfigStatusList       PredefinedConfigStatusList,
        srb-InformationList              SRB-InformationSetupList,
        rab-InformationList              RAB-InformationSetupList           OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo             UL-CommonTransChInfo               OPTIONAL,
        ul-TransChInfoList               UL-AddReconfTransChInfoList        OPTIONAL,
        modeSpecificInfo                 CHOICE {
            fdd                              SEQUENCE {
                cpch-SetID                       CPCH-SetID                 OPTIONAL,
                transChDRAC-Info                 DRAC-StaticInformationList OPTIONAL
            },
            tdd                              NULL
        },
        dl-CommonTransChInfo             DL-CommonTransChInfo               OPTIONAL,
        dl-TransChInfoList               DL-AddReconfTransChInfoList        OPTIONAL,
    -- Measurement report
        measurementReport                MeasurementReport                 OPTIONAL ,
        nonCriticalExtensions            SEQUENCE {
            -- In case of TDD only up-Ipdl-Parameters-TDD is present, otherwise
            -- this IE is absent
            up-Ipdl-Parameters-TDD           UE-Positioning-IPDL-Parameters-TDD-r4-ext   OPTIONAL,
        -- Extension mechanism for non- release4 information
            nonCriticalExtensions            SEQUENCE {}                                 OPTIONAL
        }                                                                   OPTIONAL
}


SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
        cn-DomainIdentity                CN-DomainIdentity,
        cipheringStatusList              CipheringStatusList
}


SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
        cn-DomainInformationList-v390ext    CN-DomainInformationList-v390ext        OPTIONAL,
        ue-RadioAccessCapability-v370ext    UE-RadioAccessCapability-v370ext        OPTIONAL,
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext        OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext,
        failureCauseWithProtErr             FailureCauseWithProtErr                 OPTIONAL
}


SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
```

```
                startValueForCIphering-v3a0ext          START-Value,
                cipheringInfoForSRB1-v3a0ext           CipheringInfoForSRB1-v3a0ext,
                ue-RadioAccessCapability-v3a0ext      UE-RadioAccessCapability-v3a0ext          OPTIONAL
        }

        SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
                -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
                cn-DomainIdentity                  CN-DomainIdentity,
                -- the remaining start values are contained in IE startValueForCiphering-v3b0ext
                startValueForCiphering-v3b0ext      STARTList2                                   OPTIONAL
        }

        SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
                -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
                -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
                -- Only included if type is "UE involved"
                rb-IdentityForHOMessage            RB-Identity          OPTIONAL
        }

        SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
            -- User equipment IEs
                uESpecificBehaviourInformation1idle       UESpecificBehaviourInformation1idle       OPTIONAL,
                uESpecificBehaviourInformation1interRAT      UESpecificBehaviourInformation1interRAT
            OPTIONAL
        }

        STARTList2 ::=                      SEQUENCE (SIZE (2..maxCNdomains)) OF
                                            STARTSingle


        SRNC-RelocationInfo-v4xyext-IEs ::= SEQUENCE {
                ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
        }

        CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
                dl-UM-SN                            BIT STRING (SIZE (7))
        }

        CipheringStatusList ::=         SEQUENCE (SIZE (1..maxCNdomains)) OF
                                            CipheringStatusCNdomain


        CipheringStatusCNdomain ::=          SEQUENCE {
                cn-DomainIdentity               CN-DomainIdentity,
                cipheringStatus                 CipheringStatus
        }

        SRNC-RelocationInfo-r4-IEs ::=          SEQUENCE {
            -- Non-RRC IEs
                -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
                -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
                -- Only included if type is "UE involved"
                rb-IdentityForHOMessage            RB-Identity                                   OPTIONAL,
                stateOfRRC                         StateOfRRC,
                stateOfRRC-Procedure               StateOfRRC-Procedure,
            -- Ciphering related information IEs
                cipheringStatusList                CipheringStatusList-r4,
                latestConfiguredCN-Domain          CN-DomainIdentity,
                calculationTimeForCiphering        CalculationTimeForCiphering          OPTIONAL,
                count-C-List                       COUNT-C-List                         OPTIONAL,
                cipheringInfoPerRB-List            CipheringInfoPerRB-List-r4           OPTIONAL,
            -- Integrity protection related information IEs
                integrityProtectionStatus          IntegrityProtectionStatus,
                srb-SpecificIntegrityProtInfo      SRB-SpecificIntegrityProtInfoList,
                implementationSpecificParams       ImplementationSpecificParams         OPTIONAL,
            -- User equipment IEs
                u-RNTI                             U-RNTI,
                c-RNTI                             C-RNTI                               OPTIONAL,
                ue-RadioAccessCapability           UE-RadioAccessCapability-r4,
                ue-RadioAccessCapability-ext       UE-RadioAccessCapabBandFDDList       OPTIONAL,
                ue-Positioning-LastKnownPos        UE-Positioning-LastKnownPos          OPTIONAL,
                uESpecificBehaviourInformation1idle       UESpecificBehaviourInformation1idle       OPTIONAL,
                uESpecificBehaviourInformation1interRAT      UESpecificBehaviourInformation1interRAT
            OPTIONAL,
            -- Other IEs
                ue-RATSpecificCapability           InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
            -- UTRAN mobility IEs
                ura-Identity                       URA-Identity                         OPTIONAL,
            -- Core network IEs
                cn-CommonGSM-MAP-NAS-SysInfo       NAS-SystemInformationGSM-MAP,
```

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```
            cn-DomainInformationList         CN-DomainInformationListFull        OPTIONAL,
        -- Measurement IEs
            ongoingMeasRepList               OngoingMeasRepList-r4               OPTIONAL,
        -- Radio bearer IEs
            predefinedConfigStatusList       PredefinedConfigStatusList,
            srb-InformationList              SRB-InformationSetupList,
            rab-InformationList              RAB-InformationSetupList-r4         OPTIONAL,
        -- Transport channel IEs
            ul-CommonTransChInfo             UL-CommonTransChInfo-r4             OPTIONAL,
            ul-TransChInfoList               UL-AddReconfTransChInfoList         OPTIONAL,
            modeSpecificInfo                 CHOICE {
                fdd                              SEQUENCE {
                    cpch-SetID                       CPCH-SetID                  OPTIONAL,
                    transChDRAC-Info                 DRAC-StaticInformationList  OPTIONAL
                },
                tdd                          NULL
            }                                                                    OPTIONAL,
            dl-CommonTransChInfo             DL-CommonTransChInfo-r4             OPTIONAL,
            dl-TransChInfoList               DL-AddReconfTransChInfoList-r4      OPTIONAL,
        -- Measurement report
            measurementReport                MeasurementReport                  OPTIONAL,
            failureCause                     FailureCauseWithProtErr            OPTIONAL
}


-- IE definitions

CalculationTimeForCiphering ::=     SEQUENCE {
    cell-Id                          CellIdentity,
    sfn                              INTEGER (0..4095)
}

CipheringInfoPerRB ::=              SEQUENCE {
    dl-HFN                           BIT STRING (SIZE (20..25)),
    ul-HFN                           BIT STRING (SIZE (20..25))
}

CipheringInfoPerRB-r4 ::=           SEQUENCE {
    rb-Identity                      RB-Identity,
    dl-HFN                           BIT STRING (SIZE (20..25)),
    dl-UM-SN                         BIT STRING (SIZE (7))                OPTIONAL,
    ul-HFN                           BIT STRING (SIZE (20..25))
}

-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=         SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB

CipheringInfoPerRB-List-r4 ::=      SEQUENCE (SIZE (1..maxRB)) OF
                                        CipheringInfoPerRB-r4

CipheringStatus ::=                 ENUMERATED {
                                        started, notStarted }

CipheringStatusList-r4 ::=          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CipheringStatusCNdomain-r4

CipheringStatusCNdomain-r4 ::=      SEQUENCE {
        cn-DomainIdentity            CN-DomainIdentity,
        cipheringStatus              CipheringStatus,
        start-Value                  START-Value
}

CN-DomainInformation-v390ext ::=     SEQUENCE {
    cn-DRX-CycleLengthCoeff          CN-DRX-CycleLengthCoefficient
}

CN-DomainInformationList-v390ext ::=  SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformation-v390ext

CompressedModeMeasCapability-r4 ::= SEQUENCE {
    fdd-Measurements                 BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
    tdd384-Measurements              BOOLEAN                             OPTIONAL,
    tdd128-Measurements              BOOLEAN                             OPTIONAL,
    gsm-Measurements                 GSM-Measurements                    OPTIONAL,
    multiCarrierMeasurements         BOOLEAN                             OPTIONAL
```

```
}

COUNT-C-List ::=                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        COUNT-CSingle

COUNT-CSingle ::=                       SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    count-C                             BIT STRING (SIZE (32))
}

DL-PhysChCapabilityFDD-r4 ::=           SEQUENCE {
    maxNoDPCH-PDSCH-Codes               INTEGER (1..8),
    maxNoPhysChBitsReceived             MaxNoPhysChBitsReceived,
    supportForSF-512                    BOOLEAN,
    supportOfPDSCH                      BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception   SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation     SupportOfDedicatedPilotsForChEstimation     OPTIONAL
}

ImplementationSpecificParams ::=    BIT STRING (SIZE (1..512))


IntegrityProtectionStatus ::=       ENUMERATED {
                                        started, notStarted }

MeasurementCapability-r4 ::=        SEQUENCE {
    downlinkCompressedMode              CompressedModeMeasCapability-r4,
    uplinkCompressedMode                CompressedModeMeasCapability-r4
}

MeasurementCommandWithType ::=      CHOICE {
    setup                               MeasurementType,
    modify                              NULL,
    release                             NULL
}

MeasurementCommandWithType-r4 ::=   CHOICE {
    setup                               MeasurementType-r4,
    modify                              NULL,
    release                             NULL
}

OngoingMeasRep ::=                      SEQUENCE {
    measurementIdentity         MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType          MeasurementCommandWithType,
    measurementReportingMode            MeasurementReportingMode            OPTIONAL,
    additionalMeasurementID-List        AdditionalMeasurementID-List        OPTIONAL
}

OngoingMeasRep-r4 ::=                   SEQUENCE {
    measurementIdentity         MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType          MeasurementCommandWithType-r4,
    measurementReportingMode            MeasurementReportingMode            OPTIONAL,
    additionalMeasurementID-List        AdditionalMeasurementID-List        OPTIONAL
}

OngoingMeasRepList ::=                  SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep

OngoingMeasRepList-r4 ::=               SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep-r4

PDCP-Capability-r4 ::=                  SEQUENCE {
    losslessSRNS-RelocationSupport      BOOLEAN,
    supportForRfc2507                   CHOICE {
        notSupported                        NULL,
        supported                           MaxHcContextSpace
    },
    supportForRfc3095                   CHOICE {
        notSupported                        NULL,
        supported                           SEQUENCE {
            maxROHC-ContextSessions             MaxROHC-ContextSessions-r4  DEFAULT s16,
            reverseCompressionDepth             INTEGER (0..65535)          DEFAULT 0
        }
    }
```

```
}

PhysicalChannelCapability-r4 ::=         SEQUENCE {
        fddPhysChCapability                     SEQUENCE {
            downlinkPhysChCapability                DL-PhysChCapabilityFDD-r4,
            uplinkPhysChCapability                  UL-PhysChCapabilityFDD
        }                                           OPTIONAL,
        tdd384-PhysChCapability                 SEQUENCE {
            downlinkPhysChCapability                DL-PhysChCapabilityTDD,
            uplinkPhysChCapability                  UL-PhysChCapabilityTDD
        }                                           OPTIONAL,
        tdd128-PhysChCapability                 SEQUENCE {
            downlinkPhysChCapability                DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability                  UL-PhysChCapabilityTDD-LCR-r4
        }                                           OPTIONAL
}

RF-Capability-r4 ::=                SEQUENCE {
        fddRF-Capability                        SEQUENCE {
            ue-PowerClass                           UE-PowerClass-v370,
            txRxFrequencySeparation                 TxRxFrequencySeparation
        }                                                           OPTIONAL,
        tdd384-RF-Capability                    SEQUENCE {
            ue-PowerClass                           UE-PowerClass-v370,
            radioFrequencyBandTDDList               RadioFrequencyBandTDDList,
            chipRateCapability                      ChipRateCapability
        }                                                           OPTIONAL,
        tdd128-RF-Capability                    SEQUENCE {
            ue-PowerClass                           UE-PowerClass-v370,
            radioFrequencyBandTDDList               RadioFrequencyBandTDDList,
            chipRateCapability                      ChipRateCapability
        }                                                           OPTIONAL
}

SRB-SpecificIntegrityProtInfo ::=   SEQUENCE {
    ul-RRC-HFN                          BIT STRING (SIZE (28)),
    dl-RRC-HFN                          BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber               RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber               RRC-MessageSequenceNumber
}

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                    SRB-SpecificIntegrityProtInfo

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

StateOfRRC-Procedure ::=            ENUMERATED {
                                    awaitNoRRC-Message,
                                    awaitRB-ReleaseComplete,
                                    awaitRB-SetupComplete,
                                    awaitRB-ReconfigurationComplete,
                                    awaitTransportCH-ReconfigurationComplete,
                                    awaitPhysicalCH-ReconfigurationComplete,
                                    awaitActiveSetUpdateComplete,
                                    awaitHandoverComplete,
                                    sendCellUpdateConfirm,
                                    sendUraUpdateConfirm,
                                    -- dummy is not used in this version of specification
                                    -- It should not be sent
                                    dummy,
                                    otherStates
}

UE-Positioning-LastKnownPos ::=     SEQUENCE {
        sfn                             INTEGER (0..4095),
        cell-id                         CellIdentity,
        positionEstimate                PositionEstimate
}

UE-Positioning-Capability-r4 ::=    SEQUENCE {
    standaloneLocMethodsSupported           BOOLEAN,
    ue-BasedOTDOA-Supported                 BOOLEAN,
    networkAssistedGPS-Supported            NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames     BOOLEAN,
    supportForIPDL                          BOOLEAN,
    rx-tx-TimeDifferenceType2Capable        BOOLEAN,
    validity-CellPCH-UraPCH                 ENUMERATED { true (0 ) }   OPTIONAL
```

```
}

UE-RadioAccessCapability-r4 ::=      SEQUENCE {
    accessStratumReleaseIndicator       AccessStratumReleaseIndicator,
    pdcp-Capability                     PDCP-Capability-r4,
    rlc-Capability                      RLC-Capability,
    transportChannelCapability          TransportChannelCapability,
    rf-Capability                       RF-Capability-r4,
    physicalChannelCapability           PhysicalChannelCapability-r4,
    ue-MultiModeRAT-Capability          UE-MultiModeRAT-Capability,
    securityCapability                  SecurityCapability,
    ue-positioning-Capability           UE-Positioning-Capability-r4,
    measurementCapability               MeasurementCapability-r4      OPTIONAL
}

END
```

14.12.4.1   INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES

This RRC message is sent between network nodes when preparing for an inter RAT handover to UTRAN.

Direction: source RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Other Information elements				
UE system specific capability	OP	1 to <maxSystemCapability>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier handover to UTRAN request
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

Condition	Explanation
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.

NOTE: The above table does not need to reflect the order of the information elements in the actual encoded message. The order, that is reflected in the ASN.1, should be chosen in a manner that avoids that network nodes need to perform reordering of information elements.

14.12.4.2 SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved".
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no RRC message, await RB Release Complete, await RB Setup	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			Complete, await RB Reconfiguration Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others)	
Ciphering related information				
>Ciphering status for each CN domain	MP	<1 to maxCNDomains>		
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>Ciphering status	MP		Enumerated(Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV-*Ciphering*			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call
>>SFN	MP		Integer(0..4095)	
>COUNT-C list	OP	1 to <maxCNdomains>		COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxRB>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-*SRB1*		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated(Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-*IP*	4 to <maxSRBs etup>		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>>Uplink RRC Message sequence number	MP		Integer (0.. 15)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC Message sequence number	MP		Integer (0.. 15)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific parameters	OP		Bit string (1..512)	
RRC IEs				
UE Information elements				
>U-RNTI	MP		U-RNTI 10.3.3.47	
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position	OP			
>>SFN	MP		Integer (0..4095)	Time when position was estimated
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE *Position estimate*	MP			
>>>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>>>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>>>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information idle 1 10.3.3.51	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
Other Information elements				
>UE system specific capability	OP	1 to <maxSystemCapability>		
>>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
UTRAN Mobility Information elements				
>URA Identifier	OP		URA identity 10.3.2.6	
CN Information Elements				
>CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>CN domain related information	OP	1 to <MaxCNdomains>		CN related information to be provided for each CN domain
>>CN domain identity	MP			
>>CN domain specific GSM-MAP NAS system info	MP		NAS system information (GSM-MAP) 10.3.1.9	
>>CN domain specific DRX cycle length coefficient	MP		CN domain specific DRX cycle length	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			coefficient, 10.3.3.6	
Measurement Related Information elements				
>For each ongoing measurement reporting	OP	1 to <MaxNoOf Meas>		
>>Measurement Identity	MP		Measurement identity 10.3.7.48	
>>Measurement Command	MP		Measurement command 10.3.7.46	
>>Measurement Type	CV-*Setup*		Measurement type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measurement reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measurements list 10.3.7.1	
>>CHOICE *Measurement*	OP			
>>>Intra-frequency				
>>>>Intra-frequency cell info	OP		Intra-frequency cell info list 10.3.7.33	
>>>>Intra-frequency measurement quantity	OP		Intra-frequency measurement quantity 10.3.7.38	
>>>>Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Intra-frequency measurement reporting criteria			Intra-frequency measurement reporting criteria 10.3.7.39	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Inter-frequency				
>>>>Inter-frequency cell info	OP		Inter-frequency cell info list 10.3.7.13	
>>>>Inter-frequency measurement quantity	OP		Inter-frequency measuremen	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			t quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Inter-RAT				
>>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>>Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
>>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Traffic Volume				
>>>>Traffic volume measurement Object	OP		Traffic volume measurement object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
>>>>Traffic volume reporting	OP		Traffic	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
quantity			volume reporting quantity 10.3.7.74	
>>>>CHOICE *report criteria*	OP			
>>>>>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Quality				
>>>>Quality measurement Object	OP		Quality measurement object	
>>>>CHOICE *report criteria*	OP			
>>>>>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE internal				
>>>>UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
>>>>UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
>>>>CHOICE *report criteria*	OP			
>>>>>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE positioning				
>>>>LCS reporting quantity	OP		LCS reporting quantity 10.3.7.111	
>>>>CHOICE *report criteria*	OP			
>>>>>LCS reporting criteria			LCS reporting criteria 10.3.7.110	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer Information Elements				
>Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxSRBsetup>		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	OP	1 to <maxRABsetup>		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <MaxTrCH>		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE *mode*	OP			
>>FDD				
>>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <MaxTrCH>		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)
Downlink transport channels				
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <MaxTrCH>		
>>DL transport channel information	MP		Added or reconfigured DL TrCH information	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.5.1	
>Measurement report	OP		MEASUREMENT REPORT 10.2.17	
Other Information elements				
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a)
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

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

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** CR **1760** | ⌘**rev** | **2** | ⌘ | Current version: | **5.2.0** | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network **X** Core Network ☐

Title: ⌘	Early UE Specific Behaviour Information in RRC Connection Request / inter RAT info	
Source: ⌘	Alcatel, Fujitsu, Motorola, NEC, Orange, Siemens	
Work item code: ⌘ TEI		***Date:*** ⌘ 05/11/2002
Category: ⌘ **B**		***Release:*** ⌘ *Rel-5*

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

Use *one* of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘	It is currently not possible to identify and handle faulty UE implementations
Summary of change: ⌘	Two transparent containers "UE Specific Behaviour Information 1 idle" (current assumtion 4bits, tbc) and "UE Specific Behaviour Information 1 interRAT" (8bits) are added to the early messages at call setup and to the appropriate messages for SRNS relocation and inter rat handover, i.e. to the following messages:
	RRC Connection Request, Inter RAT Handover Info, Inter RAT Handover Info with Inter RAT Capabilities, SRNS Relocation Info,
	If UTRAN implements the CR but UE doesn't: - No impact. The RNC might not be able to adapt to specific UE behavior.
	If UE implements the CR but UTRAN doesn't: - No impact. UTRAN will ignore the unknown extension and treat all UEs in the same way
	If neither UE nor UTRAN implement the CR: - No impact.
Consequences if not approved: ⌘	Errors discovered in UEs can not be handled appropriately

Clauses affected: ⌘	8.1.3.3, 8.1.16.3, 10.2.16b, 10.2.39, 10.3.3.51 (new), 10.3.3.52 (new), 11.2, 11.3, 11.5, 14.12.4.1, 14.12.4.2

	Y	N	
Other specs ⌘		X	Other core specifications ⌘

affected:		**X** Test specifications	
		X O&M Specifications	

Other comments: ⌘	

How to create CRs using this form:

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

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

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

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

8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;

1> include a measurement report in the IE "Measured results on RACH", 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; and

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported; and

1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

10.2.16d INTER RAT HANDOVER INFO

This message is sent by the UE via another radio access technology to provide information to the target RNC when preparing for a handover to UTRAN.

RLC-SAP: N/A (Sent through a different RAT)

Logical channel: N/A (Sent through a different RAT)

Direction: UE → UTRAN

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1

10.2.39 RRC CONNECTION REQUEST

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

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
Initial UE identity	MP		Initial UE identity 10.3.3.15		
Establishment cause	MP		Establishment cause 10.3.3.11		
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information 1 idle 10.3.3.51	This IE shall not be included in this version of the protocol	
Measurement information elements					
Measured results on RACH	OP		Measured results on RACH 10.3.7.45		
Access stratum release indicator	MP		Enumerated(REL-4)	Absence of the IE implies R99. The IE also indicates the release of the RRC transfer syntax supported by the UE 15 spare values are needed	REL-4

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

10.3.3.51   UE Specific Behaviour Information 1 idle

This IE indicates the UE conformance typically for RRC connection establishment from idle mode.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE Specific Behaviour Information 1 idle	MP		bit string([4])	

10.3.3.52   UE Specific Behaviour Information 1 interRAT

This IE indicates the UE conformance typically for RRC connection establishment from another RAT.

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
UE Specific Behaviour	MP		bit string(8)	

Information Element/Group name	Need	Multi	Type and Reference	Semantics description
Information 1 interRAT				

11.2   PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IEs :
    CellIdentity,
    CellIdentity-PerRL-List,
    URA-Identity,
-- User Equipment IEs :
    ActivationTime,
    C-RNTI,
    CapabilityUpdateRequirement,
    CapabilityUpdateRequirement-r4,
    CapabilityUpdateRequirement-r4-ext,
    CellUpdateCause,
    CipheringAlgorithm,
    CipheringModeInfo,
    DSCH-RNTI,
    EstablishmentCause,
    FailureCauseWithProtErr,
    FailureCauseWithProtErrTrId,
    H-RNTI,
    UESpecificBehaviourInformation1idle,
    UESpecificBehaviourInformation1interRAT,
    InitialUE-Identity,
    IntegrityProtActivationInfo,
    IntegrityProtectionModeInfo,
    N-308,
    PagingCause,
    PagingRecordList,
    ProtocolErrorIndicator,
    ProtocolErrorIndicatorWithMoreInfo,
    Rb-timer-indicator,
    RedirectionInfo,
    RejectionCause,
    ReleaseCause,
    RRC-StateIndicator,
    RRC-TransactionIdentifier,
    SecurityCapability,
    START-Value,
    STARTList,
    U-RNTI,
    U-RNTI-Short,
    UE-RadioAccessCapability,
```

```
        UE-RadioAccessCapability-r4-ext,
        UE-RadioAccessCapability-r5-ext,
        UE-RadioAccessCapability-v370ext,
        UE-RadioAccessCapability-v380ext,
        UE-RadioAccessCapability-v3a0ext,
        UE-RadioAccessCapability-v4xyext,
        DL-PhysChCapabilityFDD-v380ext,
        UE-ConnTimersAndConstants,
        UE-ConnTimersAndConstants-v3a0ext,
        UE-ConnTimersAndConstants-r5,
        UE-SecurityInformation,
        URA-UpdateCause,
        UTRAN-DRX-CycleLengthCoefficient,
        WaitTime,
-- Radio Bearer IEs :
        DefaultConfigIdentity,
        DefaultConfigIdentity-r4,
        DefaultConfigMode,
        DL-CounterSynchronisationInfo,
        DL-CounterSynchronisationInfo-r5,
        PredefinedConfigIdentity,
        PredefinedConfigStatusList,
        RAB-Info,
        RAB-Info-Post,
        RAB-InformationList,
        RAB-InformationReconfigList,
        RAB-InformationSetupList,
        RAB-InformationSetupList-r4,
        RB-ActivationTimeInfoList,
        RB-COUNT-C-InformationList,
        RB-COUNT-C-MSB-InformationList,
        RB-IdentityList,
        RB-InformationAffectedList,
        RB-InformationAffectedList-r5,
        RB-InformationReconfigList,
        RB-InformationReconfigList-r4,
        RB-InformationReconfigList-r5,
        RB-InformationReleaseList,
        RB-PDCPContextRelocationList,
        SRB-InformationSetupList,
        SRB-InformationSetupList2,
        UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
        CPCH-SetID,
        DL-AddReconfTransChInfo2List,
        DL-AddReconfTransChInfoList,
        DL-AddReconfTransChInfoList-r4,
        DL-AddReconfTransChInfoList-r5,
        DL-CommonTransChInfo,
        DL-CommonTransChInfo-r4,
        DL-DeletedTransChInfoList,
        DL-DeletedTransChInfoList-r5,
        DRAC-StaticInformationList,
        TFC-Subset,
        TFCS-Identity,
        UL-AddReconfTransChInfoList,
        UL-CommonTransChInfo,
        UL-CommonTransChInfo-r4,
        UL-DeletedTransChInfoList,
-- Physical Channel IEs :
        Alpha,
        CCTrCH-PowerControlInfo,
        CCTrCH-PowerControlInfo-r4,
        ConstantValue,
        ConstantValueTdd,
        CPCH-SetInfo,
        DL-CommonInformation,
        DL-CommonInformation-r4,
        DL-CommonInformationPost,
        DL-HSPDSCH-Information,
        DL-InformationPerRL,
        DL-InformationPerRL-List,
        DL-InformationPerRL-List-r4,
        DL-InformationPerRL-List-r5,
        DL-InformationPerRL-ListPostFDD,
        DL-InformationPerRL-PostTDD,
        DL-InformationPerRL-PostTDD-LCR-r4,
        DL-PDSCH-Information,
        DPCH-CompressedModeStatusInfo,
```

```
        FrequencyInfo,
        FrequencyInfoFDD,
        FrequencyInfoTDD,
        MaxAllowedUL-TX-Power,
        OpenLoopPowerControl-IPDL-TDD-r4,
        PDSCH-CapacityAllocationInfo,
        PDSCH-CapacityAllocationInfo-r4,
        PDSCH-Identity,
        PrimaryCCPCH-TX-Power,
        PUSCH-CapacityAllocationInfo,
        PUSCH-CapacityAllocationInfo-r4,
        PUSCH-Identity,
        RL-AdditionInformationList,
        RL-RemovalInformationList,
        SpecialBurstScheduling,
        SSDT-Information,
        TFC-ControlDuration,
        SSDT-UL-r4,
        TimeslotList,
        TimeslotList-r4,
        TX-DiversityMode,
        UL-ChannelRequirement,
        UL-ChannelRequirement-r4,
        UL-ChannelRequirement-r5,
        UL-ChannelRequirementWithCPCH-SetID,
        UL-ChannelRequirementWithCPCH-SetID-r4,
        UL-ChannelRequirementWithCPCH-SetID-r5,
        UL-DPCH-Info,
        UL-DPCH-Info-r4,
        UL-DPCH-InfoPostFDD,
        UL-DPCH-InfoPostTDD,
        UL-DPCH-InfoPostTDD-LCR-r4,
        UL-SynchronisationParameters-r4,
        UL-TimingAdvance,
        UL-TimingAdvanceControl,
        UL-TimingAdvanceControl-r4,
-- Measurement IEs :
        AdditionalMeasurementID-List,
        Frequency-Band,
        EventResults,
        InterFreqEventResults-LCR-r4-ext,
        InterRAT-TargetCellDescription,
        MeasuredResults,
        MeasuredResults-v390ext,
        MeasuredResultsList,
        MeasuredResultsList-LCR-r4-ext,
        MeasuredResultsOnRACH,
        MeasurementCommand,
        MeasurementCommand-r4,
        MeasurementIdentity,
        MeasurementReportingMode,
        PrimaryCCPCH-RSCP,
        SFN-Offset-Validity,
        TimeslotListWithISCP,
        TrafficVolumeMeasuredResultsList,
        UE-Positioning-GPS-AssistanceData,
        UE-Positioning-Measurement-v390ext,
        UE-Positioning-OTDOA-AssistanceData,
        UE-Positioning-OTDOA-AssistanceData-r4ext,
        UE-Positioning-OTDOA-AssistanceData-UEB,
        UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
        BCCH-ModificationInfo,
        CDMA2000-MessageList,
        GSM-MessageList,
        InterRAT-ChangeFailureCause,
        InterRAT-HO-FailureCause,
        InterRAT-UE-RadioAccessCapabilityList,
        InterRAT-UE-SecurityCapList,
        IntraDomainNasNodeSelector,
        ProtocolErrorMoreInformation,
        Rplmn-Information,
        Rplmn-Information-r4,
        SegCount,
        SegmentIndex,
        SFN-Prime,
        SIB-Data-fixed,
        SIB-Data-variable,
        SIB-Type
FROM InformationElements
```

```
    maxSIBperMsg
FROM Constant-definitions;

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

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

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

InitialDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        intraDomainNasNodeSelector      IntraDomainNasNodeSelector,
        nas-Message                     NAS-Message,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
        v3a0NonCriticalExtensions       SEQUENCE {
        initialDirectTransfer-v3a0ext   InitialDirectTransfer-v3a0ext,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }       OPTIONAL
}

InitialDirectTransfer-v3a0ext ::= SEQUENCE {
    -- start-value shall always be included in this version of the protocol
    start-Value                         START-Value                     OPTIONAL
}


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

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                                  SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
                                        HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE nonCriticalExtensions when it sets
        -- the IE gsm-message included in handoverFromUTRANCommand-GSM-r3 to single-GSM-Message
        -- The UE behaviour upon receiving a message including this combination of IE values is
        -- not specified
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                  OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                        OPTIONAL,
    -- Measurement IEs
        frequency-band                  Frequency-Band,
    -- Other IEs
        gsm-message                     CHOICE {
```

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```
                    -- In the single-GSM-Message case the following rules apply:
                    -- 1> the GSM message directly follows the basic production; the final padding that
                    --    results when PER encoding the abstract syntax value is removed prior to appending
                    --    the GSM message.
                    -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
                    --    there is no explicit parameter indicating the size of the included GSM message.
                    -- 3> depending on need, final padding (all "0"s) is added to ensure the final result
                    --    comprises a full number of octets
                    single-GSM-Message              SEQUENCE {},
                    gsm-MessageList                 SEQUENCE {
                        gsm-Messages                    GSM-MessageList
                    }
            }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
                                        HandoverFromUTRANCommand-CDMA2000-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

-- **************************************************
--
-- HANDOVER FROM UTRAN FAILURE
--
-- **************************************************

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Other IEs
    interRAT-HO-FailureCause        InterRAT-HO-FailureCause        OPTIONAL,
    interRATMessage                 CHOICE {
        gsm                             SEQUENCE {
            gsm-MessageList                 GSM-MessageList
        },
        cdma2000                        SEQUENCE {
            cdma2000-MessageList            CDMA2000-MessageList
        }
    }                   OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}

-- **************************************************
--
-- INTER RAT HANDOVER INFO
--
-- **************************************************

InterRATHandoverInfo ::= SEQUENCE {
    -- This structure is defined for historical reasons, backward compatibility with 04.18
    predefinedConfigStatusList      CHOICE {
        absent                          NULL,
        present                         PredefinedConfigStatusList
    },
    uE-SecurityInformation          CHOICE {
        absent                          NULL,
        present                         UE-SecurityInformation
    },
    ue-CapabilityContainer          CHOICE {
        absent                          NULL,
        -- present is an octet aligned string containing IE UE-RadioAccessCapabilityInfo
```

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```
                present                         OCTET STRING (SIZE (0..63))
        },
        -- Non critical extensions
        v390NonCriticalExtensions      CHOICE {
            absent                         NULL,
            present                        SEQUENCE {
                interRATHandoverInfo-v390ext    InterRATHandoverInfo-v390ext-IEs,
                v3a0NonCriticalExtensions       SEQUENCE   {
                    interRATHandoverInfo-v3a0ext    InterRATHandoverInfo-v3a0ext,
                    v3d0NonCriticalExtensions         SEQUENCE {
                        interRATHandoverInfo-v3d0ext    InterRATHandoverInfo-v3d0ext-IEs,
                    v4xyNonCriticalExtensions         SEQUENCE {
                        interRATHandoverInfo-v4xyext    InterRATHandoverInfo-v4xyext-IEs,
                        -- Reserved for future non critical extension

                        nonCriticalExtensions           SEQUENCE {} OPTIONAL
                    } OPTIONAL
                    } Optional
                } OPTIONAL
            }
        }
}

InterRATHandoverInfo-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext        OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

InterRATHandoverInfo-v3a0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext        OPTIONAL
}


InterRATHandoverInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1interRAT      UESpecificBehaviourInformation1interRAT
    OPTIONAL
}

InterRATHandoverInfo-v4xyext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}

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

MeasurementControl ::= CHOICE {
    r3                          SEQUENCE {
        measurementControl-r3         MeasurementControl-r3-IEs,
        v390nonCriticalExtensions     SEQUENCE {
            measurementControl-v390ext    MeasurementControl-v390ext,
            v3a0NonCriticalExtensions       SEQUENCE {
                measurementControl-v3a0ext      MeasurementControl-v3a0ext,
                v4xyNonCriticalExtensions       SEQUENCE{
                    measurementControl-v4xyext      MeasurementControl-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {}                 OPTIONAL
                }                       OPTIONAL
            }                       OPTIONAL
        }                   OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions             CHOICE {
            r4                             SEQUENCE {
                measurementControl-r4           MeasurementControl-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions             SEQUENCE {}
        }
    }
}

MeasurementControl-r3-IEs ::= SEQUENCE {
```

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

MeasurementControl-v4xyext-IEs ::= SEQUENCE {
    ue-Positioning-OTDOA-AssistanceData-r4ext   UE-Positioning-OTDOA-AssistanceData-r4ext   OPTIONAL
}

MeasurementControl-v390ext ::= SEQUENCE {
        ue-Positioning-Measurement-v390ext      UE-Positioning-Measurement-v390ext  OPTIONAL
}

MeasurementControl-v3a0ext ::= SEQUENCE {
    sfn-Offset-Validity             SFN-Offset-Validity     OPTIONAL
}

MeasurementControl-r4-IEs ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        -- TABULAR: The measurement type is included in measurementCommand.
        measurementCommand              MeasurementCommand-r4,
        measurementReportingMode        MeasurementReportingMode        OPTIONAL,
        additionalMeasurementList       AdditionalMeasurementID-List     OPTIONAL,
    -- Physical channel IEs
        dpch-CompressedModeStatusInfo   DPCH-CompressedModeStatusInfo    OPTIONAL
}

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

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

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

RRCConnectionRequest ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        establishmentCause              EstablishmentCause,
        -- protocollErrorIndictator is MD, but for compactness reasons no default value
        -- has been assigned to it.
        protocolErrorIndicator          ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
    -- Non critical Extensions
        v3d0NonCriticalExtensions           SEQUENCE {
            rRCConnectionRequest-v3d0ext    RRCConnectionRequest-v3d0ext-IEs,
        -- Reserved for future non critical extension
            v4xyNonCriticalExtensions           SEQUENCE {
                rrcConnectionRequest-v4xyext        RRCConnectionRequest-v4xyext-IEs,
                -- Reserved for future non critical extension
                nonCriticalExtensions               SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
}

RRCConnectionRequest-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
```

```
        uESpecificBehaviourInformation1idle    UESpecificBehaviourInformation1idle    OPTIONAL
}

RRCConnectionRequest-v4xyext-IEs ::=    SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}


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

RRCConnectionSetupComplete ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        startList                       STARTList,
        ue-RadioAccessCapability        UE-RadioAccessCapability            OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
    -- Non critical extensions
        v370NonCriticalExtensions           SEQUENCE {
            rrcConnectionSetupComplete-v370ext  RRCConnectionSetupComplete-v370ext,
            v380NonCriticalExtensions           SEQUENCE {
                rrcConnectionSetupComplete-v380ext  RRCConnectionSetupComplete-v380ext-IEs,
                -- Reserved for future non critical extension
                v3a0NonCriticalExtensions           SEQUENCE {
                    rrcConnectionSetupComplete-v3a0ext  RRCConnectionSetupComplete-v3a0ext,
                    v4xyNonCriticalExtensions           SEQUENCE {
                        rrcConnectionSetupComplete-v4xyext  RRCConnectionSetupComplete-v4xyext-IEs,
                        nonCriticalExtensions               SEQUENCE {}    OPTIONAL
                    }       OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }       OPTIONAL
}

RRCConnectionSetupComplete-v370ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v370ext    UE-RadioAccessCapability-v370ext    OPTIONAL
}

RRCConnectionSetupComplete-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext        OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext
}

RRCConnectionSetupComplete-v3a0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext    OPTIONAL
}

RRCConnectionSetupComplete-v4xyext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-r4-ext     UE-RadioAccessCapability-r4-ext     OPTIONAL
}

-- **************************************************
--
-- RRC FAILURE INFO
--
-- **************************************************

RRC-FailureInfo ::= CHOICE {
    r3                                      SEQUENCE {
        rRC-FailureInfo-r3                      RRC-FailureInfo-r3-IEs,
        nonCriticalExtensions                   SEQUENCE {} OPTIONAL
    },
    criticalExtensions                      SEQUENCE {}
}

RRC-FailureInfo-r3-IEs ::=    SEQUENCE {
    -- Non-RRC IEs
        failureCauseWithProtErr                 FailureCauseWithProtErr
}
```

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


END
```

11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

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

BEGIN

IMPORTS

    hiPDSCHidentities,
    hiPUSCHidentities,
    hiRM,
    maxAC,
    maxAdditionalMeas,
    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxCNdomains,
    maxCPCHsets,
    maxDPCH-DLchan,
    maxDPDCH-UL,
    maxDRACclasses,
    maxFACHPCH,
    maxFreq,
    maxFreqBandsFDD,
    maxFreqBandsTDD,
    maxFreqBandsGSM,
    maxHProcesses,
    maxHSDSCHTBIndex,
    maxHSDSCHTBIndex-tdd384,
    maxHSSCCHs,
    maxInterSysMessages,
    maxLoCHperRLC,
    maxMAC-d-PDUsizes,
    maxMeasEvent,
    maxMeasIntervals,
    maxMeasParEvent,
    maxNumCDMA2000Freqs,
    maxNumFDDFreqs,
    maxNumGSMFreqRanges,
    maxNumTDDFreqs,
    maxOtherRAT,
    maxOtherRAT-16,
    maxPage1,
    maxPCPCH-APsig,
    maxPCPCH-APsubCh,
    maxPCPCH-CDsig,
    maxPCPCH-CDsubCh,
    maxPCPCH-SF,
    maxPCPCHs,
    maxPDCPAlgoType,
    maxPDSCH,
    maxPDSCH-TFCIgroups,
    maxPRACH,
    maxPRACH-FPACH,
    maxPredefConfig,
    maxPUSCH,
    maxQueueIDs,
    maxRABsetup,
    maxRAT,
```

```
    maxRB,
    maxRBallRABs,
    maxRBMuxOptions,
    maxRBperRAB,
    maxReportedGSMCells,
    maxSRBsetup,
    maxRL,
    maxRL-1,
    maxROHC-PacketSizes-r4,
    maxROHC-Profile-r4,
    maxSCCPCH,
    maxSat,
    maxSIB,
    maxSIB-FACH,
    maxSystemCapability,
    maxTF,
    maxTF-CPCH,
    maxTFC,
    maxTFCsub,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTrCH,
    maxTrCHpreconf,
    maxTS,
    maxTS-1,
    maxTS-LCR,
    maxTS-LCR-1,
    maxURA
FROM Constant-definitions;

Ansi-41-IDNNS ::=                       BIT STRING (SIZE (14))

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

CN-DomainInformation ::=            SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    cn-DomainSpecificNAS-Info           NAS-SystemInformationGSM-MAP
}

CN-DomainInformationFull ::=        SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    cn-DomainSpecificNAS-Info           NAS-SystemInformationGSM-MAP,
    cn-DRX-CycleLengthCoeff             CN-DRX-CycleLengthCoefficient
}

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

CN-DomainInformationListFull ::=    SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainInformationFull

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

CN-DomainSysInfoList ::=            SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        CN-DomainSysInfo

CN-InformationInfo ::=              SEQUENCE {
    plmn-Identity                       PLMN-Identity                   OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo        NAS-SystemInformationGSM-MAP    OPTIONAL,
    cn-DomainInformationList            CN-DomainInformationList        OPTIONAL
}

CN-InformationInfoFull ::=          SEQUENCE {
    plmn-Identity                       PLMN-Identity                   OPTIONAL,
    cn-CommonGSM-MAP-NAS-SysInfo        NAS-SystemInformationGSM-MAP    OPTIONAL,
    cn-DomainInformationListFull        CN-DomainInformationListFull    OPTIONAL
}

Digit ::=                           INTEGER (0..9)
```

```
Gsm-map-IDNNS ::=                           SEQUENCE {
    routingbasis                                CHOICE {
        localPTMSI                                  SEQUENCE {
            routingparameter                            RoutingParameter
        },
        tMSIofsamePLMN                              SEQUENCE {
            routingparameter                            RoutingParameter
        },
        tMSIofdifferentPLMN                         SEQUENCE {
            routingparameter                            RoutingParameter
        },
        iMSIresponsetopaging                        SEQUENCE {
            routingparameter                            RoutingParameter
        },
        iMSIUEinitiatedEvent                        SEQUENCE {
            routingparameter                            RoutingParameter
        },
        iMEI                                        SEQUENCE {
            routingparameter                            RoutingParameter
        },
        spare1                                      SEQUENCE {
            routingparameter                            RoutingParameter
        },
        spare2                                      SEQUENCE {
            routingparameter                            RoutingParameter
        }
    },
    enteredparameter                            BOOLEAN
}

IMEI ::=                        SEQUENCE (SIZE (15)) OF
                                    IMEI-Digit

IMEI-Digit ::=                  INTEGER (0..15)

IMSI-GSM-MAP ::=                SEQUENCE (SIZE (6..15)) OF
                                    Digit

IntraDomainNasNodeSelector ::=              SEQUENCE {
    version                                     CHOICE {
        release99                                   SEQUENCE {
            cn-Type                                     CHOICE {
                gsm-Map-IDNNS                               Gsm-map-IDNNS,
                ansi-41-IDNNS                              Ansi-41-IDNNS
            }
        },
        later                                       SEQUENCE {
            futurecoding                                BIT STRING (SIZE (15))
        }
    }
}

LAI ::=                         SEQUENCE {
    plmn-Identity                   PLMN-Identity,
    lac                             BIT STRING (SIZE (16))
}

MCC ::=                         SEQUENCE (SIZE (3)) OF
                                    Digit

MNC ::=                         SEQUENCE (SIZE (2..3)) OF
                                    Digit

NAS-Message ::=                 OCTET STRING (SIZE (1..4095))

NAS-Synchronisation-Indicator   ::=    BIT STRING(SIZE(4))

NAS-SystemInformationGSM-MAP ::=   OCTET STRING (SIZE (1..8))

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

PagingRecordTypeID ::=          ENUMERATED {
                                    imsi-GSM-MAP,
                                    tmsi-GSM-MAP-P-TMSI,
                                    imsi-DS-41,
                                    tmsi-DS-41 }

PLMN-Identity ::=               SEQUENCE {
    mcc                             MCC,
```

```
    mnc                          MNC
}

PLMN-Type ::=                    CHOICE {
    gsm-MAP                          SEQUENCE {
        plmn-Identity                    PLMN-Identity
    },
    ansi-41                          SEQUENCE {
        p-REV                            P-REV,
        min-P-REV                        Min-P-REV,
        sid                              SID,
        nid                              NID
    },
    gsm-MAP-and-ANSI-41              SEQUENCE {
        plmn-Identity                    PLMN-Identity,
        p-REV                            P-REV,
        min-P-REV                        Min-P-REV,
        sid                              SID,
        nid                              NID
    },
    spare                        NULL
}

RAB-Identity ::=                 CHOICE {
    gsm-MAP-RAB-Identity             BIT STRING (SIZE (8)),
    ansi-41-RAB-Identity             BIT STRING (SIZE (8))
}

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

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

RoutingParameter ::=                           BIT STRING (SIZE (10))

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

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

AccessClassBarred ::=            ENUMERATED {
                                     barred, notBarred }

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

AllowedIndicator ::=             ENUMERATED {
                                     allowed, notAllowed }

CellAccessRestriction ::=        SEQUENCE {
    cellBarred                       CellBarred,
    cellReservedForOperatorUse       ReservedIndicator,
    cellReservationExtension         ReservedIndicator,
    -- NOTE: IE accessClassBarredList should not be included if the IE CellAccessRestriction
    -- is included in the IE SysInfoType4
    accessClassBarredList            AccessClassBarredList              OPTIONAL
}

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

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

CellIdentity-PerRL-List ::=      SEQUENCE (SIZE (1..maxRL)) OF CellIdentity

CellSelectReselectInfoSIB-3-4 ::= SEQUENCE {
    mappingInfo                      MappingInfo                       OPTIONAL,
    cellSelectQualityMeasure         CHOICE {
        cpich-Ec-N0                      SEQUENCE {
```

```
                    -- Default value for q-HYST-2-S is q-HYST-1-S
                    q-HYST-2-S                      Q-Hyst-S                OPTIONAL
                    -- Default value for q-HYST-2-S is q-HYST-1-S
                },
            cpich-RSCP                      NULL
        },
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                s-Intrasearch                   S-SearchQual            OPTIONAL,
                s-Intersearch                   S-SearchQual            OPTIONAL,
                s-SearchHCS                     S-SearchRXLEV           OPTIONAL,
                rat-List                        RAT-FDD-InfoList        OPTIONAL,
                q-QualMin                       Q-QualMin,
                q-RxlevMin                      Q-RxlevMin
            },
            tdd                             SEQUENCE {
                s-Intrasearch                   S-SearchRXLEV           OPTIONAL,
                s-Intersearch                   S-SearchRXLEV           OPTIONAL,
                s-SearchHCS                     S-SearchRXLEV           OPTIONAL,
                rat-List                        RAT-TDD-InfoList        OPTIONAL,
                q-RxlevMin                      Q-RxlevMin
            }
        },
        q-Hyst-l-S                      Q-Hyst-S,
        t-Reselection-S                 T-Reselection-S,
        hcs-ServingCellInformation      HCS-ServingCellInformation     OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power
}

MapParameter ::=                INTEGER (0..99)

Mapping ::=                     SEQUENCE {
    rat                             RAT,
    mappingFunctionParameterList    MappingFunctionParameterList
}

Mapping-LCR-r4 ::=              SEQUENCE {
    mappingFunctionParameterList    MappingFunctionParameterList
}

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

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

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

-- In MappingInfo list, mapping for FDD and 3.84Mcps TDD is defined.
-- For 1.28Mcps TDD, Mapping-LCR-r4 is used instead.
MappingInfo ::=                 SEQUENCE (SIZE (1..maxRAT)) OF
                                Mapping

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

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

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

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

```
                                    RAT-FDD-Info

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

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

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

ReservedIndicator ::=               ENUMERATED {
                                    reserved,
                                    notReserved }

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

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

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

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

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

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

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

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

AccessStratumReleaseIndicator::=    ENUMERATED {
                                    rel-4, spare15, spare14, spare13,
                                    spare12, spare11, spare10, spare9, spare8,
                                    spare7, spare6, spare5, spare4, spare3,
                                    spare2, spare1 }

-- TABULAR : for ActivationTime, value 'now' always appear as default, and is encoded
-- by absence of the field
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-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement-TDD is for 3.84Mcps TDD update requirement
    ue-RadioCapabilityTDDUpdateRequirement-TDD  BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
    ue-RadioCapabilityUpdateRequirement-TDD128  BOOLEAN
}

CapabilityUpdateRequirement-r4 ::=  SEQUENCE {
```

```
    ue-RadioCapabilityFDDUpdateRequirement-FDD    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128    BOOLEAN,
    systemSpecificCapUpdateReqList    SystemSpecificCapUpdateReqList    OPTIONAL
}

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

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

CipheringAlgorithm ::=               ENUMERATED {
                                     uea0, uea1 }

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

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

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

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

CompressedModeMeasCapability ::=    SEQUENCE {
    fdd-Measurements                 BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- 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
}

CompressedModeMeasCapability-LCR-r4 ::= SEQUENCE {
    tdd128-Measurements                   BOOLEAN                             OPTIONAL
}

CompressedModeMeasCapabFDDList ::=  SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                     CompressedModeMeasCapabFDD

CompressedModeMeasCapabFDD ::=      SEQUENCE {
    radioFrequencyBandFDD            RadioFrequencyBandFDD   OPTIONAL,
    dl-MeasurementsFDD               BOOLEAN,
    ul-MeasurementsFDD               BOOLEAN
}

CompressedModeMeasCapabTDDList ::=  SEQUENCE (SIZE (1..maxFreqBandsTDD)) OF
                                     CompressedModeMeasCapabTDD

CompressedModeMeasCapabTDD ::=      SEQUENCE {
    radioFrequencyBandTDD            RadioFrequencyBandTDD,
    dl-MeasurementsTDD               BOOLEAN,
    ul-MeasurementsTDD               BOOLEAN
}
```

```
CompressedModeMeasCapabGSMList ::=   SEQUENCE (SIZE (1..maxFreqBandsGSM)) OF
                                       CompressedModeMeasCapabGSM

CompressedModeMeasCapabGSM ::=       SEQUENCE {
    radioFrequencyBandGSM                RadioFrequencyBandGSM,
    dl-MeasurementsGSM                   BOOLEAN,
    ul-MeasurementsGSM                   BOOLEAN
}

CompressedModeMeasCapabMC ::=        SEQUENCE {
    dl-MeasurementsMC                    BOOLEAN,
    ul-MeasurementsMC                    BOOLEAN
}

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

DL-CapabilityWithSimultaneousHS-DSCHConfig  ::= ENUMERATED{kbps32, kbps64, kbps128, kbps384}

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

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

DL-PhysChCapabilityFDD-v380ext ::=         SEQUENCE {
    supportOfDedicatedPilotsForChEstimation    SupportOfDedicatedPilotsForChEstimation    OPTIONAL
}

SupportOfDedicatedPilotsForChEstimation ::=        ENUMERATED { true }

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

DL-PhysChCapabilityTDD-LCR-r4 ::=    SEQUENCE {
    maxTS-PerSubFrame                    MaxTS-PerSubFrame-r4,
    maxPhysChPerFrame                    MaxPhysChPerSubFrame-r4,
    minimumSF                            MinimumSF-DL,
    supportOfPDSCH                       BOOLEAN,
    maxPhysChPerTS                       MaxPhysChPerTS,
    supportOf8PSK                        BOOLEAN
}

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

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

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

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

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

```
EstablishmentCause ::=              ENUMERATED {
                                        originatingConversationalCall,
                                        originatingStreamingCall,
                                        originatingInteractiveCall,
                                        originatingBackgroundCall,
                                        originatingSubscribedTrafficCall,
                                        terminatingConversationalCall,
                                        terminatingStreamingCall,
                                        terminatingInteractiveCall,
                                        terminatingBackgroundCall,
                                        emergencyCall,
                                        interRAT-CellReselection,
                                        interRAT-CellChangeOrder,
                                        registration,
                                        detach,
                                        originatingHighPrioritySignalling,
                                        originatingLowPrioritySignalling,
                                        callRe-establishment,
                                        terminatingHighPrioritySignalling,
                                        terminatingLowPrioritySignalling,
                                        terminatingCauseUnknown,
                                        spare12,
                                        spare11,
                                        spare10,
                                        spare9,
                                        spare8,
                                        spare7,
                                        spare6,
                                        spare5,
                                        spare4,
                                        spare3,
                                        spare2,
                                        spare1 }

FailureCauseWithProtErr ::=         CHOICE {
    configurationUnsupported                NULL,
    physicalChannelFailure                  NULL,
    incompatibleSimultaneousReconfiguration
                                            NULL,
    compressedModeRuntimeError              TGPSI,
    protocolError                           ProtocolErrorInformation,
    cellUpdateOccurred                      NULL,
    invalidConfiguration                    NULL,
    configurationIncomplete                 NULL,
    unsupportedMeasurement                  NULL,
    spare7                                  NULL,
    spare6                                  NULL,
    spare5                                  NULL,
    spare4                                  NULL,
    spare3                                  NULL,
    spare2                                  NULL,
    spare1                                  NULL
}

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

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

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

HSDSCH-capability-class ::=     INTEGER (0..63)

UESpecificBehaviourInformation1idle ::= BIT STRING (SIZE ([4]))

UESpecificBehaviourInformation1interRAT ::= BIT STRING (SIZE (8))


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 (1..maxASC)) OF
                                         NS-IP


END
```

11.5   RRC information between network nodes

```
Internode-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

    HandoverToUTRANCommand,
    MeasurementReport,
    PhysicalChannelReconfiguration,
    RadioBearerReconfiguration,
    RadioBearerRelease,
    RadioBearerSetup,
    RRC-FailureInfo-r3-IEs,
    TransportChannelReconfiguration
FROM PDU-definitions

-- Core Network IEs :
    CN-DomainIdentity,
    CN-DomainInformationList,
    CN-DomainInformationListFull,
    CN-DRX-CycleLengthCoefficient,
    NAS-SystemInformationGSM-MAP,
-- UTRAN Mobility IEs :
    CellIdentity,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
    C-RNTI,
    ChipRateCapability,
    DL-PhysChCapabilityFDD-v380ext,
    DL-PhysChCapabilityTDD,
    DL-PhysChCapabilityTDD-LCR-r4,
    GSM-Measurements,
    FailureCauseWithProtErr,
    MaxHcContextSpace,
    MaxNoPhysChBitsReceived,
    MaxROHC-ContextSessions-r4,
    NetworkAssistedGPS-Supported,
    RadioFrequencyBandTDDList,
    RLC-Capability,
    RRC-MessageSequenceNumber,
    SecurityCapability,
    SimultaneousSCCPCH-DPCH-Reception,
    STARTList,
    STARTSingle,
    START-Value,
    SupportOfDedicatedPilotsForChEstimation,
    TransportChannelCapability,
    TxRxFrequencySeparation,
    U-RNTI,
    UE-MultiModeRAT-Capability,
    UE-PowerClass-v370,
    UE-RadioAccessCapabBandFDDList,
    UE-RadioAccessCapability,
    UE-RadioAccessCapability-v370ext,
    UE-RadioAccessCapability-v380ext,
    UE-RadioAccessCapability-v3a0ext,
    UE-RadioAccessCapability-v4xyext,
    UL-PhysChCapabilityFDD,
    UL-PhysChCapabilityTDD,
    UL-PhysChCapabilityTDD-LCR-r4,
-- Radio Bearer IEs :
    PredefinedConfigStatusList,
    PredefinedConfigValueTag,
    RAB-InformationSetupList,
    RAB-InformationSetupList-r4,
    RAB-Identity,
```

```
    RB-Identity,
    RB-Identity,
    SRB-InformationSetupList,
-- Transport Channel IEs :
    CPCH-SetID,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DRAC-StaticInformationList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-AddReconfTransChInfoList,
-- Measurement IEs :
    MeasurementIdentity,
    MeasurementReportingMode,
    MeasurementType,
    MeasurementType-r4,
    AdditionalMeasurementID-List,
    PositionEstimate,
    UE-Positioning-IPDL-Parameters-TDD-r4-ext,
-- Other IEs :
    InterRAT-UE-RadioAccessCapabilityList
FROM InformationElements

    maxCNdomains,
    maxNoOfMeas,

    maxRB,
    maxRBallRABs,
    maxRFC3095-CID,
    maxSRBsetup
FROM Constant-definitions
;

-- Part 1: Class definitions similar to what has been defined in 11.1 for RRC messages
-- Information that is tranferred in the same direction and across the same path is grouped

-- **************************************************
--
-- RRC information, to target RNC
--
-- **************************************************
-- RRC Information to target RNC sent either from source RNC or from another RAT

ToTargetRNC-Container ::= CHOICE {
    interRATHandoverInfo                InterRATHandoverInfoWithInterRATCapabilities-r3,
    srncRelocation                      SRNC-RelocationInfo-r3,
    rfc3095-ContextInfo                 RFC3095-ContextInfo-r5,
    extension                           NULL
}

-- **************************************************
--
-- RRC information, target RNC to source RNC
--
-- **************************************************


Target-RNC-ToSourceRNC-Container ::= CHOICE {
    radioBearerSetup                    RadioBearerSetup,
    radioBearerReconfiguration          RadioBearerReconfiguration,
    radioBearerRelease                  RadioBearerRelease,
    transportChannelReconfiguration     TransportChannelReconfiguration,
    physicalChannelReconfiguration      PhysicalChannelReconfiguration,
    rrc-FailureInfo                     RRC-FailureInfo-r3-IEs,
    dL-DCCHmessage                      OCTET STRING,
    extension                           NULL
}

-- Part 2: Container definitions, similar to the PDU definitions in 11.2 for RRC messages
-- In alphabetical order


-- **************************************************
--
-- Handover to UTRAN information
--
-- **************************************************
```

```
InterRATHandoverInfoWithInterRATCapabilities-r3 ::= CHOICE {
    r3                              SEQUENCE {
        -- IE InterRATHandoverInfoWithInterRATCapabilities-r3-IEs also
        -- includes non critical extensions
        interRATHandoverInfo-r3         InterRATHandoverInfoWithInterRATCapabilities-r3-IEs,
        v390NonCriticalExtensions       SEQUENCE {
            interRATHandoverInfoWithInterRATCapabilities-v390ext
    InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }       OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

InterRATHandoverInfoWithInterRATCapabilities-r3-IEs::=      SEQUENCE {
        -- The order of the IEs may not reflect the tabular format
        --  but has been chosen to simplify the handling of the information in the BSC
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
        -- interRATHandoverInfo, Octet string is used to obtain 8 bit length field prior to
        -- actual information.  This makes it possible for BSS to transparently handle information
        -- received via GSM air interface even when it includes non critical extensions.
        -- The octet string shall include the InterRATHandoverInfo information
        -- The BSS can re-use the 04.18 length field received from the MS
        interRATHandoverInfo            OCTET STRING (SIZE (0..255))
}

InterRATHandoverInfoWithInterRATCapabilities-v390ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        failureCauseWithProtErr         FailureCauseWithProtErr                 OPTIONAL
}

-- **************************************************
--
-- RFC3095 context, source RNC to target RNC
--
-- **************************************************

RFC3095-ContextInfo-r5 ::= CHOICE {
    r5                              SEQUENCE {
        rFC3095-ContextInfoList-r5      RFC3095-ContextInfoList-r5,
        -- Reserved for future non critical extension
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

RFC3095-ContextInfoList-r5  ::=     SEQUENCE (SIZE (1..maxRBallRABs)) OF
                                    RFC3095-ContextInfo


-- **************************************************
--
-- SRNC Relocation information
--
-- **************************************************

SRNC-RelocationInfo-r3 ::= CHOICE {
    r3                              SEQUENCE {
        sRNC-RelocationInfo-r3          SRNC-RelocationInfo-r3-IEs,
            v380NonCriticalExtensions           SEQUENCE {
            sRNC-RelocationInfo-v380ext SRNC-RelocationInfo-v380ext-IEs,
            -- Reserved for future non critical extension
            v390NonCriticalExtensions           SEQUENCE {
                sRNC-RelocationInfo-v390ext         SRNC-RelocationInfo-v390ext-IEs,
                v3a0NonCriticalExtensions           SEQUENCE {
                    sRNC-RelocationInfo-v3a0ext         SRNC-RelocationInfo-v3a0ext-IEs,
                    v3b0NonCriticalExtensions           SEQUENCE {
                        sRNC-RelocationInfo-v3b0ext         SRNC-RelocationInfo-v3b0ext-IEs,
                        v3c0NonCriticalExtensions           SEQUENCE {
                            sRNC-RelocationInfo-v3c0ext         SRNC-RelocationInfo-v3c0ext-IEs,
                            v3d0NonCriticalExtensions           SEQUENCE {
                                sRNC-RelocationInfo-v3d0ext         SRNC-RelocationInfo-v3d0ext-IEs,
                                v4xyNonCriticalExtensions           SEQUENCE {
                                    sRNC-RelocationInfo-v4xyext         SRNC-RelocationInfo-v4xyext-
IEs,
                                    -- Reserved for future non critical extension
```

```
                                        nonCriticalExtensions           SEQUENCE {} OPTIONAL
                            }              OPTIONAL
                        }           OPTIONAL
                    }           OPTIONAL
                }           OPTIONAL
            }           OPTIONAL
        }           OPTIONAL
    },
    later-than-r3                   CHOICE {
        r4                              SEQUENCE {
            sRNC-RelocationInfo-r4          SRNC-RelocationInfo-r4-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
        criticalExtensions              SEQUENCE {}
    }
}

SRNC-RelocationInfo-r3-IEs ::=      SEQUENCE {
    -- Non-RRC IEs
        stateOfRRC                      StateOfRRC,
        stateOfRRC-Procedure            StateOfRRC-Procedure,
    -- Ciphering related information IEs
    -- If the extension v380 is included use the extension for the ciphering status per CN domain
        cipheringStatus                 CipheringStatus,
        calculationTimeForCiphering     CalculationTimeForCiphering         OPTIONAL,
        -- The order of occurrence in the IE cipheringInfoPerRB-List is the
        -- same as the RBs in the IE "Signalling RB information list" and in the
        -- IE "RAB information list". The signalling RBs are supposed to be listed
        -- first. Only UM and AM RBs that are ciphered are listed here
        cipheringInfoPerRB-List         CipheringInfoPerRB-List             OPTIONAL,
        count-C-List                    COUNT-C-List                        OPTIONAL,
        integrityProtectionStatus       IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo   SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams    ImplementationSpecificParams        OPTIONAL,
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        c-RNTI                          C-RNTI                              OPTIONAL,
        ue-RadioAccessCapability        UE-RadioAccessCapability,
        ue-Positioning-LastKnownPos     UE-Positioning-LastKnownPos         OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList        CN-DomainInformationList            OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList              OngoingMeasRepList                  OPTIONAL,
    -- Radio bearer IEs
        predefinedConfigStatusList      PredefinedConfigStatusList,
        srb-InformationList             SRB-InformationSetupList,
        rab-InformationList             RAB-InformationSetupList            OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
        ul-TransChInfoList              UL-AddReconfTransChInfoList          OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                  OPTIONAL,
                transChDRAC-Info                DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
        dl-TransChInfoList             DL-AddReconfTransChInfoList          OPTIONAL,
    -- Measurement report
        measurementReport               MeasurementReport                   OPTIONAL ,
        nonCriticalExtensions           SEQUENCE {
            -- In case of TDD only up-Ipdl-Parameters-TDD is present, otherwise
            -- this IE is absent
            up-Ipdl-Parameters-TDD          UE-Positioning-IPDL-Parameters-TDD-r4-ext   OPTIONAL,
        -- Extension mechanism for non- release4 information
            nonCriticalExtensions           SEQUENCE {}                                 OPTIONAL
        }                                                                   OPTIONAL
}

SRNC-RelocationInfo-v380ext-IEs ::= SEQUENCE {
    -- Ciphering related information IEs
        cn-DomainIdentity               CN-DomainIdentity,
```

```
        cipheringStatusList              CipheringStatusList
}

SRNC-RelocationInfo-v390ext-IEs ::= SEQUENCE {
        cn-DomainInformationList-v390ext    CN-DomainInformationList-v390ext      OPTIONAL,
        ue-RadioAccessCapability-v370ext    UE-RadioAccessCapability-v370ext      OPTIONAL,
        ue-RadioAccessCapability-v380ext    UE-RadioAccessCapability-v380ext      OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext      DL-PhysChCapabilityFDD-v380ext,
        failureCauseWithProtErr             FailureCauseWithProtErr               OPTIONAL
}

SRNC-RelocationInfo-v3a0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext is specified
        -- in subsequent extension (SRNC-RelocationInfo-v3b0ext-IEs)
        startValueForCIphering-v3a0ext      START-Value,
        cipheringInfoForSRB1-v3a0ext        CipheringInfoForSRB1-v3a0ext,
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext      OPTIONAL
}

SRNC-RelocationInfo-v3b0ext-IEs ::= SEQUENCE {
        -- cn-domain identity for IE startValueForCiphering-v3a0ext included in previous extension
        cn-DomainIdentity                   CN-DomainIdentity,
        -- the remaining start values are contained in IE startValueForCiphering-v3b0ext
        startValueForCiphering-v3b0ext      STARTList2                            OPTIONAL
}

SRNC-RelocationInfo-v3c0ext-IEs ::= SEQUENCE {
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
        rb-IdentityForHOMessage             RB-Identity         OPTIONAL
}

SRNC-RelocationInfo-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1idle     UESpecificBehaviourInformation1idle     OPTIONAL,
        uESpecificBehaviourInformation1interRAT     UESpecificBehaviourInformation1interRAT
    OPTIONAL
}

STARTList2 ::=                        SEQUENCE (SIZE (2..maxCNdomains)) OF
                                           STARTSingle

SRNC-RelocationInfo-v4xyext-IEs ::= SEQUENCE {
        ue-RadioAccessCapability-v4xyext    UE-RadioAccessCapability-v4xyext
}

CipheringInfoForSRB1-v3a0ext ::= SEQUENCE {
        dl-UM-SN                            BIT STRING (SIZE (7))
}

CipheringStatusList ::=          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                           CipheringStatusCNdomain

CipheringStatusCNdomain ::=          SEQUENCE {
        cn-DomainIdentity                   CN-DomainIdentity,
        cipheringStatus                     CipheringStatus
}

SRNC-RelocationInfo-r4-IEs ::=          SEQUENCE {
    -- Non-RRC IEs
        -- IE rb-IdentityForHOMessage includes the identity of the RB used by the source SRNC
        -- to send the message contained in the IE "TargetRNC-ToSourceRNC-Container".
        -- Only included if type is "UE involved"
        rb-IdentityForHOMessage             RB-Identity                           OPTIONAL,
        stateOfRRC                          StateOfRRC,
        stateOfRRC-Procedure                StateOfRRC-Procedure,
    -- Ciphering related information IEs
        cipheringStatusList                 CipheringStatusList-r4,
        latestConfiguredCN-Domain           CN-DomainIdentity,
        calculationTimeForCiphering         CalculationTimeForCiphering           OPTIONAL,
        count-C-List                        COUNT-C-List                          OPTIONAL,
        cipheringInfoPerRB-List             CipheringInfoPerRB-List-r4            OPTIONAL,
    -- Integrity protection related information IEs
        integrityProtectionStatus           IntegrityProtectionStatus,
        srb-SpecificIntegrityProtInfo       SRB-SpecificIntegrityProtInfoList,
        implementationSpecificParams        ImplementationSpecificParams          OPTIONAL,
    -- User equipment IEs
        u-RNTI                              U-RNTI,
```

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```
        c-RNTI                          C-RNTI                              OPTIONAL,
        ue-RadioAccessCapability        UE-RadioAccessCapability-r4,
        ue-RadioAccessCapability-ext    UE-RadioAccessCapabBandFDDList       OPTIONAL,
        ue-Positioning-LastKnownPos     UE-Positioning-LastKnownPos          OPTIONAL,
        uESpecificBehaviourInformation1idle     UESpecificBehaviourInformation1idle     OPTIONAL,
        uESpecificBehaviourInformation1interRAT     UESpecificBehaviourInformation1interRAT
    OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList   OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                         OPTIONAL,
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainInformationList        CN-DomainInformationListFull         OPTIONAL,
    -- Measurement IEs
        ongoingMeasRepList              OngoingMeasRepList-r4                OPTIONAL,
    -- Radio bearer IEs
        predefinedConfigStatusList      PredefinedConfigStatusList,
        srb-InformationList             SRB-InformationSetupList,
        rab-InformationList             RAB-InformationSetupList-r4          OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4              OPTIONAL,
        ul-TransChInfoList              UL-AddReconfTransChInfoList          OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                  OPTIONAL,
                transChDRAC-Info                DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4              OPTIONAL,
        dl-TransChInfoList             DL-AddReconfTransChInfoList-r4       OPTIONAL,
    -- Measurement report
        measurementReport               MeasurementReport                    OPTIONAL,
        failureCause                    FailureCauseWithProtErr              OPTIONAL
}

-- IE definitions

CalculationTimeForCiphering ::=     SEQUENCE {
    cell-Id                         CellIdentity,
    sfn                             INTEGER (0..4095)
}

CipheringInfoPerRB ::=              SEQUENCE {
    dl-HFN                          BIT STRING (SIZE (20..25)),
    ul-HFN                          BIT STRING (SIZE (20..25))
}

CipheringInfoPerRB-r4 ::=           SEQUENCE {
    rb-Identity                     RB-Identity,
    dl-HFN                          BIT STRING (SIZE (20..25)),
    dl-UM-SN                        BIT STRING (SIZE (7))                OPTIONAL,
    ul-HFN                          BIT STRING (SIZE (20..25))
}

-- TABULAR: CipheringInfoPerRB-List, multiplicity value numberOfRadioBearers
-- has been replaced with maxRB.
CipheringInfoPerRB-List ::=         SEQUENCE (SIZE (1..maxRB)) OF
                                    CipheringInfoPerRB

CipheringInfoPerRB-List-r4 ::=      SEQUENCE (SIZE (1..maxRB)) OF
                                    CipheringInfoPerRB-r4


CipheringStatus ::=                 ENUMERATED {
                                    started, notStarted }

CipheringStatusList-r4 ::=          SEQUENCE (SIZE (1..maxCNdomains)) OF
                                    CipheringStatusCNdomain-r4

CipheringStatusCNdomain-r4 ::=      SEQUENCE {
        cn-DomainIdentity               CN-DomainIdentity,
        cipheringStatus                 CipheringStatus,
        start-Value                     START-Value
}

CN-DomainInformation-v390ext ::=    SEQUENCE {
    cn-DRX-CycleLengthCoeff          CN-DRX-CycleLengthCoefficient
```

```
}

CN-DomainInformationList-v390ext ::=     SEQUENCE (SIZE (1..maxCNdomains)) OF
                                         CN-DomainInformation-v390ext

CompressedModeMeasCapability-r4 ::= SEQUENCE {
    fdd-Measurements                    BOOLEAN,
    -- TABULAR: The IEs tdd-Measurements, gsm-Measurements and multiCarrierMeasurements
    -- are made optional since they are conditional based on another information element.
    -- Their absence corresponds to the case where the condition is not true.
    tdd384-Measurements                 BOOLEAN                          OPTIONAL,
    tdd128-Measurements                 BOOLEAN                          OPTIONAL,
    gsm-Measurements                    GSM-Measurements                 OPTIONAL,
    multiCarrierMeasurements            BOOLEAN                          OPTIONAL
}

COUNT-C-List ::=                        SEQUENCE (SIZE (1..maxCNdomains)) OF
                                        COUNT-CSingle

COUNT-CSingle ::=                       SEQUENCE {
    cn-DomainIdentity                   CN-DomainIdentity,
    count-C                             BIT STRING (SIZE (32))
}

DL-PhysChCapabilityFDD-r4 ::=       SEQUENCE {
    maxNoDPCH-PDSCH-Codes               INTEGER (1..8),
    maxNoPhysChBitsReceived             MaxNoPhysChBitsReceived,
    supportForSF-512                    BOOLEAN,
    supportOfPDSCH                      BOOLEAN,
    simultaneousSCCPCH-DPCH-Reception   SimultaneousSCCPCH-DPCH-Reception,
    supportOfDedicatedPilotsForChEstimation   SupportOfDedicatedPilotsForChEstimation   OPTIONAL
}

-- The structure of DL-RFC3095-Context is FFS
DL-RFC3095-Context ::=              SEQUENCE {
    rfc3095-Context-Identity            INTEGER (0..16383),
    dl-mode                             ENUMERATED {u, o, r}
}

ImplementationSpecificParams ::=    BIT STRING (SIZE (1..512))


IntegrityProtectionStatus ::=       ENUMERATED {
                                        started, notStarted }

MeasurementCapability-r4 ::=        SEQUENCE {
    downlinkCompressedMode              CompressedModeMeasCapability-r4,
    uplinkCompressedMode                CompressedModeMeasCapability-r4
}

MeasurementCommandWithType ::=      CHOICE {
    setup                               MeasurementType,
    modify                              NULL,
    release                             NULL
}

MeasurementCommandWithType-r4 ::=   CHOICE {
    setup                               MeasurementType-r4,
    modify                              NULL,
    release                             NULL
}

OngoingMeasRep ::=                  SEQUENCE {
    measurementIdentity         MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType
    measurementCommandWithType          MeasurementCommandWithType,
    measurementReportingMode            MeasurementReportingMode         OPTIONAL,
    additionalMeasurementID-List        AdditionalMeasurementID-List     OPTIONAL
}

OngoingMeasRep-r4 ::=               SEQUENCE {
    measurementIdentity         MeasurementIdentity,
    -- TABULAR: The CHOICE Measurement in the tabular description is included
    -- in MeasurementCommandWithType-r4.
    measurementCommandWithType          MeasurementCommandWithType-r4,
    measurementReportingMode            MeasurementReportingMode         OPTIONAL,
    additionalMeasurementID-List        AdditionalMeasurementID-List     OPTIONAL
}
```

```
OngoingMeasRepList ::=              SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep

OngoingMeasRepList-r4 ::=           SEQUENCE (SIZE (1..maxNoOfMeas)) OF
                                        OngoingMeasRep-r4

PDCP-Capability-r4 ::=             SEQUENCE {
    losslessSRNS-RelocationSupport     BOOLEAN,
    supportForRfc2507                  CHOICE {
        notSupported                       NULL,
        supported                          MaxHcContextSpace
    },
    supportForRfc3095                  CHOICE {
        notSupported                       NULL,
        supported                          SEQUENCE {
            maxROHC-ContextSessions            MaxROHC-ContextSessions-r4  DEFAULT s16,
            reverseCompressionDepth            INTEGER (0..65535)          DEFAULT 0
        }
    }
}

PhysicalChannelCapability-r4 ::=    SEQUENCE {
        fddPhysChCapability                SEQUENCE {
            downlinkPhysChCapability           DL-PhysChCapabilityFDD-r4,
            uplinkPhysChCapability             UL-PhysChCapabilityFDD
        }                                          OPTIONAL,
        tdd384-PhysChCapability            SEQUENCE {
            downlinkPhysChCapability           DL-PhysChCapabilityTDD,
            uplinkPhysChCapability             UL-PhysChCapabilityTDD
        }                                          OPTIONAL,
        tdd128-PhysChCapability            SEQUENCE {
            downlinkPhysChCapability           DL-PhysChCapabilityTDD-LCR-r4,
            uplinkPhysChCapability             UL-PhysChCapabilityTDD-LCR-r4
        }                                          OPTIONAL
}

RF-Capability-r4 ::=               SEQUENCE {
        fddRF-Capability                   SEQUENCE {
            ue-PowerClass                      UE-PowerClass-v370,
            txRxFrequencySeparation            TxRxFrequencySeparation
        }                                                  OPTIONAL,
        tdd384-RF-Capability               SEQUENCE {
            ue-PowerClass                      UE-PowerClass-v370,
            radioFrequencyBandTDDList          RadioFrequencyBandTDDList,
            chipRateCapability                 ChipRateCapability
        }                                                  OPTIONAL,
        tdd128-RF-Capability               SEQUENCE {
            ue-PowerClass                      UE-PowerClass-v370,
            radioFrequencyBandTDDList          RadioFrequencyBandTDDList,
            chipRateCapability                 ChipRateCapability
        }                                                  OPTIONAL
}

RFC3095-ContextInfo ::=            SEQUENCE {
    rb-Identity                        RB-Identity,
    rfc3095-Context-List               RFC3095-Context-List
}

RFC3095-Context-List ::=           SEQUENCE (SIZE (1..maxRFC3095-CID)) OF SEQUENCE {
    dl-RFC3095-Context                 DL-RFC3095-Context      OPTIONAL,
    ul-RFC3095-Context                 UL-RFC3095-Context      OPTIONAL
 }

SRB-SpecificIntegrityProtInfo ::=  SEQUENCE {
    ul-RRC-HFN                         BIT STRING (SIZE (28)),
    dl-RRC-HFN                         BIT STRING (SIZE (28)),
    ul-RRC-SequenceNumber              RRC-MessageSequenceNumber,
    dl-RRC-SequenceNumber              RRC-MessageSequenceNumber
}

SRB-SpecificIntegrityProtInfoList ::= SEQUENCE (SIZE (4..maxSRBsetup)) OF
                                        SRB-SpecificIntegrityProtInfo

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

StateOfRRC-Procedure ::=           ENUMERATED {
```

```
                                        awaitNoRRC-Message,
                                        awaitRB-ReleaseComplete,
                                        awaitRB-SetupComplete,
                                        awaitRB-ReconfigurationComplete,
                                        awaitTransportCH-ReconfigurationComplete,
                                        awaitPhysicalCH-ReconfigurationComplete,
                                        awaitActiveSetUpdateComplete,
                                        awaitHandoverComplete,
                                        sendCellUpdateConfirm,
                                        sendUraUpdateConfirm,
                                        -- dummy is not used in this version of specification
                                        -- It should not be sent
                                        dummy,
                                        otherStates
}

UE-Positioning-Capability-r4 ::=      SEQUENCE {
    standaloneLocMethodsSupported           BOOLEAN,
    ue-BasedOTDOA-Supported                 BOOLEAN,
    networkAssistedGPS-Supported            NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames     BOOLEAN,
    supportForIPDL                          BOOLEAN,
    rx-tx-TimeDifferenceType2Capable        BOOLEAN,
    validity-CellPCH-UraPCH                 ENUMERATED { true (0 ) }    OPTIONAL
}

UE-Positioning-LastKnownPos ::=       SEQUENCE {
        sfn                             INTEGER (0..4095),
        cell-id                         CellIdentity,
        positionEstimate                PositionEstimate
}

UE-RadioAccessCapability-r4 ::=       SEQUENCE {
    accessStratumReleaseIndicator           AccessStratumReleaseIndicator,
    pdcp-Capability                         PDCP-Capability-r4,
    rlc-Capability                          RLC-Capability,
    transportChannelCapability              TransportChannelCapability,
    rf-Capability                           RF-Capability-r4,
    physicalChannelCapability               PhysicalChannelCapability-r4,
    ue-MultiModeRAT-Capability              UE-MultiModeRAT-Capability,
    securityCapability                      SecurityCapability,
    ue-positioning-Capability               UE-Positioning-Capability-r4,
    measurementCapability                   MeasurementCapability-r4        OPTIONAL
}

-- The structure of UL-RFC3095-Context is FFS
UL-RFC3095-Context ::=                SEQUENCE {
    rfc3095-Context-Identity                INTEGER (0..16383),
    ul-mode                                 ENUMERATED {u, o, r}
}

END
```

14.12.4.1 INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES

This RRC message is sent between network nodes when preparing for an inter RAT handover to UTRAN.

Direction: source RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
UE security information	OP		UE security information 10.3.3.42b	
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension	Although this IE is not always required, the need has been set to MP to align with the ASN.1

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			10.3.3.42a	
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
Non RRC IEs				
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Other Information elements				
UE system specific capability	OP	1 to <maxSystemCapability>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier handover to UTRAN request
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

Condition	Explanation
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.

NOTE: The above table does not need to reflect the order of the information elements in the actual encoded message. The order, that is reflected in the ASN.1, should be chosen in a manner that avoids that network nodes need to perform reordering of information elements.

14.12.4.2   SRNS RELOCATION INFO

This RRC message is sent between network nodes when preparing for an SRNS relocation.

With the presence or absence of the IE "RB identity for Hard Handover message" the source RNC indicates to the target SRNC whether the source RNC expects to receive the choice "DL DCCH message" in the IE "RRC information, target RNC to source RNC" in case the SRNS relocation is of type "UE involved". Furthermore the target RNC uses this information for the calculation of the MAC-I.

Direction: source RNC→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Non RRC IEs				
RB identity for Handover message	OP		RB identity 10.3.4.16	Gives the id of the radio bearer on which the source RNC will transmit the RRC message in the case the relocation is of type "UE involved".
>State of RRC	MP		RRC state indicator, 10.3.3.35a	
>State of RRC procedure	MP		Enumerated (await no	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
			RRC message, await RB Release Complete, await RB Setup Complete, await RB Reconfiguration Complete, await Transport CH Reconfiguration Complete, await Physical CH Reconfiguration Complete, await Active Set Update Complete, await Handover Complete, send Cell Update Confirm, send URA Update Confirm, , others)	
Ciphering related information				
>Ciphering status for each CN domain	MP	<1 to maxCNDomains>		
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>Ciphering status	MP		Enumerated(Not started, Started)	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.
>Latest configured CN domain	MP		CN domain identity 10.3.1.1	Value contained in the variable of the same name. In case this variable is empty, the source RNC can set any CN domain identity. In that case, the Ciphering status and the Integrity protection status should be Not started and the target RNC should not initialise the variable Latest configured CN domain.
>Calculation time for ciphering related information	CV-*Ciphering*			Time when the ciphering information of the message were calculated, relative to a cell of the target RNC
>>Cell Identity	MP		Cell Identity 10.3.2.2	Identity of one of the cells under the target RNC and included in the active set of the current call

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>SFN	MP		Integer(0..4095)	
>COUNT-C list	OP	1 to <maxCNdomains>		COUNT-C values for radio bearers using transparent mode RLC
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>COUNT-C	MP		Bit string(32)	
>Ciphering info per radio bearer	OP	1 to <maxRB>		For signalling radio bearers this IE is mandatory.
>>RB identity	MP		RB identity 10.3.4.16	
>>Downlink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
>>Downlink SN	CV-*SRB1*		Bit String(7)	VT(US) of RLC UM
>>Uplink HFN	MP		Bit string(20..25)	This IE is either RLC AM HFN (20 bits) or RLC UM HFN (25 bits)
Integrity protection related information				
>Integrity protection status	MP		Enumerated(Not started, Started)	
>Signalling radio bearer specific integrity protection information	CV-*IP*	4 to <maxSRBsetup>		
>>Uplink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC HFN	MP		Bit string (28)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>>Uplink RRC Message sequence number	MP		Integer (0..15)	For each SRB, this IE corresponds to the last value used.
>>Downlink RRC Message sequence number	MP		Integer (0..15)	For each SRB, this IE corresponds to the last value used. In particular, for SRB2, this IE should not take into account the RRC message that will trigger the relocation.
>Implementation specific parameters	OP		Bit string (1..512)	
RRC IEs				
UE Information elements				
>U-RNTI	MP		U-RNTI 10.3.3.47	
>C-RNTI	OP		C-RNTI 10.3.3.8	
>UE radio access Capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	OP		UE radio access capability extension 10.3.3.42a	
>Last known UE position	OP			
>>SFN	MP		Integer (0..4095)	Time when position was estimated

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>Cell ID	MP		Cell identity; 10.3.2.2	Indicates the cell, the SFN is valid for.
>>CHOICE *Position estimate*	MP			
>>>Ellipsoid Point			Ellipsoid Point; 10.3.8.4a	
>>>Ellipsoid point with uncertainty circle			Ellipsoid point with uncertainty circle 10.3.8.4d	
>>>Ellipsoid point with uncertainty ellipse			Ellipsoid point with uncertainty ellipse 10.3.8.4e	
>>>Ellipsoid point with altitude			Ellipsoid point with altitude 10.3.8.4b	
>>>Ellipsoid point with altitude and uncertainty ellipsoid			Ellipsoid point with altitude and uncertainty ellipsoid 10.3.8.4c	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information idle 1 10.3.3.51	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE should be included if received via the "INTER RAT HANDOVER INFO" or the "RRC CONNECTION REQUEST" or the IE "SRNS RELOCATION INFO" or the "Inter RAT Handover Info with Inter RAT Capabilities"
Other Information elements				
>UE system specific capability	OP	1 to <maxSystemCapability>		
>>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
UTRAN Mobility Information elements				
>URA Identifier	OP		URA identity 10.3.2.6	
CN Information Elements				
>CN common GSM-MAP NAS system information	MP		NAS system information (GSM-MAP) 10.3.1.9	
>CN domain related information	OP	1 to <MaxCNdomains>		CN related information to be provided for each CN domain
>>CN domain identity	MP			
>>CN domain specific GSM-	MP		NAS system	

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
MAP NAS system info			information (GSM-MAP) 10.3.1.9	
>>CN domain specific DRX cycle length coefficient	MP		CN domain specific DRX cycle length coefficient, 10.3.3.6	
Measurement Related Information elements				
>For each ongoing measurement reporting	OP	1 to <MaxNoOf Meas>		
>>Measurement Identity	MP		Measuremen t identity 10.3.7.48	
>>Measurement Command	MP		Measuremen t command 10.3.7.46	
>>Measurement Type	CV-*Setup*		Measuremen t type 10.3.7.50	
>>Measurement Reporting Mode	OP		Measuremen t reporting mode 10.3.7.49	
>>Additional Measurements list	OP		Additional measuremen ts list 10.3.7.1	
>>CHOICE *Measurement*	OP			
>>>Intra-frequency				
>>>>Intra-frequency cell info	OP		Intra-frequency cell info list 10.3.7.33	
>>>>Intra-frequency measurement quantity	OP		Intra-frequency measuremen t quantity 10.3.7.38	
>>>>Intra-frequency reporting quantity	OP		Intra-frequency reporting quantity 10.3.7.41	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measuremen t validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Intra-frequency measurement reporting criteria			Intra-frequency measuremen t reporting criteria 10.3.7.39	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Inter-frequency				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>>Inter-frequency cell info	OP		Inter-frequency cell info list 10.3.7.13	
>>>>Inter-frequency measurement quantity	OP		Inter-frequency measurement quantity 10.3.7.18	
>>>>Inter-frequency reporting quantity	OP		Inter-frequency reporting quantity 10.3.7.21	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-frequency measurement reporting criteria			Inter-frequency measurement reporting criteria 10.3.7.19	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Inter-RAT				
>>>>Inter-RAT cell info	OP		Inter-RAT cell info list 10.3.7.23	
>>>>Inter-RAT measurement quantity	OP		Inter-RAT measurement quantity 10.3.7.29	
>>>>Inter-RAT reporting quantity	OP		Inter-RAT reporting quantity 10.3.7.32	
>>>>Reporting cell status	OP		Reporting cell status 10.3.7.61	
>>>>Measurement validity	OP		Measurement validity 10.3.7.51	
>>>>CHOICE *report criteria*	OP			
>>>>>Inter-RAT measurement reporting criteria			Inter-RAT measurement reporting criteria 10.3.7.30	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Traffic Volume				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>>Traffic volume measurement Object	OP		Traffic volume measurement object 10.3.7.70	
>>>>Traffic volume measurement quantity	OP		Traffic volume measurement quantity 10.3.7.71	
>>>>Traffic volume reporting quantity	OP		Traffic volume reporting quantity 10.3.7.74	
>>>>CHOICE *report criteria*	OP			
>>>>>Traffic volume measurement reporting criteria			Traffic volume measurement reporting criteria 10.3.7.72	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>Quality				
>>>>Quality measurement Object	OP		Quality measurement object	
>>>>CHOICE *report criteria*	OP			
>>>>>Quality measurement reporting criteria			Quality measurement reporting criteria 10.3.7.58	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE internal				
>>>>UE internal measurement quantity	OP		UE internal measurement quantity 10.3.7.79	
>>>>UE internal reporting quantity	OP		UE internal reporting quantity 10.3.7.82	
>>>>CHOICE *report criteria*	OP			
>>>>>UE internal measurement reporting criteria			UE internal measurement reporting criteria 10.3.7.80	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting			NULL	
>>>UE positioning				

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>>>>LCS reporting quantity	OP		LCS reporting quantity 10.3.7.111	
>>>>CHOICE *report criteria*	OP			
>>>>>LCS reporting criteria			LCS reporting criteria 10.3.7.110	
>>>>>Periodical reporting			Periodical reporting criteria 10.3.7.53	
>>>>>No reporting				
Radio Bearer Information Elements				
>Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
>Signalling RB information list	MP	1 to <maxSRBsetup>		For each signalling radio bearer
>>Signalling RB information	MP		Signalling RB information to setup 10.3.4.24	
>RAB information list	OP	1 to <maxRABsetup>		Information for each RAB
>>RAB information	MP		RAB information to setup 10.3.4.10	
Transport Channel Information Elements				
Uplink transport channels				
>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24	
>UL transport channel information list	OP	1 to <MaxTrCH>		
>>UL transport channel information	MP		Added or reconfigured UL TrCH information 10.3.5.2	
>CHOICE *mode*	OP			
>>FDD				
>>>CPCH set ID	OP		CPCH set ID 10.3.5.5	
>>>Transport channel information for DRAC list	OP	1 to <MaxTrCH>		
>>>>DRAC static information	MP		DRAC static information 10.3.5.7	
>>TDD				(no data)

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
Downlink transport channels				
>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6	
>DL transport channel information list	OP	1 to <MaxTrCH>		
>>DL transport channel information	MP		Added or reconfigured DL TrCH information 10.3.5.1	
>Measurement report	OP		MEASUREMENT REPORT 10.2.17	
Other Information elements				
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier SRNC Relocation request (see NOTE 2 in 14.12.0a)
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

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

Condition	Explanation
Setup	The IE is mandatory present when the IE Measurement command has the value "Setup", otherwise the IE is not needed.
Ciphering	The IE is mandatory present when the IE Ciphering Status has the value "started" and the ciphering counters need not be reinitialised, otherwise the IE is not needed.
IP	The IE is mandatory present when the IE Integrity protection status has the value "started" and the integrity protection counters need not be reinitialised, otherwise the IE is not needed.
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.
SRB1	The IE is mandatory present for RB1. Otherwise it is not needed.