TSG-RAN Meeting #18   *RP-020715*
*New-Orleans, USA, 0*3 - 06 December 2002

Title: **CRs (Release '99 and Rel-4/Rel-5 category A) to TS 25.331 and 25.921**

                On the introduction of backward compatible correction mechanism

Source: **TSG-RAN WG2**

Agenda item: **7.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Versio	Versio
R2-023284	agreed	25.331	1732	1	R99	Introduction of backwards compatible correction mechanism	F	3.12.0	3.13.0
R2-023285	agreed	25.331	1733	1	Rel-4	Introduction of backwards compatible correction mechanism	A	4.7.0	4.8.0
R2-023286	agreed	25.331	1734	1	Rel-5	Introduction of backwards compatible correction mechanism	A	5.2.0	5.3.0
R2-023087	agreed	25.921	042	-	R99	Introduction of backwards compatible correction mechanism	F	3.7.0	3.8.0
R2-023288	agreed	25.921	043	-	Rel-4	Introduction of backwards compatible correction mechanism	A	4.4.0	4.5.0
R2-023289	agreed	25.921	044	-	Rel-5	Introduction of backwards compatible correction mechanism	A	5.0.0	5.1.0

CR-Form-v7

CHANGE REQUEST

⌘	**25.331** CR **1732**	⌘ **rev**	**1**	⌘	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 ☐ Radio Access Network ☐ Core Network ☐

Title: ⌘	Introduction of backwards compatible correction mechanism	
Source: ⌘	Nokia	
Work item code: ⌘	TEI	***Date:*** ⌘ 19/Nov/2002

Category: ⌘	**F**	***Release:*** ⌘ R99

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

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

Reason for change: ⌘	Currently once backwards compatibility is started for Rel-4 there will be now mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change: ⌘	Extension Containers principle introduced. **Impact Analysis:** No Impact There is no impact as this does not actually make any changes to the protocol specification, but introduces the mechanism so that the changes can be made.
Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.
Clauses affected: ⌘	9.8, 10.1.1, 11.0, 11.2

	Y	N		
Other specs ⌘	X		Other core specifications ⌘	25.921 CR 042.
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.

9.8　Unexpected non-critical message extension

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

1> If the non critical extension is included in the "Variable Length Extension Container":

2> ignore the content of the extension and the contents of this container after the not comprehended extension, and continue decoding the rest of the message

1> otherwise

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

If the UE receives a system information block on the BCCH containing an undefined non-critical message extension, the UE shall:

1> ignore the content of the extension and the system information block contents after the extension, but treat the parts of the system information block up to the extension normally.

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

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

10.1.1   Protocol extensions

RRC messages may be extended in future versions of this protocol, either by adding values for choices, enumerated and size constrained types or by adding information elements. An important aspect concerns the behaviour of a UE, conforming to this revision of the standard, upon receiving a not comprehended future extension. The details of this error handling behaviour are provided in clause 9.

> NOTE 1:   By avoiding the need for partial decoding (skipping uncomprehended IEs to continue decoding the remainder of the message), the RRC protocol extension mechanism also avoids the overhead of length determinants for extensions. "Variable length extension containers" (i.e. non critical extension containers that have their abstract syntax defined using the ASN.1 type "BIT STRING") have been defined to support the introduction of extensions to a release after the subsequent release is frozen (and UEs based on that subsequent may appear). For this container a length determinant is used, which facilitates partial decoding of the container as well as the decoding of the extensions included after the container.

Two kinds of protocol extensions are distinguished: non-critical and critical extensions. In general, a receiver shall process a message including not comprehended non-critical extensions as if the extensions were absent. However, a receiver shall entirely reject a message including not comprehended critical extensions (there is no partial rejection) and notify the sender, as specified in clause 9.

The general mechanism for adding critical extensions is by defining a new version of the message, which is indicated at the beginning of the message.

The UE shall always comprehend the complete transfer syntax specified for the protocol version it supports; if the UE comprehends the transfer syntax defined within protocol version A for message 1, it shall also comprehend the transfer syntax defined within protocol version A for message 2.

The following table shows for which messages only non-critical extensions may be added while for others both critical and non-critical extensions may be added.

> NOTE 2:   Critical extensions can only be added to certain downlink messages.

Extensions	Message
Critical and non-critical extensions	ACTIVE SET UPDATE 10.2.1 ASSISTANCE DATA DELIVERY 10.2.4 CELL CHANGE ORDER FROM UTRAN 10.2.5 CELL UPDATE CONFIRM 10.2.8 COUNTER CHECK 10.2.9 DOWNLINK DIRECT TRANSFER 10.2.11 HANDOVER TO UTRAN COMMAND 10.2.16a HANDOVER FROM UTRAN COMMAND 10.2.15 MEASUREMENT CONTROL 10.2.17 PHYSICAL CHANNEL RECONFIGURATION 10.2.22 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.25 RADIO BEARER RECONFIGURATION 10.2.27 RADIO BEARER RELEASE 10.2.30 RADIO BEARER SETUP 10.2.33 RRC CONNECTION REJECT 10.2.36 RRC CONNECTION RELEASE 10.2.37 RRC CONNECTION SETUP 10.2.40 SECURITY MODE COMMAND 10.2.43 SIGNALLING CONNECTION RELEASE 10.2.46 TRANSPORT CHANNEL RECONFIGURATION 10.2.50 UE CAPABILITY ENQUIRY 10.2.55 UE CAPABILITY INFORMATION CONFIRM 10.2.57 UPLINK PHYSICAL CHANNEL CONTROL 10.2.59 URA UPDATE CONFIRM 10.2.61 UTRAN MOBILITY INFORMATION 10.2.62
Non-critical extensions only	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL CHANGE ORDER FROM UTRAN FAILURE 10.2.6 CELL UPDATE 10.2.7 COUNTER CHECK RESPONSE 10.2.10 HANDOVER TO UTRAN COMPLETE 10.2.16b INITIAL DIRECT TRANSFER 10.2.16c HANDOVER FROM UTRAN FAILURE 10.2.16

Extensions	Message
	MEASUREMENT CONTROL FAILURE 10.2.18
	MEASUREMENT REPORT 10.2.19
	PAGING TYPE 1 10.2.20
	PAGING TYPE 2 10.2.21
	PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.23
	PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.24
	PUSCH CAPACITY REQUEST 10.2.26
	RADIO BEARER RECONFIGURATION COMPLETE 10.2.28
	RADIO BEARER RECONFIGURATION FAILURE 10.2.29
	RADIO BEARER RELEASE COMPLETE 10.2.31
	RADIO BEARER RELEASE FAILURE 10.2.32
	RADIO BEARER SETUP COMPLETE 10.2.34
	RADIO BEARER SETUP FAILURE 10.2.35
	RRC CONNECTION RELEASE COMPLETE 10.2.38
	RRC CONNECTION REQUEST 10.2.39
	RRC CONNECTION SETUP COMPLETE 10.2.41
	RRC STATUS 10.2.42
	SECURITY MODE COMPLETE 10.2.44
	SECURITY MODE FAILURE 10.2.45
	SIGNALLING CONNECTION RELEASE INDICATION 10.2.47
	Master Information Block 10.2.48.8.1
	System Information Block type 1 to
	System Information Block type 17 10.2.48.8.2 to 10.2.48.8.19
	SYSTEM INFORMATION CHANGE INDICATION 10.2.49
	TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.51
	TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.52
	TRANSPORT FORMAT COMBINATION CONTROL 10.2.53
	TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.54
	UE CAPABILITY INFORMATION 10.2.56
	UPLINK DIRECT TRANSFER 10.2.58
	URA UPDATE 10.2.60
	UTRAN MOBILITY INFORMATION CONFIRM 10.2.63
	UTRAN MOBILITY INFORMATION FAILURE 10.2.64
No extensions	SYSTEM INFORMATION 10.2.48
	First Segment 10.2.48.1
	Subsequent or last Segment 10.2.48.3
	Complete SIB 10.2.48.5
	SIB content 10.2.48.8.1

NOTE 3: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks.

10.1.1.1 Non-critical extensions

10.1.1.1.1 Extension of an information element with additional values or choices

In future versions of this protocol, non-critical values may be added to choices, enumerated and size constrained types.

For choices, enumerated and size constrained types it is possible to indicate how many non-critical spare values need to be reserved for future extension. In this case, the tabular format should indicate the number of spare values that are needed. The value range defined in ASN.1 for the extensible IE should include the number of spares that are needed, since a value outside the range defined for this IE will result in a general ASN.1 violation error.

For downlink messages, spare values may be defined for non-critical information elements for which the need is specified to be MD or OP (or CV case leading to MD or OP). In this case, a receiver not comprehending the received spare value shall consider the information element to have the default value or consider it to be absent respectively.

For uplink messages spare values may be defined for all information elements, including those for which the need is specified to be MP (or CV case leading to MP).

In all cases at most one spare should be defined for choices. In this case, information elements applicable to the spare choices shall be added to the end of the message.

10.1.1.1.2 Extension of a message with additional information elements

In future versions of this protocol, non-critical information elements may be added to RRC messages. These additional information elements shall be normally appended at the end of the message; the transfer syntax specified in this revision of the standard facilitates this. A receiver conformant to this revision of the standard shall accept such extension, and proceed as if it was not included. Extensions to a release that are introduced after the subsequent release is frozen may however be inserted prior to the end of the message. To facilitate this, "variable length extension containers" have been introduced in most messages.

10.1.1.2 Critical extensions

10.1.1.2.1 Extension of an information element with additional values or choices

In versions of this protocol, choices, enumerated and size constrained types may be extended with critical values. For extension with critical values the general critical extension mechanism is used, i.e. for this no spare values are reserved since backward compatibility is not required.

10.1.1.2.2 Extension of a message with additional information elements

In future versions of this protocol, RRC messages may be extended with new information elements. Since messages including critical extensions are rejected by receivers not comprehending them, these messages may be modified completely, e.g. IEs may be inserted at any place and IEs may be removed or redefined.

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

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in [14]. PDU and IE definitions are grouped into separate ASN.1 modules.

11.0 General

Some messages and/or IEs may include one or more IEs with name "dummy" that are included only in the ASN.1. The UE should avoid sending information elements that are named "dummy" to UTRAN. Likewise, UTRAN should avoid sending IEs with name "dummy" to the UE. If the UE anyhow receives an information element named "dummy", it shall ignore the IE and process the rest of the message as if the IE was not included.

NOTE: An IE with name "dummy" concerns an information element that was (erroneously) included in a previous version of the specification and has been removed by replacing it with a dummy with same type.

The UE shall only include the "variable length extension container" when it sends a non critical extension that according to this specification shall be transferred within this container

If the abstract syntax of an IE is defined using the ASN.1 type "BIT STRING", and this IE corresponds to a functional IE definition in tabular format, in which the significance of bits is semantically defined, the following general rule shall be applied:

The bits in the ASN.1 bit string shall represent the semantics of the functional IE definition in decreasing order of bit significance;

- with the first (or leftmost) bit in the bit string representing the most significant bit; and

- with the last (or rightmost) bit in the bit string representing the least significant bit.

11.1 General message structure

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

BEGIN

IMPORTS

    ActiveSetUpdate,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    AssistanceDataDelivery,
    CellChangeOrderFromUTRAN,
    CellChangeOrderFromUTRANFailure,
    CellUpdate,
    CellUpdateConfirm-CCCH,
    CellUpdateConfirm,
    CounterCheck,
    CounterCheckResponse,
    DownlinkDirectTransfer,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    HandoverFromUTRANCommand-GSM,
    HandoverFromUTRANCommand-CDMA2000,
    HandoverFromUTRANFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
```

```
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionRelease-CCCH,
    RRCConnectionReleaseComplete,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SignallingConnectionReleaseIndication,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH,
    UTRANMobilityInformation,
    UTRANMobilityInformationConfirm,
    UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
    IntegrityCheckInfo
FROM InformationElements;

--*************************************************************
--
-- Downlink DCCH messages
--
--*************************************************************

DL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 DL-DCCH-MessageType
}

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                 ActiveSetUpdate,
    assistanceDataDelivery          AssistanceDataDelivery,
    cellChangeOrderFromUTRAN        CellChangeOrderFromUTRAN,
    cellUpdateConfirm               CellUpdateConfirm,
    counterCheck                    CounterCheck,
    downlinkDirectTransfer          DownlinkDirectTransfer,
    handoverFromUTRANCommand-GSM        HandoverFromUTRANCommand-GSM,
    handoverFromUTRANCommand-CDMA2000   HandoverFromUTRANCommand-CDMA2000,
    measurementControl              MeasurementControl,
    pagingType2                     PagingType2,
    physicalChannelReconfiguration  PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    radioBearerReconfiguration      RadioBearerReconfiguration,
    radioBearerRelease              RadioBearerRelease,
    radioBearerSetup                RadioBearerSetup,
    rrcConnectionRelease            RRCConnectionRelease,
    securityModeCommand             SecurityModeCommand,
    signallingConnectionRelease     SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
```

```
    transportFormatCombinationControl    TransportFormatCombinationControl,
    ueCapabilityEnquiry                  UECapabilityEnquiry,
    ueCapabilityInformationConfirm       UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl         UplinkPhysicalChannelControl,
    uraUpdateConfirm                     URAUpdateConfirm,
    utranMobilityInformation             UTRANMobilityInformation,
    spare7                               NULL,
    spare6                               NULL,
    spare5                               NULL,
    spare4                               NULL,
    spare3                               NULL,
    spare2                               NULL,
    spare1                               NULL
}


--*************************************************************
--
-- Uplink DCCH messages
--
--*************************************************************

UL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 UL-DCCH-MessageType
}

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete              ActiveSetUpdateComplete,
    activeSetUpdateFailure               ActiveSetUpdateFailure,
    cellChangeOrderFromUTRANFailure CellChangeOrderFromUTRANFailure,
    counterCheckResponse                 CounterCheckResponse,
    handoverToUTRANComplete              HandoverToUTRANComplete,
    initialDirectTransfer                InitialDirectTransfer,
    handoverFromUTRANFailure             HandoverFromUTRANFailure,
    measurementControlFailure            MeasurementControlFailure,
    measurementReport                    MeasurementReport,
    physicalChannelReconfigurationComplete
                                         PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure
                                         PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete   RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure    RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete           RadioBearerReleaseComplete,
    radioBearerReleaseFailure            RadioBearerReleaseFailure,
    radioBearerSetupComplete             RadioBearerSetupComplete,
    radioBearerSetupFailure              RadioBearerSetupFailure,
    rrcConnectionReleaseComplete         RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete           RRCConnectionSetupComplete,
    rrcStatus                            RRCStatus,
    securityModeComplete                 SecurityModeComplete,
    securityModeFailure                  SecurityModeFailure,
    signallingConnectionReleaseIndication
                                         SignallingConnectionReleaseIndication,
    transportChannelReconfigurationComplete
                                         TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure
                                         TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure
                                         TransportFormatCombinationControlFailure,
    ueCapabilityInformation              UECapabilityInformation,
    uplinkDirectTransfer                 UplinkDirectTransfer,
    utranMobilityInformationConfirm      UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure      UTRANMobilityInformationFailure,
    spare2                               NULL,
    spare1                               NULL
}


--*************************************************************
--
-- Downlink CCCH messages
--
--*************************************************************

DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 DL-CCCH-MessageType
}
```

```
DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm                   CellUpdateConfirm-CCCH,
    rrcConnectionReject                 RRCConnectionReject,
    rrcConnectionRelease                RRCConnectionRelease-CCCH,
    rrcConnectionSetup                  RRCConnectionSetup,
    uraUpdateConfirm                    URAUpdateConfirm-CCCH,
    spare3                              NULL,
    spare2                              NULL,
    spare1                              NULL
}

--***************************************************************
--
-- Uplink CCCH messages
--
--***************************************************************

UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 UL-CCCH-MessageType
}

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                          CellUpdate,
    rrcConnectionRequest                RRCConnectionRequest,
    uraUpdate                           URAUpdate,
    spare                               NULL
}

--***************************************************************
--
-- PCCH messages
--
--***************************************************************

PCCH-Message ::= SEQUENCE {
    message             PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1                         PagingType1,
    spare                               NULL
}

--***************************************************************
--
-- Downlink SHCCH messages
--
--***************************************************************

DL-SHCCH-Message ::= SEQUENCE {
    message                 DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation     PhysicalSharedChannelAllocation,
    spare                               NULL
}

--***************************************************************
--
-- Uplink SHCCH messages
--
--***************************************************************

UL-SHCCH-Message ::= SEQUENCE {
    message                 UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
    puschCapacityRequest                PUSCHCapacityRequest,
    spare                               NULL
}


--***************************************************************
--
-- BCCH messages sent on FACH
```

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

BCCH-FACH-Message ::= SEQUENCE {
    message               BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation                  SystemInformation-FACH,
    systemInformationChangeIndication  SystemInformationChangeIndication,
    spare2                             NULL,
    spare1                             NULL
}

--****************************************************************
--
-- BCCH messages sent on BCH
--
--****************************************************************

BCCH-BCH-Message ::= SEQUENCE {
    message               SystemInformation-BCH
}

END
```

11.2   PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    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,
    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;

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

ActiveSetUpdate ::= CHOICE {
    r3                              SEQUENCE {
        activeSetUpdate-r3              ActiveSetUpdate-r3-IEs,
        laterNonCriticalExtensions     ------SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdate-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   ------OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
```

```
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        -- dummy and dummy2 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy                            IntegrityProtectionModeInfo       OPTIONAL,
        dummy2                           CipheringModeInfo                 OPTIONAL,
        activationTime                   ActivationTime                    OPTIONAL,
        newU-RNTI                        U-RNTI                            OPTIONAL,
    -- Core network IEs
        cn-InformationInfo               CN-InformationInfo                OPTIONAL,
    -- Radio bearer IEs
        -- dummy3 is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy3                           DL-CounterSynchronisationInfo     OPTIONAL,
    -- Physical channel IEs
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power             OPTIONAL,
        rl-AdditionInformationList       RL-AdditionInformationList        OPTIONAL,
        rl-RemovalInformationList        RL-RemovalInformationList         OPTIONAL,
        tx-DiversityMode                 TX-DiversityMode                  OPTIONAL,
        ssdt-Information                 SSDT-Information                  OPTIONAL
}


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

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                            IntegrityProtActivationInfo       OPTIONAL,
    -- Radio bearer IEs
        -- dummy2 and dummy3 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy2                           RB-ActivationTimeInfoList         OPTIONAL,
        dummy3                           UL-CounterSynchronisationInfo     OPTIONAL,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions      SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            activeSetUpdateComplete-r3-add-ext  BIT STRING    OPTIONAL,
            nonCriticalExtensions            SEQUENCE {}       OPTIONAL
        } OPTIONAL
}


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

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        failureCause                     FailureCauseWithProtErr,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions      SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            activeSetUpdateFailure-r3-add-ext  BIT STRING    OPTIONAL,
            nonCriticalExtensions            SEQUENCE {}       OPTIONAL
        } OPTIONAL
}


-- **************************************************
--
-- Assistance Data Delivery
--
-- **************************************************

AssistanceDataDelivery ::= CHOICE {
    r3                                   SEQUENCE {
        assistanceDataDelivery-r3        AssistanceDataDelivery-r3-IEs,
        v3a0NonCriticalExtensions        SEQUENCE {
            assistanceDataDelivery-v3a0ext  AssistanceDataDelivery-v3a0ext,
            laternNonCriticalExtensions        SEQUENCE{
                -- Container for additional R99 extensions
                assistanceDataDelivery-r3-add-ext   BIT STRING  OPTIONAL,
```

```
                nonCriticalExtensions              SEQUENCE {} OPTIONAL
            }SEQUENCE{}              OPTIONAL
        }  OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Measurement Information Elements
        ue-positioning-GPS-AssistanceData            UE-Positioning-GPS-AssistanceData
    OPTIONAL,
        ue-positioning-OTDOA-AssistanceData-UEB    UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}

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

-- **************************************************
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- **************************************************

CellChangeOrderFromUTRAN ::= CHOICE {
    r3                               SEQUENCE {
        cellChangeOrderFromUTRAN-IEs      CellChangeOrderFromUTRAN-r3-IEs,
        laternNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRAN-r3-add-ext     BIT STRING     OPTIONAL,
            nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
        }  OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtectionModeInfo          OPTIONAL,
        activationTime                  ActivationTime                       OPTIONAL,
        -- the IE rab-InformationList is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored. The IE may be used in a later
        -- version of the protocol and hence it is not changed into a dummy
        rab-InformationList             RAB-InformationList                  OPTIONAL,
        interRAT-TargetCellDescription  InterRAT-TargetCellDescription
}

-- **************************************************
--
-- CELL CHANGE ORDER FROM UTRAN FAILURE
--
-- **************************************************

CellChangeOrderFromUTRANFailure ::= CHOICE {
    r3                               SEQUENCE {
        cellChangeOrderFromUTRANFailure-r3
                                        CellChangeOrderFromUTRANFailure-r3-IEs,
        laternNonCriticalExtensions          SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRANFailure-r3-add-ext  BIT STRING     OPTIONAL,
            nonCriticalExtensions                       SEQUENCE {}     OPTIONAL
        }  OPTIONAL
    },
    -- dummy is not used in this version of the specification and it
    -- should be ignored.
    dummy                               SEQUENCE {
```

```
            rrc-TransactionIdentifier       RRC-TransactionIdentifier,
            criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtectionModeInfo     OPTIONAL,
        interRAT-ChangeFailureCause     InterRAT-ChangeFailureCause
}

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList       STARTList,
        am-RLC-ErrorIndicationRb2-3or4      BOOLEAN,
        am-RLC-ErrorIndicationRb5orAbove    BOOLEAN,
        cellUpdateCause                 CellUpdateCause,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
        failureCause                    FailureCauseWithProtErrTrId     OPTIONAL,
        rb-timer-indicator              Rb-timer-indicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH           OPTIONAL,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            cellUpdate-r3-add-ext           BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

CellUpdateConfirm ::= CHOICE {
    r3                              SEQUENCE {
        cellUpdateConfirm-r3        CellUpdateConfirm-r3-IEs,
        v3a0NonCriticalExtensions   SEQUENCE {
            cellUpdateConfirm-v3a0ext   CellUpdateConfirm-v3a0ext,
            laternNonCriticalExtensions     SEQUENCE {
                -- Container for additional R99 extensions
                cellUpdateConfirm-r3-add-ext    BIT STRING      OPTIONAL,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        activationTime                  ActivationTime                  OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
        rlc-Re-establishIndicatorRb2-3or4   BOOLEAN,
        rlc-Re-establishIndicatorRb5orAbove BOOLEAN,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
```

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

CellUpdateConfirm-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                            DSCH-RNTI                          OPTIONAL
}

-- **************************************************
--
-- CELL UPDATE CONFIRM for CCCH
--
-- **************************************************

CellUpdateConfirm-CCCH ::= CHOICE {
    r3                                SEQUENCE {
        -- User equipment IEs
            u-RNTI                            U-RNTI,
        -- The rest of the message is identical to the one sent on DCCH.
            cellUpdateConfirm-r3              CellUpdateConfirm-r3-IEs,
            laternNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            cellUpdateConfirm-CCCH-r3-add-ext             BIT STRING   OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}    OPTIONAL
            }        OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

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

CounterCheck ::= CHOICE {
    r3                                SEQUENCE {
        counterCheck-r3                  CounterCheck-r3-IEs,
        laternNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            counterCheck-r3-add-ext               BIT STRING    OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}    OPTIONAL
            }        OPTIONAL
    },
```

```
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

CounterCheckResponse ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Radio bearer IEs
        rb-COUNT-C-InformationList       RB-COUNT-C-InformationList          OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions          SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            counterCheckResponse-r3-add-ext    BIT STRING       OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}      OPTIONAL
        } OPTIONAL
}

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

DownlinkDirectTransfer ::= CHOICE {
    r3                              SEQUENCE {
        downlinkDirectTransfer-r3       DownlinkDirectTransfer-r3-IEs,
        laternNonCriticalExtensions          SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            downlinkDirectTransfer-r3-add-ext   BIT STRING       OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}      OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

-- **************************************************
--
-- HANDOVER TO UTRAN COMMAND
--
-- **************************************************

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

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
```

```
            new-U-RNTI                      U-RNTI-Short,
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            dummy                           ActivationTime                  OPTIONAL,
            cipheringAlgorithm              CipheringAlgorithm              OPTIONAL,
    -- Radio bearer IEs
    -- Specification mode information
        specificationMode           CHOICE {
            complete                        SEQUENCE {
                srb-InformationSetupList        SRB-InformationSetupList,
                rab-InformationSetupList        RAB-InformationSetupList        OPTIONAL,
                ul-CommonTransChInfo            UL-CommonTransChInfo,
                ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
                dl-CommonTransChInfo            DL-CommonTransChInfo,
                dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
                ul-DPCH-Info                    UL-DPCH-Info,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        dl-PDSCH-Information             DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo                    CPCH-SetInfo        OPTIONAL
                    },
                    tdd                             NULL
                },
                dl-CommonInformation            DL-CommonInformation,
                dl-InformationPerRL-List        DL-InformationPerRL-List,
                frequencyInfo                   FrequencyInfo
            },
            preconfiguration            SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
                preConfigMode                   CHOICE {
                    predefinedConfigIdentity        PredefinedConfigIdentity,
                    defaultConfig                   SEQUENCE {
                        defaultConfigMode               DefaultConfigMode,
                        defaultConfigIdentity           DefaultConfigIdentity
                    }
                },
                rab-Info                        RAB-Info-Post       OPTIONAL,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostFDD,
                        dl-CommonInformationPost        DL-CommonInformationPost,
                        dl-InformationPerRL-List        DL-InformationPerRL-ListPostFDD,
                        frequencyInfo                   FrequencyInfoFDD
                    },
                    tdd                             SEQUENCE {
                        ul-DPCH-Info                    UL-DPCH-InfoPostTDD,
                        dl-CommonInformationPost        DL-CommonInformationPost,
                        dl-InformationPerRL             DL-InformationPerRL-PostTDD,
                        frequencyInfo                   FrequencyInfoTDD,
                        primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
                    }

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

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

HandoverToUTRANComplete ::= SEQUENCE {
    --TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        -- TABULAR: startList is conditional on history.
        startList                       STARTList                       OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                  OPTIONAL,
    -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions      SEQUENCE {}     OPTIONAL
            -- Container for additional R99 extensions
            handoverToUTRANComplete-r3-add-ext  BIT STRING      OPTIONAL,
```

```
            nonCriticalExtensions              SEQUENCE {}     OPTIONAL
        }   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
            laterNonCriticalExtensions        SEQUENCE {}     OPTIONAL
                -- Container for additional R99 extensions
                initialDirectTransfer-r3-add-ext     BIT STRING     OPTIONAL,
                nonCriticalExtensions             SEQUENCE {}     OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
}

InitialDirectTransfer-v3a0ext ::= SEQUENCE {
        -- the START value shall always be included in this version of the specification
        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
        laterNonCriticalExtensions        SEQUENCE { OPTIONAL
            -- Container for additional R99 extensions
            handoverFromUTRANCommand-GSM-r3-add-ext
                                        BIT STRING     OPTIONAL,
            nonCriticalExtensions             SEQUENCE {}     OPTIONAL
        }   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
        toHandoverRAB-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,
        laternNonCriticalExtensions         SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            handoverFromUTRANCommand-CDMA2000-r3-add-ext
                                                BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } 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
        toHandoverRAB-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
        laternNonCriticalExtensions         SEQUENCE {}      OPTIONAL
            -- Container for additional R99 extensions
            handoverFromUTRANFailure-r3-add-ext    BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } 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,
                            -- Reserved for future non critical extension
                            laternNonCriticalExtensions          SEQUENCE {
                                -- Container for additional R99 extensions
                                interRATHandoverInfo-r3-add-ext      BIT STRING      OPTIONAL,
                                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
}

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

MeasurementControl ::= CHOICE {
    r3                                SEQUENCE {
        measurementControl-r3          MeasurementControl-r3-IEs,
        v390nonCriticalExtensions      SEQUENCE {
            measurementControl-v390ext    MeasurementControl-v390ext,
            v3a0NonCriticalExtensions         SEQUENCE {
                measurementControl-v3a0ext        MeasurementControl-v3a0ext,
                laternNonCriticalExtensions           SEQUENCE{}                    OPTIONAL
                -- Container for additional R99 extensions
                measurementControl-r3-add-ext        BIT STRING      OPTIONAL,
                nonCriticalExtensions                SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        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-v390ext ::= SEQUENCE {
        ue-Positioning-Measurement-v390ext      UE-Positioning-Measurement-v390ext  OPTIONAL
}
```

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

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

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        failureCause                   FailureCauseWithProtErr,
        -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions     SEQUENCE {}            OPTIONAL
            -- Container for additional R99 extensions
            measurementControlFailure-r3-add-ext   BIT STRING     OPTIONAL,
            nonCriticalExtensions                  SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

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

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        measuredResults                MeasuredResults                OPTIONAL,
        measuredResultsOnRACH          MeasuredResultsOnRACH          OPTIONAL,
        additionalMeasuredResults      MeasuredResultsList            OPTIONAL,
        eventResults                   EventResults                   OPTIONAL,
    -- Non-critical extensions
        v390nonCriticalExtensions      SEQUENCE {
            measurementReport-v390ext      MeasurementReport-v390ext,
        -- Extension mechanism for non- release99 information
            laterNonCriticalExtensions     SEQUENCE {}                OPTIONAL
                -- Container for additional R99 extensions
                measurementReport-r3-add-ext        BIT STRING     OPTIONAL,
                nonCriticalExtensions               SEQUENCE {}    OPTIONAL
            } OPTIONAL
        } OPTIONAL
}

MeasurementReport-v390ext ::= SEQUENCE{
        measuredResults-v390ext        MeasuredResults-v390ext        OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 1
--
-- **************************************************

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
        pagingRecordList               PagingRecordList               OPTIONAL,
    -- Other IEs
        bcch-ModificationInfo          BCCH-ModificationInfo          OPTIONAL,
        -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions     SEQUENCE {}            OPTIONAL
            -- Container for additional R99 extensions
            pagingType1-r3-add-ext         BIT STRING     OPTIONAL,
            nonCriticalExtensions          SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 2
--
-- **************************************************

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
```

```
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        pagingCause                      PagingCause,
    -- Core network IEs
        cn-DomainIdentity                CN-DomainIdentity,
        pagingRecordTypeID               PagingRecordTypeID,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions      SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            pagingType2-r3-add-ext       BIT STRING      OPTIONAL,
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
        } OPTIONAL
}


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

PhysicalChannelReconfiguration ::= CHOICE {
    r3                               SEQUENCE {
        physicalChannelReconfiguration-r3
                                         PhysicalChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions        SEQUENCE {
            physicalChannelReconfiguration-v3a0ext  PhysicalChannelReconfiguration-v3a0ext,
            laternNonCriticalExtensions              SEQUENCE {}                OPTIONAL
                -- Container for additional R99 extensions
                physicalChannelReconfiguration-r3-add-ext  BIT STRING    OPTIONAL,
                nonCriticalExtensions                      SEQUENCE {}    OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

PhysicalChannelReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        integrityProtectionModeInfo      IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo                CipheringModeInfo                  OPTIONAL,
        activationTime                   ActivationTime                     OPTIONAL,
        new-U-RNTI                       U-RNTI                             OPTIONAL,
        new-C-RNTI                       C-RNTI                             OPTIONAL,
        rrc-StateIndicator               RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- Core network IEs
        cn-InformationInfo               CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                     URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                    FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power              OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement            UL-ChannelRequirementWithCPCH-SetID    OPTIONAL,
        modeSpecificInfo                 CHOICE {
            fdd                              SEQUENCE {
                dl-PDSCH-Information              DL-PDSCH-Information        OPTIONAL
            },
            tdd                              NULL
        },
        dl-CommonInformation             DL-CommonInformation               OPTIONAL,
        dl-InformationPerRL-List         DL-InformationPerRL-List           OPTIONAL
}


PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                        DSCH-RNTI                          OPTIONAL
}

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

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

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo       IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                 UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime           ActivationTime                      OPTIONAL,
        rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo    UL-CounterSynchronisationInfo       OPTIONAL,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions      SEQUENCE {}         OPTIONAL
            -- Container for additional R99 extensions
            physicalChannelReconfigurationComplete-r3-add-ext
                                              BIT STRING       OPTIONAL,
            nonCriticalExtensions            SEQUENCE {}      OPTIONAL
        } OPTIONAL
}

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier           OPTIONAL,
        failureCause                     FailureCauseWithProtErr,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions      SEQUENCE {}         OPTIONAL
            -- Container for additional R99 extensions
            physicalChannelReconfigurationFailure-r3-add-ext
                                              BIT STRING       OPTIONAL,
            nonCriticalExtensions            SEQUENCE {}      OPTIONAL
        } OPTIONAL
}

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

PhysicalSharedChannelAllocation ::= CHOICE {
    r3                               SEQUENCE {
        physicalSharedChannelAllocation-r3
                                         PhysicalSharedChannelAllocation-r3-IEs,
        laternNonCriticalExtensions      SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            physicalSharedChannelAllocation-r3-add-ext  BIT STRING      OPTIONAL,
            nonCriticalExtensions                       SEQUENCE {}      OPTIONAL
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        dsch-RNTI                        DSCH-RNTI                           OPTIONAL,
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    -- Physical channel IEs
        ul-TimingAdvance                 UL-TimingAdvanceControl             OPTIONAL,
        pusch-CapacityAllocationInfo     PUSCH-CapacityAllocationInfo        OPTIONAL,
        pdsch-CapacityAllocationInfo     PDSCH-CapacityAllocationInfo        OPTIONAL,
        -- TABULAR: If confirmRequest is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
        confirmRequest                   ENUMERATED {
                                             confirmPDSCH, confirmPUSCH }    OPTIONAL,
        trafficVolumeReportRequest       INTEGER (0..255)                    OPTIONAL,
        iscpTimeslotList                 TimeslotList                        OPTIONAL,
        requestPCCPCHRSCP                BOOLEAN
```

```
}

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

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
        dsch-RNTI                       DSCH-RNTI                           OPTIONAL,
    -- Measurement IEs
        trafficVolume                   TrafficVolumeMeasuredResultsList    OPTIONAL,
        timeslotListWithISCP            TimeslotListWithISCP                OPTIONAL,
        primaryCCPCH-RSCP               PrimaryCCPCH-RSCP                   OPTIONAL,
        allocationConfirmation          CHOICE {
            pdschConfirmation               PDSCH-Identity,
            puschConfirmation               PUSCH-Identity
        }                                                                   OPTIONAL,
        protocolErrorIndicator          ProtocolErrorIndicatorWithMoreInfo,
        -- Extension mechanism for non-release99 information
        laternNonCriticalExtensions     SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            puschCapacityRequest-r3-add-ext BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

RadioBearerReconfiguration ::= CHOICE {
    r3                              SEQUENCE {
        radioBearerReconfiguration-r3   RadioBearerReconfiguration-r3-IEs,
        v3aoNonCriticalExtensions       SEQUENCE {
            radioBearerReconfiguration-v3a0ext      RadioBearerReconfiguration-v3a0ext,
            laternNonCriticalExtensions             SEQUENCE {}                    OPTIONAL
                -- Container for additional R99 extensions
                radioBearerReconfiguration-r3-add-ext       BIT STRING      OPTIONAL,
                nonCriticalExtensions                       SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
        -- NOTE: IE rb-InformationReconfigList should be optional in later versions
        -- of this message
        rb-InformationReconfigList      RB-InformationReconfigList,
        rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList           OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
```

```
                cpch-SetID                      CPCH-SetID              OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                               OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo            OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List     OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement           OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation            OPTIONAL,
        -- NOTE: IE dl-InformationPerRL-List should be optional in later versions
        -- of this message
        dl-InformationPerRL-List        DL-InformationPerRL-List
}

RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                       DSCH-RNTI                       OPTIONAL
}

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

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo     OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                  OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList       OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo   OPTIONAL,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            radioBearerReconfigurationComplete-r3-add-ext
                                        BIT STRING      OPTIONAL,
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                 OPTIONAL,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            radioBearerReconfigurationFailure-r3-add-ext    BIT STRING      OPTIONAL,
            nonCriticalExtensions                           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

```
RadioBearerRelease ::= CHOICE {
    r3                                  SEQUENCE {
        radioBearerRelease-r3           RadioBearerRelease-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            radioBearerRelease-v3a0ext      RadioBearerRelease-v3a0ext,
            laterNonCriticalExtensions          SEQUENCE {}              OPTIONAL
                -- Container for additional R99 extensions
                radioBearerRelease-r3-add-ext       BIT STRING      OPTIONAL,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

RadioBearerRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier           RRC-TransactionIdentifier,
    integrityProtectionModeInfo         IntegrityProtectionModeInfo         OPTIONAL,
    cipheringModeInfo                   CipheringModeInfo                   OPTIONAL,
    activationTime                      ActivationTime                      OPTIONAL,
    new-U-RNTI                          U-RNTI                              OPTIONAL,
    new-C-RNTI                          C-RNTI                              OPTIONAL,
    rrc-StateIndicator                  RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff          UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                  CN-InformationInfo                  OPTIONAL,
    signallingConnectionRelIndication   CN-DomainIdentity                   OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                        URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList         RAB-InformationReconfigList         OPTIONAL,
    rb-InformationReleaseList           RB-InformationReleaseList,
    rb-InformationAffectedList          RB-InformationAffectedList          OPTIONAL,
    dl-CounterSynchronisationInfo       DL-CounterSynchronisationInfo       OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo                UL-CommonTransChInfo                OPTIONAL,
    ul-deletedTransChInfoList           UL-DeletedTransChInfoList           OPTIONAL,
    ul-AddReconfTransChInfoList         UL-AddReconfTransChInfoList         OPTIONAL,
    modeSpecificTransChInfo             CHOICE {
        fdd                                 SEQUENCE {
            cpch-SetID                          CPCH-SetID                  OPTIONAL,
            addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
        },
        tdd                                 NULL
    }                                                                       OPTIONAL,
    dl-CommonTransChInfo                DL-CommonTransChInfo                OPTIONAL,
    dl-DeletedTransChInfoList            DL-DeletedTransChInfoList           OPTIONAL,
    dl-AddReconfTransChInfoList          DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    ul-ChannelRequirement               UL-ChannelRequirement               OPTIONAL,
    modeSpecificPhysChInfo              CHOICE {
        fdd                                 SEQUENCE {
            dl-PDSCH-Information                 DL-PDSCH-Information         OPTIONAL
        },
        tdd                                 NULL
    },
    dl-CommonInformation                DL-CommonInformation                OPTIONAL,
    dl-InformationPerRL-List            DL-InformationPerRL-List            OPTIONAL
}

RadioBearerRelease-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                       DSCH-RNTI                           OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
```

```
-- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    ul-IntegProtActivationInfo       IntegrityProtActivationInfo        OPTIONAL,
    -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
    ul-TimingAdvance                 UL-TimingAdvance                   OPTIONAL,
-- Radio bearer IEs
    count-C-ActivationTime           ActivationTime                     OPTIONAL,
    rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList          OPTIONAL,
    ul-CounterSynchronisationInfo    UL-CounterSynchronisationInfo      OPTIONAL,
    -- Extension mechanism for non- release99 information
    laternNonCriticalExtensions      SEQUENCE {}        OPTIONAL
        -- Container for additional R99 extensions
        radioBearerReleaseComplete-r3-add-ext   BIT STRING      OPTIONAL,
        nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
    } OPTIONAL
}


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

RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier        RRC-TransactionIdentifier,
    failureCause                     FailureCauseWithProtErr,
    -- Radio bearer IEs
    potentiallySuccesfulBearerList   RB-IdentityList                    OPTIONAL,
    -- Extension mechanism for non- release99 information
    laternNonCriticalExtensions      SEQUENCE {}        OPTIONAL
        -- Container for additional R99 extensions
        radioBearerReleaseFailure-r3-add-ext    BIT STRING      OPTIONAL,
        nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
    } OPTIONAL
}


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

RadioBearerSetup ::= CHOICE {
    r3                               SEQUENCE {
        radioBearerSetup-r3              RadioBearerSetup-r3-IEs,
        v3a0NonCriticalExtensions        SEQUENCE {
            radioBearerSetup-v3a0ext         RadioBearerSetup-v3a0ext,
            laternNonCriticalExtensions      SEQUENCE {}                        OPTIONAL
                -- Container for additional R99 extensions
                radioBearerSetup-r3-add-ext      BIT STRING      OPTIONAL,
                nonCriticalExtensions            SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

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

```
                rb-InformationAffectedList       RB-InformationAffectedList          OPTIONAL,
                dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo       OPTIONAL,
            -- Transport channel IEs
                ul-CommonTransChInfo             UL-CommonTransChInfo                OPTIONAL,
                ul-deletedTransChInfoList        UL-DeletedTransChInfoList           OPTIONAL,
                ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList         OPTIONAL,
                modeSpecificTransChInfo          CHOICE {
                    fdd                              SEQUENCE {
                        cpch-SetID                       CPCH-SetID                  OPTIONAL,
                        addReconfTransChDRAC-Info        DRAC-StaticInformationList  OPTIONAL
                    },
                    tdd                              NULL
                }                                                                    OPTIONAL,
                dl-CommonTransChInfo             DL-CommonTransChInfo                OPTIONAL,
                dl-DeletedTransChInfoList        DL-DeletedTransChInfoList           OPTIONAL,
                dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList         OPTIONAL,
            -- Physical channel IEs
                frequencyInfo                   FrequencyInfo                        OPTIONAL,
                maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power                OPTIONAL,
                ul-ChannelRequirement           UL-ChannelRequirement                OPTIONAL,
                modeSpecificPhysChInfo          CHOICE {
                    fdd                              SEQUENCE {
                        dl-PDSCH-Information              DL-PDSCH-Information        OPTIONAL
                    },
                    tdd                              NULL
                },
                dl-CommonInformation            DL-CommonInformation                 OPTIONAL,
                dl-InformationPerRL-List        DL-InformationPerRL-List             OPTIONAL
}

RadioBearerSetup-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                       DSCH-RNTI                           OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        start-Value             START-Value                                 OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions          SEQUENCE {}      OPTIONAL
            -- Container for additional R99 extensions
            radioBearerSetupComplete-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                  SEQUENCE {}   OPTIONAL
        } OPTIONAL
}

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

RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions          SEQUENCE {}      OPTIONAL
            -- Container for additional R99 extensions
            radioBearerSetupFailure-r3-add-ext     BIT STRING    OPTIONAL,
            nonCriticalExtensions                  SEQUENCE {}   OPTIONAL
        } OPTIONAL
}
```

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

RRCConnectionReject ::= CHOICE {
    r3                                  SEQUENCE {
        rrcConnectionReject-r3          RRCConnectionReject-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            rrcConnectionReject-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

RRCConnectionRelease ::= CHOICE {
    r3                                  SEQUENCE {
        rrcConnectionRelease-r3         RRCConnectionRelease-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            rrcConnectionRelease-r3-add-ext     BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

RRCConnectionRelease-CCCH ::= CHOICE {
    r3                                  SEQUENCE {
        rrcConnectionRelease-CCCH-r3    RRCConnectionRelease-CCCH-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            rrcConnectionRelease-CCCH-r3-add-ext        BIT STRING      OPTIONAL,
            nonCriticalExtensions                       SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
```

```
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

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

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        errorIndication                  FailureCauseWithProtErr        OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions               SEQUENCE {}    OPTIONAL
            -- Container for additional R99 extensions
            rrcConnectionReleaseComplete-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}      OPTIONAL
        }    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,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions            SEQUENCE {}    OPTIONAL
}

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

RRCConnectionSetup ::= CHOICE {
    r3                               SEQUENCE {
        rrcConnectionSetup-r3            RRCConnectionSetup-r3-IEs,
        laternNonCriticalExtensions               SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}      OPTIONAL
        }    OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        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 capabilityUpdateRequirement 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
}

-- **************************************************
--
-- 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,
                    laternNonCriticalExtensions          SEQUENCE {}                OPTIONAL
                        -- Container for additional R99 extensions
                        rrcConnectionSetupComplete-r3-add-ext      BIT STRING        OPTIONAL,
                        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-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext    UE-RadioAccessCapability-v3a0ext    OPTIONAL
}

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

```
RRC-FailureInfo ::= CHOICE {
    r3                                              SEQUENCE {
        rRC-FailureInfo-r3                                  RRC-FailureInfo-r3-IEs,
        laternNonCriticalExtensions                        SEQUENCE {
            -- Container for additional R99 extensions
            rrc-FailureInfo-r3-add-ext                         BIT STRING      OPTIONAL,
            nonCriticalExtensions                              SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    criticalExtensions                          SEQUENCE {}
}

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

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

RRCStatus ::= SEQUENCE {
    -- Other IEs
        -- TABULAR:  Identification of received message is nested in
        -- ProtocolErrorMoreInformation
        protocolErrorInformation        ProtocolErrorMoreInformation,
        -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {}     OPTIONAL
            -- Container for additional R99 extensions
            rrcStatus-r3-add-ext            BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

SecurityModeCommand ::= CHOICE {
    r3                              SEQUENCE {
        securityModeCommand-r3          SecurityModeCommand-r3-IEs,
        laternNonCriticalExtensions     SEQUENCE {}     OPTIONAL
            -- Container for additional R99 extensions
            securityModeCommand-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

SecurityModeCommand-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        securityCapability              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Other IEs
        ue-SystemSpecificSecurityCap    InterRAT-UE-SecurityCapList         OPTIONAL
}

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

SecurityModeComplete ::= SEQUENCE {
```

```
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo        OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList          OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions         SEQUENCE {}       OPTIONAL
            -- Container for additional R99 extensions
            securityModeComplete-r3-add-ext     BIT STRING       OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}      OPTIONAL
        } OPTIONAL
}


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

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions         SEQUENCE {}       OPTIONAL
            -- Container for additional R99 extensions
            securityModeFailure-r3-add-ext      BIT STRING       OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}      OPTIONAL
        } OPTIONAL
}


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

SignallingConnectionRelease ::= CHOICE {
    r3                              SEQUENCE {
        signallingConnectionRelease-r3  SignallingConnectionRelease-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {}       OPTIONAL
            -- Container for additional R99 extensions
            signallingConnectionRelease-r3-add-ext  BIT STRING       OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}      OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

SignallingConnectionReleaseIndication ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions         SEQUENCE {}       OPTIONAL
            -- Container for additional R99 extensions
            signallingConnectionReleaseIndication-r3-add-ext    BIT STRING       OPTIONAL,
            nonCriticalExtensions                               SEQUENCE {}      OPTIONAL
        } OPTIONAL
}

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

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

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                     CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                    LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
            spare1                          NULL
        }
}

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

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                     CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
```

```
        spare1                          NULL
    }
}

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

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

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

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

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

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

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

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

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

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

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

CompleteSIB ::=                   SEQUENCE {
    -- Other information elements
        sib-Type                      SIB-Type,
        -- for sib-Data-fixed, in case the SIB data is less than 226 bits, padding
```

```
                        -- shall be used. The same padding bits shall be used as defined in clause 12.1
        sib-Data-fixed                      BIT STRING (SIZE (226))
}

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

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

SystemInformationChangeIndication ::=   SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo               BCCH-ModificationInfo,
        Extension mechanism for non- release99 information
        laternNonCriticalExtensions         SEQUENCE {}          OPTIONAL
            -- Container for additional R99 extensions
            systemInformationChangeIndication-r3-add-ext     BIT STRING    OPTIONAL,
            nonCriticalExtensions                            SEQUENCE {}   OPTIONAL
        } OPTIONAL
}

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

TransportChannelReconfiguration ::= CHOICE {
    r3                                  SEQUENCE {
        transportChannelReconfiguration-r3
                                        TransportChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            transportChannelReconfiguration-v3a0ext
                                        TransportChannelReconfiguration-v3a0ext,
            laternNonCriticalExtensions     SEQUENCE {}                     OPTIONAL
                -- Container for additional R99 extensions
                transportChannelReconfiguration-r3-add-ext  BIT STRING     OPTIONAL,
                nonCriticalExtensions                       SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

```
    }                                                                   OPTIONAL,
    dl-CommonTransChInfo            DL-CommonTransChInfo                 OPTIONAL,
    dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList          OPTIONAL,
-- Physical channel IEs
    frequencyInfo                   FrequencyInfo                        OPTIONAL,
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power                OPTIONAL,
    ul-ChannelRequirement           UL-ChannelRequirement                OPTIONAL,
    modeSpecificPhysChInfo          CHOICE {
        fdd                             SEQUENCE {
            dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
        },
        tdd                         NULL
    },
    dl-CommonInformation            DL-CommonInformation                 OPTIONAL,
    dl-InformationPerRL-List        DL-InformationPerRL-List             OPTIONAL
}

TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                   DSCH-RNTI                            OPTIONAL
}

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

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
```
~~-- Extension mechanism for non- release99 information~~
<u>   laternNonCriticalExtensions   SEQUENCE {}</u>   ~~OPTIONAL~~
```
        -- Container for additional R99 extensions
        transportChannelReconfigurationComplete-r3-add-ext     BIT STRING      OPTIONAL,
        nonCriticalExtensions                                  SEQUENCE {}     OPTIONAL
    } OPTIONAL
}

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

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
```
~~-- Extension mechanism for non- release99 information~~
<u>   laternNonCriticalExtensions   SEQUENCE {}</u>   ~~OPTIONAL~~
```
        -- Container for additional R99 extensions
        transportChannelReconfigurationFailure-r3-add-ext      BIT STRING      OPTIONAL,
        nonCriticalExtensions                                  SEQUENCE {}     OPTIONAL
    } OPTIONAL
}

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

TransportFormatCombinationControl ::= SEQUENCE {
    -- rrc-TransactionIdentifier is always included in this version of the
    -- specification.
    rrc-TransactionIdentifier       RRC-TransactionIdentifier               OPTIONAL,
    modeSpecificInfo                CHOICE {
        fdd                             NULL,
        tdd                             SEQUENCE {
            tfcs-ID                         TFCS-Identity   OPTIONAL
        }
```

```
    },
    dpch-TFCS-InUplink                  TFC-Subset,
    activationTimeForTFCSubset          ActivationTime                      OPTIONAL,
    tfc-ControlDuration                 TFC-ControlDuration                 OPTIONAL,
    -- Extension mechanism for non- release99 information
    laternNonCriticalExtensions         SEQUENCE {}         OPTIONAL
        -- Container for additional R99 extensions
        transportFormatCombinationControl-r3-add-ext
                                        BIT STRING      OPTIONAL,
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
    } OPTIONAL
}


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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier           RRC-TransactionIdentifier,
    failureCause                        FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
    laternNonCriticalExtensions         SEQUENCE {}         OPTIONAL
        -- Container for additional R99 extensions
        transportFormatCombinationControlFailure-r3-add-ext     BIT STRING      OPTIONAL,
        nonCriticalExtensions                                   SEQUENCE {}     OPTIONAL
    } OPTIONAL
}


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

UECapabilityEnquiry ::= CHOICE {
    r3                                  SEQUENCE {
        ueCapabilityEnquiry-r3          UECapabilityEnquiry-r3-IEs,
        laternNonCriticalExtensions     SEQUENCE {}         OPTIONAL
            -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier           RRC-TransactionIdentifier           OPTIONAL,
    ue-RadioAccessCapability            UE-RadioAccessCapability            OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability            InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
    -- Non critical extensions
    v370NonCriticalExtensions           SEQUENCE {
        ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
        v380NonCriticalExtensions           SEQUENCE {
            ueCapabilityInformation-v380ext     UECapabilityInformation-v380ext-IEs,
            -- Reserved for future non critical extension
            v3a0NonCriticalExtensions           SEQUENCE {
```

```
                         ueCapabilityInformation-v3a0ext UECapabilityInformation-v3a0ext-IEs,
                         laternNonCriticalExtensions            SEQUENCE {}            OPTIONAL
                             -- Container for additional R99 extensions
                             ueCapabilityInformation-r3-add-ext      BIT STRING     OPTIONAL,
                             nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
                         } OPTIONAL
                     } OPTIONAL
                 } OPTIONAL
         } OPTIONAL
}

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

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

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

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

UECapabilityInformationConfirm ::= CHOICE {
    r3                              SEQUENCE {
        ueCapabilityInformationConfirm-r3
                                        UECapabilityInformationConfirm-r3-IEs,
        laternNonCriticalExtensions        SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            ueCapabilityInformationConfirm-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                        SEQUENCE {}   OPTIONAL
        } OPTIONAL
    },
    later-than-r3                  SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions             SEQUENCE {}
    }
}

UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier      RRC-TransactionIdentifier
}

-- **************************************************
--
-- UPLINK DIRECT TRANSFER
--
-- **************************************************

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        nas-Message                     NAS-Message,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH            OPTIONAL,
        Extension mechanism for non- release99 information
        laternNonCriticalExtensions        SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            uplinkDirectTransfer-r3-add-ext      BIT STRING     OPTIONAL,
            nonCriticalExtensions                SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

-- **************************************************
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
```

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

UplinkPhysicalChannelControl ::= CHOICE {
    r3                              SEQUENCE {
        uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            uplinkPhysicalChannelControl-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                      SEQUENCE {}    OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}


UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Physical channel IEs
        ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo         OPTIONAL,
        timingAdvance                   UL-TimingAdvanceControl         OPTIONAL,
        alpha                           Alpha                           OPTIONAL,
        specialBurstScheduling          SpecialBurstScheduling          OPTIONAL,
        prach-ConstantValue             ConstantValueTdd                OPTIONAL,
        pusch-ConstantValue             ConstantValueTdd                OPTIONAL
}

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

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        ura-UpdateCause                 URA-UpdateCause,
        protocolErrorIndicator          ProtocolErrorIndicatorWithMoreInfo,
        Extension mechanism for non- release99 information
        laternNonCriticalExtensions         SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            uraUpdate-r3-add-ext                BIT STRING    OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

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

URAUpdateConfirm ::= CHOICE {
    r3                              SEQUENCE {
        uraUpdateConfirm-r3             URAUpdateConfirm-r3-IEs,
        laterNnonCriticalExtensions         SEQUENCE {}        OPTIONAL
            -- Container for additional R99 extensions
            uraUpdateConfirm-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions          SEQUENCE {}    OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}


URAUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
```

```
            utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- CN information elements
            cn-InformationInfo              CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
            ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
            dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo      OPTIONAL
}


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

URAUpdateConfirm-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        uraUpdateConfirm-CCCH-r3        URAUpdateConfirm-CCCH-r3-IEs,
        laternNonCriticalExtensions         SEQUENCE {} OPTIONAL
            -- Container for additional R99 extensions
            uraUpdateConfirm-CCCH-r3-add-ext    BIT STRING     OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

UTRANMobilityInformation ::= CHOICE {
    r3                              SEQUENCE {
        utranMobilityInformation-r3     UTRANMobilityInformation-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            utranMobilityInformation-v3a0ext    UTRANMobilityInformation-v3a0ext-IEs,
            laternNonCriticalExtensions          SEQUENCE {} OPTIONAL
                -- Container for additional R99 extensions
                utranMobilityInformation-r3-add-ext    BIT STRING     OPTIONAL,
                nonCriticalExtensions                  SEQUENCE {}     OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

UTRANMobilityInformation-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                  OPTIONAL,
        new-U-RNTI                      U-RNTI                             OPTIONAL,
        new-C-RNTI                      C-RNTI                             OPTIONAL,
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants          OPTIONAL,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfoFull             OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo      OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}
```

```
UTRANMobilityInformation-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext           UE-ConnTimersAndConstants-v3a0ext
}

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

UTRANMobilityInformationConfirm ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {}         OPTIONAL
            -- Container for additional R99 extensions
            utranMobilityInformationConfirm-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions                           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Extension mechanism for non- release99 information
        laternNonCriticalExtensions     SEQUENCE {}         OPTIONAL
            -- Container for additional R99 extensions
            utranMobilityInformationFailure-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions                           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

END
```

11.3   Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

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

BEGIN

IMPORTS

    hiPDSCHidentities,
    hiPUSCHidentities,
    hiRM,
    maxAC,
    maxAdditionalMeas,
    maxASC,
    maxASCmap,
    maxASCpersist,
    maxCCTrCH,
    maxCellMeas,
    maxCellMeas-1,
    maxCNdomains,
    maxCPCHsets,
    maxDPCH-DLchan,
    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,
    maxPredefConfig,
    maxPUSCH,
    maxRABsetup,
    maxRAT,
    maxRB,
    maxRBallRABs,
    maxRBMuxOptions,
    maxRBperRAB,
    maxReportedGSMCells,
    maxSRBsetup,
    maxRL,
    maxRL-1,
    maxSCCPCH,
    maxSat,
    maxSIB,
    maxSIB-FACH,
    maxSystemCapability,
    maxTF,
    maxTF-CPCH,
    maxTFC,
    maxTFCI-2-Combs,
    maxTGPS,
    maxTrCH,
    maxTrCHpreconf,
    maxTS,
    maxTS-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
        },
        iMSIcauseUEinitiatedEvent              SEQUENCE {
            routingparameter                       RoutingParameter
        },
        iMEI                                   SEQUENCE {
            routingparameter                       RoutingParameter
        },
        spare2                                 SEQUENCE {
            routingparameter                       RoutingParameter
        },
        spare1                                 SEQUENCE {
            routingparameter                       RoutingParameter
        }
    },
    enteredparameter                       BOOLEAN
}

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

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

IMSI-GSM-MAP ::=                   SEQUENCE (SIZE (6..21)) 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))

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
        },
        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
}

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 }
```

```
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-SearchQual = 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)
--
-- *************************************************

-- 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 }

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 }


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

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

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

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


MaximumAM-EntityNumberRLC-Cap ::=  ENUMERATED {
                                    am3, am4, am5, am6,
                                    am8, am16, am30 }

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

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

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

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

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

MaxNoSCCPCH-RL ::=                 ENUMERATED {
                                    rl1 }

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

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

MaxNumberOfTFC-UL ::=              ENUMERATED {
                                    tfc4, tfc8, tfc16, tfc32, tfc48, tfc64,
```

```
                                         tfc96, tfc128, tfc256, tfc512, tfc1024 }

MaxPhysChPerFrame ::=                INTEGER (1..224)

MaxPhysChPerTimeslot ::=            ENUMERATED {
                                         ts1, ts2 }

MaxPhysChPerTS ::=                   INTEGER (1..16)

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

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

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

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

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

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

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

MeasurementCapabilityExt ::=        SEQUENCE{
    compressedModeMeasCapabFDDList      CompressedModeMeasCapabFDDList,
    compressedModeMeasCapabTDDList      CompressedModeMeasCapabTDDList   OPTIONAL,
    compressedModeMeasCapabGSMList      CompressedModeMeasCapabGSMList   OPTIONAL,
    compressedModeMeasCapabMC           CompressedModeMeasCapabMC        OPTIONAL
}

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

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

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

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

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

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

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

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

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

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

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

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

N-312ext ::=                        ENUMERATED {
                                         s2, s4, s10, s20 }

N-313 ::=                           ENUMERATED {
                                         s1, s2, s4, s10, s20,
```

```
                                            s50, s100, s200 }

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

N-315ext ::=                        ENUMERATED  {
                                            s2, s4, s10, s20 }

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

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

NetworkAssistedGPS-Supported ::=    ENUMERATED {
                                            networkBased,
                                            ue-Based,
                                            bothNetworkAndUE-Based,
                                            noNetworkAssistedGPS }

NF-BO-AllBusy ::=                   INTEGER (0..31)

NF-BO-NoAICH ::=                    INTEGER (0..31)

NF-BO-Mismatch ::=                  INTEGER (0..127)

NS-BO-Busy ::=                      INTEGER (0..63)

NS-IP ::=                           INTEGER (0..28)

P-TMSI-and-RAI-GSM-MAP ::=          SEQUENCE {
    p-TMSI                              P-TMSI-GSM-MAP,
    rai                                RAI
}

PagingCause ::=                     ENUMERATED {
                                            terminatingConversationalCall,
                                            terminatingStreamingCall,
                                            terminatingInteractiveCall,
                                            terminatingBackgroundCall,
                                            terminatingHighPrioritySignalling,
                                            terminatingLowPrioritySignalling,
                                            terminatingCauseUnknown,
                                            spare
  }

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

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

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

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

```
            downlinkPhysChCapability          DL-PhysChCapabilityTDD,
            uplinkPhysChCapability            UL-PhysChCapabilityTDD
        }                                      OPTIONAL
}

ProtocolErrorCause ::=              ENUMERATED {
                                    asn1-ViolationOrEncodingError,
                                    messageTypeNonexistent,
                                    messageNotCompatibleWithReceiverState,
                                    ie-ValueNotComprehended,
                                    informationElementMissing,
                                    messageExtensionNotComprehended,
                                    spare2, spare1 }

ProtocolErrorIndicator ::=         ENUMERATED {
                                    noError, errorOccurred }

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

ProtocolErrorMoreInformation ::=   SEQUENCE {
    diagnosticsType                    CHOICE {
        type1                              CHOICE {
            asn1-ViolationOrEncodingError      NULL,
            messageTypeNonexistent             NULL,
            messageNotCompatibleWithReceiverState
                                               IdentificationOfReceivedMessage,
            ie-ValueNotComprehended            IdentificationOfReceivedMessage,
            conditionalInformationElementError IdentificationOfReceivedMessage,
            messageExtensionNotComprehended    IdentificationOfReceivedMessage,
            spare1                             NULL,
            spare2                             NULL
        },
        spare                              NULL
    }
}

RadioFrequencyBandFDD ::=          ENUMERATED {
                                    fdd2100,
                                    fdd1900,
                                    spare6, spare5, spare4, spare3, spare2, spare1}

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

RadioFrequencyBandTDD ::=          ENUMERATED {a, b, c, spare}

RadioFrequencyBandGSM ::=          ENUMERATED {
                                    gsm450,
                                    gsm480,
                                    gsm850,
                                    gsm900P,
                                    gsm900E,
                                    gsm1800,
                                    gsm1900,
                                    spare9, spare8, spare7, spare6, spare5,
                                    spare4, spare3, spare2, spare1}

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

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

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

RejectionCause ::=                 ENUMERATED {
```

```
                                            congestion,
                                            unspecified }

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

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

}

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

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


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

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

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

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

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

SecurityCapability ::=              SEQUENCE {
    cipheringAlgorithmCap               BIT STRING {
                                            spare15(0),
                                            spare14(1),
                                            spare13(2),
                                            spare12(3),
                                            spare11(4),
                                            spare10(5),
                                            spare9(6),
                                            spare8(7),
                                            spare7(8),
                                            spare6(9),
                                            spare5(10),
                                            spare4(11),
                                            spare3(12),
                                            spare2(13),
                                            uea1(14),
                                            uea0(15)
                                        }   (SIZE (16)),
    integrityProtectionAlgorithmCap     BIT STRING {
                                            spare15(0),
                                            spare14(1),
                                            spare13(2),
                                            spare12(3),
                                            spare11(4),
                                            spare10(5),
                                            spare9(6),
                                            spare8(7),
                                            spare7(8),
                                            spare6(9),
                                            spare5(10),
```

```
                                                spare4(11),
                                                spare3(12),
                                                spare2(13),
                                                uia1(14),
                                                spare0(15)
                                                }   (SIZE (16))
}

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


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


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

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

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

SystemSpecificCapUpdateReq ::=      ENUMERATED {
                                        gsm }

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


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

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

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

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

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

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

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

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

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

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

-- The value 0 for T-312 is not used in this version of the specification
T-312 ::=                              INTEGER (0..15)

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

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

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

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

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

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

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

TMSI-DS-41 ::=                         OCTET STRING (SIZE (2..17))

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

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

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

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

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

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

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

UE-ConnTimersAndConstants ::=          SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this version of the specification
    t-301                              T-301                            DEFAULT ms2000,
    n-301                              N-301                            DEFAULT 2,
    t-302                              T-302                            DEFAULT ms4000,
    n-302                              N-302                            DEFAULT 3,
    t-304                              T-304                            DEFAULT ms2000,
    n-304                              N-304                            DEFAULT 2,
    t-305                              T-305                            DEFAULT m30,
    t-307                              T-307                            DEFAULT s30,
    t-308                              T-308                            DEFAULT ms160,
```

```
    t-309                                 T-309                                 DEFAULT 5,
    t-310                                 T-310                                 DEFAULT ms160,
    n-310                                 N-310                                 DEFAULT 4,
    t-311                                 T-311                                 DEFAULT ms2000,
    t-312                                 T-312                                 DEFAULT 1,
    -- n-312 shall be ignored if n-312 in UE-ConnTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
    n-312                                 N-312                                 DEFAULT s1,
    t-313                                 T-313                                 DEFAULT 3,
    n-313                                 N-313                                 DEFAULT s20,
    t-314                                 T-314                                 DEFAULT s12,
    t-315                                 T-315                                 DEFAULT s180,
    -- n-315 shall be ignored if n-315 in UE-ConnTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
    n-315                                 N-315                                 DEFAULT s1,
    t-316                                 T-316                                 DEFAULT s30,
    t-317                                 T-317                                 DEFAULT s180
}

UE-ConnTimersAndConstants-v3a0ext ::=     SEQUENCE {
    n-312                                 N-312ext                              OPTIONAL,
    n-315                                 N-315ext                              OPTIONAL
}

UE-IdleTimersAndConstants ::=         SEQUENCE {
    t-300                                 T-300,
    n-300                                 N-300,
    t-312                                 T-312,
    -- n-312 shall be ignored if n-312 in UE-IdleTimersAndConstants-v3a0ext is present, and the
    -- value of that element shall be used instead.
    n-312                                 N-312
}

UE-IdleTimersAndConstants-v3a0ext ::=     SEQUENCE {
    n-312                                 N-312ext                              OPTIONAL
}

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

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

UE-PowerClassExt ::=                 ENUMERATED {class1, class2, class3, class4, spare4, spare3,
spare2, spare1}

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

UE-RadioAccessCapabilityInfo::=      SEQUENCE {
    ue-RadioAccessCapability              UE-RadioAccessCapability,
    ue-RadioAccessCapability-v370ext      UE-RadioAccessCapability-v370ext
}

UE-RadioAccessCapability-v370ext::=      SEQUENCE {
    ue-RadioAccessCapabBandFDDList        UE-RadioAccessCapabBandFDDList
}

UE-RadioAccessCapability-v380ext::=      SEQUENCE {
    ue-PositioningCapabilityExt-v380      UE-PositioningCapabilityExt-v380
}

UE-RadioAccessCapability-v3a0ext ::=     SEQUENCE {
    ue-PositioningCapabilityExt-v3a0      UE-PositioningCapabilityExt-v3a0
}

UE-PositioningCapabilityExt-v380 ::=     SEQUENCE {
```

```
    rx-tx-TimeDifferenceType2Capable    BOOLEAN
}

UE-PositioningCapabilityExt-v3a0 ::=    SEQUENCE {
    validity-CellPCH-UraPCH             ENUMERATED { true }
}


UE-RadioAccessCapabBandFDDList ::=  SEQUENCE (SIZE (1..maxFreqBandsFDD)) OF
                                        UE-RadioAccessCapabBandFDD

UE-RadioAccessCapabBandFDD ::=      SEQUENCE{
    radioFrequencyBandFDD               RadioFrequencyBandFDD,
    fddRF-Capability                    SEQUENCE {
        ue-PowerClass                   UE-PowerClassExt,
        txRxFrequencySeparation         TxRxFrequencySeparation
    }                                                           OPTIONAL,
    measurementCapability               MeasurementCapabilityExt
}

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

UL-PhysChCapabilityTDD ::=          SEQUENCE {
    maxTS-PerFrame                      MaxTS-PerFrame,
    maxPhysChPerTimeslot                MaxPhysChPerTimeslot,
    minimumSF                           MinimumSF-UL,
    supportOfPUSCH                      BOOLEAN
}

UL-TransChCapability ::=            SEQUENCE {
    maxNoBitsTransmitted                MaxNoBits,
    maxConvCodeBitsTransmitted          MaxNoBits,
    turboEncodingSupport                TurboSupport,
    maxSimultaneousTransChs             MaxSimultaneousTransChsUL,
    modeSpecificInfo                    CHOICE {
        fdd                                 NULL,
        tdd                                 SEQUENCE {
            maxSimultaneousCCTrCH-Count         MaxSimultaneousCCTrCH-Count
        }
    },
    maxTransmittedBlocks                MaxTransportBlocksUL,
    maxNumberOfTFC                      MaxNumberOfTFC-UL,
    maxNumberOfTF                       MaxNumberOfTF
}

UE-Positioning-Capability ::=                       SEQUENCE {
    standaloneLocMethodsSupported          BOOLEAN,
    ue-BasedOTDOA-Supported                BOOLEAN,
    networkAssistedGPS-Supported           NetworkAssistedGPS-Supported,
    supportForUE-GPS-TimingOfCellFrames    BOOLEAN,
    supportForIPDL                         BOOLEAN
}

UE-SecurityInformation ::=          SEQUENCE {
    start-CS                            START-Value
}

URA-UpdateCause ::=                 ENUMERATED {
                                        changeOfURA,
                                        periodicURAUpdate,
                                        dummy,
                                        spare1 }

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

WaitTime ::=                        INTEGER (0..15)

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

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

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

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

DefaultConfigIdentity ::=           INTEGER (0..10)

DefaultConfigMode ::=               ENUMERATED {
                                        fdd,
                                        tdd }

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

DL-CounterSynchronisationInfo ::=   SEQUENCE {
    rB-WithPDCP-InfoList                    RB-WithPDCP-InfoList    OPTIONAL
}

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

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

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

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

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

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

ExpectReordering ::=                ENUMERATED {
                                        reorderingNotExpected,
                                        reorderingExpected }

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

HeaderCompressionInfo ::=           SEQUENCE {
    algorithmSpecificInfo               AlgorithmSpecificInfo
}

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

LogicalChannelIdentity ::=          INTEGER (1..15)

LosslessSRNS-RelocSupport ::=       CHOICE {
    supported                           MaxPDCP-SN-WindowSize,
```

```
    notSupported                    NULL
}

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

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

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

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

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

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

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

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

PDCP-InfoReconfig ::=               SEQUENCE {
    pdcp-Info                       PDCP-Info,
    -- dummy is not used in this version of the specification and
    -- it should be ignored.
    dummy                           INTEGER (0..65535)
}

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

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

Poll-PDU ::=                        ENUMERATED {
                                        pdu1, pdu2, pdu4, pdu8, pdu16,
                                        pdu32, pdu64, pdu128 }

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

PollingInfo ::=                     SEQUENCE {
    timerPollProhibit               TimerPollProhibit                OPTIONAL,
    timerPoll                       TimerPoll                        OPTIONAL,
    poll-PDU                        Poll-PDU                         OPTIONAL,
    poll-SDU                        Poll-SDU                         OPTIONAL,
    lastTransmissionPDU-Poll        BOOLEAN,
    lastRetransmissionPDU-Poll      BOOLEAN,
    pollWindow                      PollWindow                       OPTIONAL,
    timerPollPeriodic               TimerPollPeriodic                OPTIONAL
}

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

PredefinedConfigIdentity ::=        INTEGER (0..15)

PredefinedConfigValueTag ::=        INTEGER (0..15)

PredefinedRB-Configuration ::=      SEQUENCE {
```

```
    re-EstablishmentTimer              Re-EstablishmentTimer,
    srb-InformationList                SRB-InformationSetupList,
    rb-InformationList                 RB-InformationSetupList
}

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

PredefinedConfigStatusList ::=             SEQUENCE (SIZE (maxPredefConfig)) OF
                                           PredefinedConfigStatusInfo

PredefinedConfigStatusInfo::=      CHOICE {
    storedWithValueTagSameAsPrevius    NULL,
    other                              CHOICE {
        notStored                          NULL,
        storedWithDifferentValueTag        PredefinedConfigValueTag
    }
}

RAB-Info ::=                       SEQUENCE {
    rab-Identity                       RAB-Identity,
    cn-DomainIdentity                  CN-DomainIdentity,
    nas-Synchronisation-Indicator      NAS-Synchronisation-Indicator   OPTIONAL,
    re-EstablishmentTimer              Re-EstablishmentTimer
}
RAB-InformationList        ::=     SEQUENCE (SIZE (1..maxRABsetup)) OF
                                   RAB-Info

RAB-InformationReconfigList ::=  SEQUENCE (SIZE (1.. maxRABsetup)) OF
                                   RAB-InformationReconfig

RAB-InformationReconfig ::=        SEQUENCE {
    rab-Identity                       RAB-Identity,
    cn-DomainIdentity                  CN-DomainIdentity,
    nas-Synchronisation-Indicator      NAS-Synchronisation-Indicator
}

RAB-Info-Post ::=                  SEQUENCE {
    rab-Identity                       RAB-Identity,
    cn-DomainIdentity                  CN-DomainIdentity,
    nas-Synchronisation-Indicator      NAS-Synchronisation-Indicator   OPTIONAL
}

RAB-InformationSetup ::=           SEQUENCE {
    rab-Info                           RAB-Info,
    rb-InformationSetupList            RB-InformationSetupList
}

RAB-InformationSetupList ::=       SEQUENCE (SIZE (1..maxRABsetup)) OF
                                   RAB-InformationSetup

RB-ActivationTimeInfo ::=          SEQUENCE {
    rb-Identity                        RB-Identity,
    rlc-SequenceNumber                 RLC-SequenceNumber
}

RB-ActivationTimeInfoList ::=      SEQUENCE (SIZE (1..maxRB)) OF
                                   RB-ActivationTimeInfo

RB-COUNT-C-Information ::=         SEQUENCE {
    rb-Identity                        RB-Identity,
    count-C-UL                         COUNT-C,
    count-C-DL                         COUNT-C
}

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

RB-COUNT-C-MSB-Information ::=     SEQUENCE {
    rb-Identity                        RB-Identity,
    count-C-MSB-UL                     COUNT-C-MSB,
    count-C-MSB-DL                     COUNT-C-MSB
```

```
}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

RLC-InfoChoice ::=                CHOICE {
    rlc-Info                      RLC-Info,
    same-as-RB                    RB-Identity
}

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

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

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

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

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

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

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

TimerEPC ::=                      ENUMERATED {
                                  te50, te60, te70, te80, te90,
                                  te100, te120, te140, te160, te180,
                                  te200, te300, te400, te500, te700,
                                  te900 }

TimerMRW ::=                      ENUMERATED {
                                  te50, te60, te70, te80, te90, te100,
                                  te120, te140, te160, te180, te200,
                                  te300, te400, te500, te700, te900 }

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

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

TimerPollProhibit ::=             ENUMERATED {
                                  tpp10, tpp20, tpp30, tpp40, tpp50,
                                  tpp60, tpp70, tpp80, tpp90, tpp100,
                                  tpp110, tpp120, tpp130, tpp140, tpp150,
                                  tpp160, tpp170, tpp180, tpp190, tpp200,
                                  tpp210, tpp220, tpp230, tpp240, tpp250,
                                  tpp260, tpp270, tpp280, tpp290, tpp300,
                                  tpp310, tpp320, tpp330, tpp340, tpp350,
                                  tpp360, tpp370, tpp380, tpp390, tpp400,
                                  tpp410, tpp420, tpp430, tpp440, tpp450,
```

```
                                        tpp460, tpp470, tpp480, tpp490, tpp500,
                                        tpp510, tpp520, tpp530, tpp540, tpp550,
                                        tpp600, tpp650, tpp700, tpp750, tpp800,
                                        tpp850, tpp900, tpp950, tpp1000 }

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

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

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

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

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

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

UL-CounterSynchronisationInfo ::=  SEQUENCE {
    rB-WithPDCP-InfoList               RB-WithPDCP-InfoList    OPTIONAL,
    startList                          STARTList
}

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

UL-LogicalChannelMappingList ::=   SEQUENCE {
    -- rlc-LogicalChannelMappingIndicator shall be set to TRUE in this version
    -- of the specification
    rlc-LogicalChannelMappingIndicator BOOLEAN,
    ul-LogicalChannelMapping           SEQUENCE (SIZE (maxLoCHperRLC)) OF
                                       UL-LogicalChannelMapping
}

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

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

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

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

}

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

-- *************************************************
--
--     TRANSPORT CHANNEL INFORMATION ELEMENTS (10.3.5)
--
-- *************************************************

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

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

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

-- Actual value BLER-QualityValue = IE value * 0.1
BLER-QualityValue ::=             INTEGER (-63..0)

ChannelCodingType ::=             CHOICE {
    -- the option 'noCoding' is only used for TDD in this version of the specification,
    -- otherwise it should be ignored
    noCoding                          NULL,
    convolutional                     CodingRate,
    turbo                             NULL
}

CodingRate ::=                    ENUMERATED {
                                      half,
                                      third }

CommonDynamicTF-Info ::=          SEQUENCE {
    rlc-Size                          CHOICE {
        fdd                               SEQUENCE {
            octetModeRLC-SizeInfoType2        OctetModeRLC-SizeInfoType2
        },
        tdd                               SEQUENCE {
            commonTDD-Choice                  CHOICE {
```

```
                bitModeRLC-SizeInfo                   BitModeRLC-SizeInfo,
                octetModeRLC-SizeInfoType1            OctetModeRLC-SizeInfoType1
            }
        }
    },
    numberOfTbSizeList              SEQUENCE (SIZE (1..maxTF)) OF
                                        NumberOfTransportBlocks,
    logicalChannelList              LogicalChannelList
}

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

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

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

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

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

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

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

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

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

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

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

-- The maximum allowed size of DL-AddReconfTransChInfo2List sequence is 16
```

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


-- The maximum allowed size of DL-AddReconfTransChInfoList sequence is 16
DL-AddReconfTransChInfoList ::=     SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                        DL-AddReconfTransChInformation


-- ASN.1 for IE "Added or Reconfigured DL TrCH information"
-- in case of messages other than: Radio Bearer Release message and
-- Radio Bearer Reconfiguration message
DL-AddReconfTransChInformation ::=  SEQUENCE {
    dl-TransportChannelType         DL-TrCH-Type,
    dl-transportChannelIdentity     TransportChannelIdentity,
    tfs-SignallingMode              CHOICE {
        explicit-config                 TransportFormatSet,
        sameAsULTrCH                    UL-TransportChannelIdentity
    },
    dch-QualityTarget               QualityTarget               OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    dummy                           TM-SignallingInfo           OPTIONAL
}


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


DL-CommonTransChInfo ::=            SEQUENCE {
    sccpch-TFCS                     TFCS                                OPTIONAL,
    -- modeSpecificInfo should be optional. A new version of this IE should be defined
    -- to be used in later versions of messages using this IE
    modeSpecificInfo                CHOICE {
        fdd                             SEQUENCE {
            dl-Parameters                   CHOICE {
                dl-DCH-TFCS                     TFCS,
                sameAsUL                        NULL
            }                                                   OPTIONAL
        },
        tdd                             SEQUENCE {
            individualDL-CCTrCH-InfoList    IndividualDL-CCTrCH-InfoList
                                                                OPTIONAL
        }
    }
}


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


DL-TransportChannelIdentity ::=     SEQUENCE {
    dl-TransportChannelType         DL-TrCH-Type,
    dl-TransportChannelIdentity     TransportChannelIdentity
}


DL-TrCH-Type ::= ENUMERATED {dch, dsch}


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


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


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


ExplicitTFCS-Configuration ::=      CHOICE {
    complete                        TFCS-ReconfAdd,
    addition                        TFCS-ReconfAdd,
```

```
    removal                         TFCS-RemovalList,
    replacement                     SEQUENCE {
        tfcsRemoval                     TFCS-RemovalList,
        tfcsAdd                         TFCS-ReconfAdd
    }
}

GainFactor ::=                  INTEGER (0..15)

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

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

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

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

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

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

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

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

MessType ::=                    ENUMERATED {
                                    transportFormatCombinationControl }

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

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

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

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

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

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

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

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

RateMatchingAttribute ::=           INTEGER (1..hiRM)


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

RestrictedTrChInfo ::=               SEQUENCE {
    ul-TransportChannelType          UL-TrCH-Type,
    restrictedTrChIdentity           TransportChannelIdentity,
    allowedTFI-List                  AllowedTFI-List             OPTIONAL
}

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

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

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

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

SplitType ::=                        ENUMERATED {
                                         hardSplit, logicalSplit }

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

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

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

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

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

TFCS ::=                            CHOICE {
    normalTFCI-Signalling               ExplicitTFCS-Configuration,
    splitTFCI-Signalling                SplitTFCI-Signalling
}

TFCS-Identity ::=                   SEQUENCE {
    tfcs-ID                             TFCS-IdentityPlain            DEFAULT 1,
    sharedChannelIndicator              BOOLEAN
}

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

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

TFCS-ReconfAdd ::=                  SEQUENCE{
    ctfcSize                            CHOICE{
        ctfc2Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc2                               INTEGER (0..3),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc4Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc4                               INTEGER (0..15),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc6Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc6                               INTEGER (0..63),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc8Bit                            SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc8                               INTEGER (0..255),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc12Bit                           SEQUENCE (SIZE(1..maxTFC)) OF SEQUENCE {
            ctfc12                              INTEGER (0..4095),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc16Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc16                              INTEGER(0..65535),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        },
        ctfc24Bit                           SEQUENCE (SIZE (1..maxTFC)) OF SEQUENCE {
            ctfc24                              INTEGER(0..16777215),
            powerOffsetInformation              PowerOffsetInformation      OPTIONAL
        }
    }
}

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

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

```
TimeDurationBeforeRetry ::=          INTEGER (1..256)

TM-SignallingInfo   ::=              SEQUENCE {
    messType                             MessType,
    tm-SignallingMode                    CHOICE {
        mode1                                NULL,
        mode2                                SEQUENCE {
            -- In ul-controlledTrChList, TrCH-Type is always DCH
            ul-controlledTrChList                UL-ControlledTrChList
        }
    }
}

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

TransmissionTimeValidity ::=         INTEGER (1..256)

TransportChannelIdentity ::=         INTEGER (1..32)

TransportChannelIdentityDCHandDSCH  ::= SEQUENCE {
    dch-transport-ch-id              TransportChannelIdentity,
    dsch-transport-ch-id             TransportChannelIdentity
}

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

-- The maximum allowed size of UL-AddReconfTransChInfoList sequence is 16
UL-AddReconfTransChInfoList ::=      SEQUENCE (SIZE (1..maxTrCHpreconf)) OF
                                     UL-AddReconfTransChInformation

UL-AddReconfTransChInformation ::= SEQUENCE {
    ul-TransportChannelType          UL-TrCH-Type,
    transportChannelIdentity         TransportChannelIdentity,
    transportFormatSet               TransportFormatSet
}

UL-CommonTransChInfo ::=             SEQUENCE {
    -- tfc-Subset is applicable to FDD only, TDD specifies tfc-subset in
    -- individual CCTrCH Info
    tfc-Subset                       TFC-Subset                          OPTIONAL,
    prach-TFCS                       TFCS                                OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                              SEQUENCE {
            ul-TFCS                          TFCS
        },
        tdd                              SEQUENCE {

            individualUL-CCTrCH-InfoList     IndividualUL-CCTrCH-InfoList
                                                                         OPTIONAL
        }
    }                                                                    OPTIONAL
}

-- in UL-ControlledTrChList TrCH-Type is always DCH
UL-ControlledTrChList ::=            SEQUENCE (SIZE (1..maxTrCH)) OF
                                     TransportChannelIdentity

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

UL-TransportChannelIdentity ::=      SEQUENCE {
    ul-TransportChannelType          UL-TrCH-Type,
    ul-TransportChannelIdentity      TransportChannelIdentity
}

UL-TrCH-Type ::= ENUMERATED {dch, usch}

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

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

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

AccessServiceClass-FDD ::=              SEQUENCE {
    availableSignatureStartIndex            INTEGER (0..15),
    availableSignatureEndIndex              INTEGER (0..15),

    assignedSubChannelNumber                BIT STRING {
                                                b3(0),
                                                b2(1),
                                                b1(2),
                                                b0(3)
                                                } (SIZE(4))
}

AccessServiceClass-TDD ::=              SEQUENCE {
    channelisationCodeIndices               BIT STRING {
                                                chCodeIndex7(0),
                                                chCodeIndex6(1),
                                                chCodeIndex5(2),
                                                chCodeIndex4(3),
                                                chCodeIndex3(4),
                                                chCodeIndex2(5),
                                                chCodeIndex1(6),
                                                chCodeIndex0(7)
                                                } (SIZE(8))         OPTIONAL,
    subchannelSize                          CHOICE {
        size1                                   NULL,
        size2                                   SEQUENCE {
            -- subch0 means bitstring '01' in the tabular, subch1 means bitsring '10'
            subchannels                             ENUMERATED { subch0, subch1 }  OPTIONAL
        },
        size4                                   SEQUENCE {
            subchannels                             BIT STRING {
                                                        subCh3(0),
                                                        subCh2(1),
                                                        subCh1(2),
                                                        subCh0(3)
                                                        } (SIZE(4))    OPTIONAL
        },
        size8                                   SEQUENCE {
            subchannels                             BIT STRING {
                                                        subCh7(0),
                                                        subCh6(1),
                                                        subCh5(2),
                                                        subCh4(3),
                                                        subCh3(4),
                                                        subCh2(5),
                                                        subCh1(6),
                                                        subCh0(7)
                                                        } (SIZE(8))    OPTIONAL
        }
    }
}

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

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

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

AllocationPeriodInfo ::=                SEQUENCE {
    allocationActivationTime                INTEGER (0..255),
    allocationDuration                      INTEGER (1..256)
}
-- Actual value Alpha = IE value * 0.125
Alpha ::=                               INTEGER (0..8)

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

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

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

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

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

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

ASCSetting-TDD ::=                      SEQUENCE {
    -- TABULAR: accessServiceClass-TDD is MD in tabular description
    -- Default value is previous ASC
    -- If this is the first ASC, the default value is all available channelisation codes and
    -- all available sub-channels with subchannelSize=size1.
    accessServiceClass-TDD              AccessServiceClass-TDD  OPTIONAL
}

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

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

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

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

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

AvailableSignatures ::=         BIT STRING {
                                    signature15(0),
                                    signature14(1),
                                    signature13(2),
                                    signature12(3),
                                    signature11(4),
                                    signature10(5),
                                    signature9(6),
                                    signature8(7),
                                    signature7(8),
                                    signature6(9),
                                    signature5(10),
                                    signature4(11),
                                    signature3(12),
                                    signature2(13),
                                    signature1(14),
                                    signature0(15)
                                    }   (SIZE(16))

AvailableSubChannelNumbers ::=      BIT STRING {
                                    subCh11(0),
                                    subCh10(1),
                                    subCh9(2),
                                    subCh8(3),
                                    subCh7(4),
                                    subCh6(5),
                                    subCh5(6),
                                    subCh4(7),
                                    subCh3(8),
                                    subCh2(9),
                                    subCh1(10),
                                    subCh0(11)
                                    }   (SIZE(12))

BurstType ::=                       ENUMERATED {
```

```
                                            type1, type2 }

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

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

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

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

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

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

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

CellAndChannelIdentity ::=         SEQUENCE {
    burstType                           BurstType,
    midambleShift                       MidambleShiftLong,
    timeslot                            TimeslotNumber,
    cellParametersID                    CellParametersID
    }

CellParametersID ::=               INTEGER (0..127)

Cfntargetsfnframeoffset ::=         INTEGER(0..255)

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

ChannelisationCode256 ::=          INTEGER (0..255)

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

ClosedLoopTimingAdjMode ::=        ENUMERATED {
                                        slot1, slot2 }

CodeNumberDSCH ::=                 INTEGER (0..255)

CodeRange ::=                      SEQUENCE {
    pdsch-CodeMapList                   PDSCH-CodeMapList
}

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

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

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

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

```
ConstantValueTdd ::=              INTEGER (-35..10)

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

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

CPCH-SetInfo ::=                  SEQUENCE {
    cpch-SetID                        CPCH-SetID,
    transportFormatSet                TransportFormatSet,
    tfcs                              TFCS,
    ap-PreambleScramblingCode         AP-PreambleScramblingCode,
    ap-AICH-ChannelisationCode        AP-AICH-ChannelisationCode,
    cd-PreambleScramblingCode         CD-PreambleScramblingCode,
    cd-CA-ICH-ChannelisationCode      CD-CA-ICH-ChannelisationCode,
    cd-AccessSlotSubchannelList       CD-AccessSlotSubchannelList       OPTIONAL,
    cd-SignatureCodeList              CD-SignatureCodeList              OPTIONAL,
    deltaPp-m                         DeltaPp-m,
    ul-DPCCH-SlotFormat               UL-DPCCH-SlotFormat,
    n-StartMessage                    N-StartMessage,
    n-EOT                             N-EOT,
    -- TABULAR: VCAM info has been nested inside ChannelAssignmentActive,
    -- which in turn is mandatory since it's only a binary choice.
    channelAssignmentActive           ChannelAssignmentActive,
    cpch-StatusIndicationMode         CPCH-StatusIndicationMode,
    pcpch-ChannelInfoList             PCPCH-ChannelInfoList
}

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

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

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

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

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

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

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

DL-CCTrCh ::=                     SEQUENCE {
    tfcs-ID                           TFCS-IdentityPlain               DEFAULT 1,
    timeInfo                          TimeInfo,
    commonTimeslotInfo                CommonTimeslotInfo               OPTIONAL,
    dl-CCTrCH-TimeslotsCodes          DownlinkTimeslotsCodes           OPTIONAL,
    ul-CCTrChTPCList                  UL-CCTrChTPCList                 OPTIONAL
}

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

DL-CCTrChListToRemove ::=         SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                      TFCS-IdentityPlain

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

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

DL-CommonInformation ::=          SEQUENCE {
    dl-DPCH-InfoCommon                DL-DPCH-InfoCommon               OPTIONAL,
```

```
    modeSpecificInfo                   CHOICE {
        fdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueFDD  OPTIONAL,
            dpch-CompressedModeInfo             DPCH-CompressedModeInfo     OPTIONAL,
            tx-DiversityMode                    TX-DiversityMode            OPTIONAL,
            ssdt-Information                    SSDT-Information            OPTIONAL
        },
        tdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueTDD  OPTIONAL
        }
    }
}

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

DL-CommonInformationPredef ::=      SEQUENCE {
    dl-DPCH-InfoCommon                  DL-DPCH-InfoCommonPredef    OPTIONAL
}

DL-CompressedModeMethod ::=         ENUMERATED {
                                    puncturing, sf-2,
                                    higherLayerScheduling }

DL-DPCH-InfoCommon ::=              SEQUENCE {
    cfnHandling                         CHOICE {
        maintain                            NULL,
        initialise                          SEQUENCE {
            cfntargetsfnframeoffset             Cfntargetsfnframeoffset         OPTIONAL
        }
    },
    modeSpecificInfo                   CHOICE {
        fdd                                 SEQUENCE {
            dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo        OPTIONAL,
            powerOffsetPilot-pdpdch            PowerOffsetPilot-pdpdch,
            dl-rate-matching-restriction       Dl-rate-matching-restriction    OPTIONAL,
            -- TABULAR: The number of pilot bits is nested inside the spreading factor
            spreadingFactorAndPilot            SF512-AndPilot,
            positionFixedOrFlexible            PositionFixedOrFlexible,
            tfci-Existence                     BOOLEAN
        },
        tdd                                 SEQUENCE {
            dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo        OPTIONAL
        }
    }
}

DL-DPCH-InfoCommonPost ::=          SEQUENCE {
    dl-DPCH-PowerControlInfo            DL-DPCH-PowerControlInfo                OPTIONAL
}

DL-DPCH-InfoCommonPredef ::=        SEQUENCE {
    modeSpecificInfo                   CHOICE {
        fdd                                 SEQUENCE {
            -- TABULAR: The number of pilot bits is nested inside the spreading factor
            spreadingFactorAndPilot            SF512-AndPilot,
            positionFixedOrFlexible            PositionFixedOrFlexible,
            tfci-Existence                     BOOLEAN
        },
        tdd                                 SEQUENCE {
            commonTimeslotInfo                 CommonTimeslotInfo
        }
    }
}

DL-DPCH-InfoPerRL ::=               CHOICE {
    fdd                                 SEQUENCE {
        pCPICH-UsageForChannelEst          PCPICH-UsageForChannelEst,
        dpch-FrameOffset                   DPCH-FrameOffset,
        secondaryCPICH-Info                SecondaryCPICH-Info             OPTIONAL,
        dl-ChannelisationCodeList          DL-ChannelisationCodeList,
        tpc-CombinationIndex               TPC-CombinationIndex,
        ssdt-CellIdentity                  SSDT-CellIdentity               OPTIONAL,
        closedLoopTimingAdjMode            ClosedLoopTimingAdjMode         OPTIONAL
    },
    tdd                                 SEQUENCE {
        dl-CCTrChListToEstablish           DL-CCTrChList                   OPTIONAL,
```

```
        dl-CCTrChListToRemove               DL-CCTrChListToRemove           OPTIONAL
    }
}

DL-DPCH-InfoPerRL-PostFDD ::=                           SEQUENCE {
        pCPICH-UsageForChannelEst           PCPICH-UsageForChannelEst,
        dl-ChannelisationCode               DL-ChannelisationCode,
        tpc-CombinationIndex                TPC-CombinationIndex
}

DL-DPCH-InfoPerRL-PostTDD ::=           SEQUENCE {
    dl-DPCH-TimeslotsCodes              DownlinkTimeslotsCodes
}

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

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

DL-InformationPerRL ::=             SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info,
            pdsch-SHO-DCH-Info                  PDSCH-SHO-DCH-Info        OPTIONAL,
            pdsch-CodeMapping                   PDSCH-CodeMapping         OPTIONAL
        },
        tdd                                 PrimaryCCPCH-Info
    },
    dl-DPCH-InfoPerRL                   DL-DPCH-InfoPerRL                OPTIONAL,
    sccpch-InfoforFACH                  SCCPCH-InfoForFACH              OPTIONAL
}

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

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

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

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

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

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

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

DL-TS-ChannelisationCodesShort ::=  SEQUENCE {
    codesRepresentation                 CHOICE {
        consecutive                         SEQUENCE {
            firstChannelisationCode             DL-TS-ChannelisationCode,
            lastChannelisationCode              DL-TS-ChannelisationCode
        },
```

```
        bitmap                          BIT STRING {
                                                chCode16-SF16(0),
                                                chCode15-SF16(1),
                                                chCode14-SF16(2),
                                                chCode13-SF16(3),
                                                chCode12-SF16(4),
                                                chCode11-SF16(5),
                                                chCode10-SF16(6),
                                                chCode9-SF16(7),
                                                chCode8-SF16(8),
                                                chCode7-SF16(9),
                                                chCode6-SF16(10),
                                                chCode5-SF16(11),
                                                chCode4-SF16(12),
                                                chCode3-SF16(13),
                                                chCode2-SF16(14),
                                                chCode1-SF16(15)
                                                }   (SIZE (16))
    }
}

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

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

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

-- Actual value DPCCH-PowerOffset = IE value * 2.
DPCCH-PowerOffset ::=             INTEGER (-82..-3)


-- Actual value DPCCH-PowerOffset2 = 2 + (IE value * 4)
DPCCH-PowerOffset2 ::=           INTEGER (-28..-13)

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

DPCH-CompressedModeStatusInfo ::=   SEQUENCE {
    tgps-Reconfiguration-CFN         TGPS-Reconfiguration-CFN,
    tgp-SequenceShortList            SEQUENCE (SIZE (1..maxTGPS)) OF
                                         TGP-SequenceShort
}

TGPS-Reconfiguration-CFN ::=     INTEGER (0..255)

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

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

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

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

DurationTimeInfo ::=                INTEGER (1..4096)

DynamicPersistenceLevel ::=         INTEGER (1..8)

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

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

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

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

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

FrequencyInfoFDD ::=                SEQUENCE {
    uarfcn-UL                           UARFCN            OPTIONAL,
    uarfcn-DL                           UARFCN
}

FrequencyInfoTDD ::=                SEQUENCE {
    uarfcn-Nt                           UARFCN
}

IndividualTimeslotInfo ::=          SEQUENCE {
    timeslotNumber                      TimeslotNumber,
    tfci-Existence                      BOOLEAN,
    midambleShiftAndBurstType           MidambleShiftAndBurstType
}

IndividualTS-Interference ::=       SEQUENCE {
    timeslot                            TimeslotNumber,
    ul-TimeslotInterference             TDD-UL-Interference
}

IndividualTS-InterferenceList ::=   SEQUENCE (SIZE (1..maxTS)) OF
                                        IndividualTS-Interference

ITP ::=                             ENUMERATED {
                                        mode0, mode1 }

NidentifyAbort ::=  INTEGER (1..128)

MaxAllowedUL-TX-Power ::=           INTEGER (-50..33)

MaxAvailablePCPCH-Number ::=        INTEGER (1..64)

MaxTFCI-Field2Value ::=             INTEGER (1..1023)

MidambleConfigurationBurstType1and3 ::= ENUMERATED {ms4, ms8, ms16}

MidambleConfigurationBurstType2 ::=  ENUMERATED {ms3, ms6}

MidambleShiftAndBurstType ::=       SEQUENCE {
    burstType                           CHOICE {
        type1                               SEQUENCE {
            midambleConfigurationBurstType1and3 MidambleConfigurationBurstType1and3,
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftLong
```

```
                }
            }
        },
        type2                               SEQUENCE {
            midambleConfigurationBurstType2     MidambleConfigurationBurstType2,
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                commonMidamble                      NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftShort
                }
            }
        },
        type3                               SEQUENCE {
            midambleConfigurationBurstType1and3 MidambleConfigurationBurstType1and3,
            midambleAllocationMode              CHOICE {
                defaultMidamble                     NULL,
                ueSpecificMidamble                  SEQUENCE {
                    midambleShift                       MidambleShiftLong
                }
            }
        }
    }
}


MidambleShiftLong ::=           INTEGER (0..15)


MidambleShiftShort ::=          INTEGER (0..5)

MinimumSpreadingFactor ::=      ENUMERATED {
                                    sf4, sf8, sf16, sf32,
                                    sf64, sf128, sf256 }

MultiCodeInfo ::=               INTEGER (1..16)


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

N-GAP ::=                       ENUMERATED {
                                    f2, f4, f8 }


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

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

NB01 ::=                        INTEGER (0..50)

NF-Max ::=                      INTEGER (1..64)

NumberOfDPDCH ::=               INTEGER (1..maxDPDCH-UL)

NumberOfFBI-Bits ::=            INTEGER (1..2)

OpenLoopPowerControl-TDD ::=    SEQUENCE {
    primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power,
    alpha                               Alpha                       OPTIONAL,
    prach-ConstantValue                 ConstantValueTdd,
    dpch-ConstantValue                  ConstantValueTdd,
    pusch-ConstantValue                 ConstantValueTdd            OPTIONAL
}
PagingIndicatorLength ::=       ENUMERATED {
                                    pi4, pi8, pi16 }

PC-Preamble ::=                 INTEGER (0..7)

PCP-Length ::=                  ENUMERATED {
                                    as0, as8 }

PCPCH-ChannelInfo ::=           SEQUENCE {
    pcpch-UL-ScramblingCode             INTEGER (0..79),
    pcpch-DL-ChannelisationCode         INTEGER (0..511),
    pcpch-DL-ScramblingCode             SecondaryScramblingCode         OPTIONAL,
    pcp-Length                          PCP-Length,
    ucsm-Info                           UCSM-Info                       OPTIONAL
}

PCPCH-ChannelInfoList ::=       SEQUENCE (SIZE (1..maxPCPCHs)) OF
```

```
                                        PCPCH-ChannelInfo

PCPICH-UsageForChannelEst ::=        ENUMERATED {
                                        mayBeUsed,
                                        shallNotBeUsed }

PDSCH-CapacityAllocationInfo ::=    SEQUENCE {
    -- pdsch-PowerControlInfo is conditional on new-configuration branch below, if this
    -- selected the IE is OPTIONAL otherwise it should not be sent
    pdsch-PowerControlInfo              PDSCH-PowerControlInfo              OPTIONAL,
    pdsch-AllocationPeriodInfo          AllocationPeriodInfo,
    configuration                       CHOICE {
        old-Configuration                   SEQUENCE {
            tfcs-ID                             TFCS-IdentityPlain              DEFAULT 1,
            pdsch-Identity                      PDSCH-Identity
        },
        new-Configuration                   SEQUENCE {
            pdsch-Info                          PDSCH-Info,
            pdsch-Identity                      PDSCH-Identity                  OPTIONAL
        }
    }
}

PDSCH-CodeInfo ::=                  SEQUENCE {
    spreadingFactor                     SF-PDSCH,
    codeNumber                          CodeNumberDSCH,
    multiCodeInfo                       MultiCodeInfo
}

PDSCH-CodeInfoList ::=              SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                        PDSCH-CodeInfo

PDSCH-CodeMap ::=                  SEQUENCE {
    spreadingFactor                     SF-PDSCH,
    multiCodeInfo                       MultiCodeInfo,
    codeNumberStart                     CodeNumberDSCH,
    codeNumberStop                      CodeNumberDSCH
}

PDSCH-CodeMapList ::=              SEQUENCE (SIZE (1..maxPDSCH-TFCIgroups)) OF
                                        PDSCH-CodeMap

PDSCH-CodeMapping ::=              SEQUENCE {
    dl-ScramblingCode                   SecondaryScramblingCode             OPTIONAL,
    signallingMethod                    CHOICE {
        codeRange                           CodeRange,
        tfci-Range                          DSCH-MappingList,
        explicit-config                     PDSCH-CodeInfoList,
        replace                             ReplacedPDSCH-CodeInfoList
    }
}

PDSCH-Identity ::=                 INTEGER (1..hiPDSCHidentities)


PDSCH-Info ::=                     SEQUENCE {
    tfcs-ID                             TFCS-IdentityPlain              DEFAULT 1,
    commonTimeslotInfo                  CommonTimeslotInfo              OPTIONAL,
    pdsch-TimeslotsCodes                DownlinkTimeslotsCodes         OPTIONAL
}

PDSCH-PowerControlInfo ::=         SEQUENCE {
    tpc-StepSizeTDD                     TPC-StepSizeTDD                 OPTIONAL,
    ul-CCTrChTPCList                    UL-CCTrChTPCList               OPTIONAL
}

PDSCH-SHO-DCH-Info ::=             SEQUENCE {
    dsch-RadioLinkIdentifier            DSCH-RadioLinkIdentifier,
    rl-IdentifierList                   RL-IdentifierList             OPTIONAL
}

PDSCH-SysInfo ::=                  SEQUENCE {
    pdsch-Identity                      PDSCH-Identity,
    pdsch-Info                          PDSCH-Info,
    dsch-TFS                            TransportFormatSet             OPTIONAL,
    dsch-TFCS                           TFCS                          OPTIONAL
}
```

```
PDSCH-SysInfoList ::=                 SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          PDSCH-SysInfo

PDSCH-SysInfoList-SFN ::=             SEQUENCE (SIZE (1..maxPDSCH)) OF
                                          SEQUENCE {
    pdsch-SysInfo                         PDSCH-SysInfo,
    sfn-TimeInfo                          SFN-TimeInfo                 OPTIONAL
}

PersistenceScalingFactor ::=          ENUMERATED {
                                          psf0-9, psf0-8, psf0-7, psf0-6,
                                          psf0-5, psf0-4, psf0-3, psf0-2 }

PersistenceScalingFactorList ::=      SEQUENCE (SIZE (1..maxASCpersist)) OF
                                          PersistenceScalingFactor

PI-CountPerFrame ::=                  ENUMERATED {
                                          e18, e36, e72, e144 }

PICH-Info ::=                         CHOICE {
    fdd                                   SEQUENCE {
        channelisationCode256                 ChannelisationCode256,
        pi-CountPerFrame                      PI-CountPerFrame,
        sttd-Indicator                        BOOLEAN
    },
    tdd                                   SEQUENCE {
        channelisationCode                    TDD-PICH-CCode               OPTIONAL,
        timeslot                              TimeslotNumber               OPTIONAL,
        midambleShiftAndBurstType             MidambleShiftAndBurstType,
        repetitionPeriodLengthOffset          RepPerLengthOffset-PICH      OPTIONAL,
        pagingIndicatorLength                 PagingIndicatorLength        DEFAULT pi4,
        n-GAP                                 N-GAP                        DEFAULT f4,
        n-PCH                                 N-PCH                        DEFAULT 2
    }
}

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

PilotBits128 ::=                      ENUMERATED {
                                          pb4, pb8 }

PilotBits256 ::=                      ENUMERATED {
                                          pb2, pb4, pb8 }

PositionFixedOrFlexible ::=           ENUMERATED {
                                          fixed,
                                          flexible }

PowerControlAlgorithm ::=             CHOICE {
    algorithm1                            TPC-StepSizeFDD,
    algorithm2                            NULL
}

PowerOffsetPilot-pdpdch ::=           INTEGER (0..24)

PowerRampStep ::=                     INTEGER (1..8)

PRACH-Midamble ::=                    ENUMERATED {
                                          direct,
                                          direct-Inverted }

PRACH-Partitioning ::=                CHOICE {
    fdd                                   SEQUENCE (SIZE (1..maxASC)) OF
                                              ASCSetting-FDD,
    tdd                                   SEQUENCE (SIZE (1..maxASC)) OF
                                              ASCSetting-TDD
}

PRACH-PowerOffset ::=                 SEQUENCE {
    powerRampStep                         PowerRampStep,
    preambleRetransMax                    PreambleRetransMax
}

PRACH-RACH-Info ::=                   SEQUENCE {
    modeSpecificInfo                      CHOICE {
        fdd                                   SEQUENCE {
            availableSignatures                   AvailableSignatures,
            availableSF                           SF-PRACH,
```

```
                preambleScramblingCodeWordNumber     PreambleScramblingCodeWordNumber,
                puncturingLimit                      PuncturingLimit,
                availableSubChannelNumbers           AvailableSubChannelNumbers
            },
            tdd                                 SEQUENCE {
                timeslot                             TimeslotNumber,
                channelisationCodeList               TDD-PRACH-CCodeList,
                prach-Midamble                       PRACH-Midamble
            }
        }
    }
}

PRACH-SystemInformation ::=         SEQUENCE {
    prach-RACH-Info                     PRACH-RACH-Info,
    transportChannelIdentity            TransportChannelIdentity,
    rach-TransportFormatSet             TransportFormatSet              OPTIONAL,
    rach-TFCS                           TFCS                           OPTIONAL,
    prach-Partitioning                  PRACH-Partitioning             OPTIONAL,
    persistenceScalingFactorList        PersistenceScalingFactorList   OPTIONAL,
    ac-To-ASC-MappingTable              AC-To-ASC-MappingTable         OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power      OPTIONAL,
            constantValue                       ConstantValue              OPTIONAL,
            prach-PowerOffset                   PRACH-PowerOffset          OPTIONAL,
            rach-TransmissionParameters         RACH-TransmissionParameters OPTIONAL,
            aich-Info                           AICH-Info                  OPTIONAL
        },
        tdd                                 NULL
    }
}

PRACH-SystemInformationList ::=     SEQUENCE (SIZE (1..maxPRACH)) OF
                                    PRACH-SystemInformation

PreambleRetransMax ::=              INTEGER (1..64)

PreambleScramblingCodeWordNumber ::=    INTEGER (0..15)

PreDefPhyChConfiguration ::=        SEQUENCE {
    ul-DPCH-InfoPredef                  UL-DPCH-InfoPredef,
    dl-CommonInformationPredef          DL-CommonInformationPredef  OPTIONAL
}

PrimaryCCPCH-Info ::=               CHOICE {
    fdd                                 SEQUENCE {
        tx-DiversityIndicator               BOOLEAN
    },
    tdd                                 SEQUENCE {
        syncCase                            CHOICE {
            syncCase1                           SEQUENCE {
                timeslot                            TimeslotNumber
            },
            syncCase2                           SEQUENCE {
                timeslotSync2                       TimeslotSync2
            }
        }                                                       OPTIONAL,
        cellParametersID                    CellParametersID        OPTIONAL,
        sctd-Indicator                      BOOLEAN
    }
}

PrimaryCCPCH-InfoPost ::=           SEQUENCE {
    syncCase                            CHOICE {
        syncCase1                           SEQUENCE {
            timeslot                            TimeslotNumber
        },
        syncCase2                           SEQUENCE {
            timeslotSync2                       TimeslotSync2
        }
    },
    cellParametersID                    CellParametersID,
    sctd-Indicator                      BOOLEAN
}

PrimaryCCPCH-TX-Power ::=           INTEGER (6..43)

PrimaryCPICH-Info ::=               SEQUENCE {
```

```
    primaryScramblingCode              PrimaryScramblingCode
}

PrimaryCPICH-TX-Power ::=          INTEGER (-10..50)

PrimaryScramblingCode ::=          INTEGER (0..511)

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

PUSCH-CapacityAllocationInfo ::=   SEQUENCE {
    pusch-Allocation                   CHOICE {
        pusch-AllocationPending            NULL,
        pusch-AllocationAssignment             SEQUENCE {
            pusch-AllocationPeriodInfo         AllocationPeriodInfo,
            pusch-PowerControlInfo             UL-TargetSIR            OPTIONAL,
            configuration                      CHOICE {
                old-Configuration                  SEQUENCE {
                    tfcs-ID                            TFCS-IdentityPlain      DEFAULT 1,
                    pusch-Identity                     PUSCH-Identity
                },
                new-Configuration                  SEQUENCE {
                    pusch-Info                         PUSCH-Info,
                    pusch-Identity                     PUSCH-Identity     OPTIONAL
                }
            }
        }
    }
}

PUSCH-Identity ::=                 INTEGER (1..hiPUSCHidentities)

PUSCH-Info ::=                     SEQUENCE {
    tfcs-ID                            TFCS-IdentityPlain        DEFAULT 1,
    commonTimeslotInfo                 CommonTimeslotInfo        OPTIONAL,
    pusch-TimeslotsCodes               UplinkTimeslotsCodes      OPTIONAL
}

PUSCH-SysInfo ::=                  SEQUENCE {
    pusch-Identity                     PUSCH-Identity,
    pusch-Info                         PUSCH-Info,
    usch-TFS                           TransportFormatSet        OPTIONAL,
    usch-TFCS                          TFCS                      OPTIONAL
}

PUSCH-SysInfoList ::=              SEQUENCE (SIZE (1..maxPUSCH)) OF
                                      PUSCH-SysInfo

PUSCH-SysInfoList-SFN ::=          SEQUENCE (SIZE (1..maxPUSCH)) OF
                                      SEQUENCE {
    pusch-SysInfo                      PUSCH-SysInfo,
    sfn-TimeInfo                       SFN-TimeInfo              OPTIONAL
}

RACH-TransmissionParameters ::=    SEQUENCE {
    mmax                               INTEGER (1..32),
    nb01Min                            NB01,
    nb01Max                            NB01
}

ReducedScramblingCodeNumber ::=    INTEGER (0..8191)

RepetitionPeriodAndLength ::=      CHOICE {
    repetitionPeriod1                  NULL,
    -- repetitionPeriod2 could just as well be NULL also
    repetitionPeriod2                  INTEGER (1..1),
    repetitionPeriod4                  INTEGER (1..3),
    repetitionPeriod8                  INTEGER (1..7),
    repetitionPeriod16                 INTEGER (1..15),
    repetitionPeriod32                 INTEGER (1..31),
    repetitionbPeriod64                INTEGER (1..63)
}

RepetitionPeriodLengthAndOffset ::= CHOICE {
    repetitionPeriod1                  NULL,
    repetitionPeriod2                  SEQUENCE {
```

```
        length                          NULL,
        offset                          INTEGER (0..1)
    },
    repetitionPeriod4               SEQUENCE {
        length                          INTEGER (1..3),
        offset                          INTEGER (0..3)
    },
    repetitionPeriod8               SEQUENCE {
        length                          INTEGER (1..7),
        offset                          INTEGER (0..7)
    },
    repetitionPeriod16              SEQUENCE {
        length                          INTEGER (1..15),
        offset                          INTEGER (0..15)
    },
    repetitionPeriod32              SEQUENCE {
        length                          INTEGER (1..31),
        offset                          INTEGER (0..31)
    },
    repetitionPeriod64              SEQUENCE {
        length                          INTEGER (1..63),
        offset                          INTEGER (0..63)
    }
}

ReplacedPDSCH-CodeInfo ::=          SEQUENCE {
    tfci-Field2                     MaxTFCI-Field2Value,
    spreadingFactor                 SF-PDSCH,
    codeNumber                      CodeNumberDSCH,
    multiCodeInfo                   MultiCodeInfo
}

ReplacedPDSCH-CodeInfoList ::=      SEQUENCE (SIZE (1..maxTFCI-2-Combs)) OF
                                        ReplacedPDSCH-CodeInfo

RepPerLengthOffset-PICH ::=         CHOICE {
    rpp4-2                          INTEGER (0..3),
    rpp8-2                          INTEGER (0..7),
    rpp8-4                          INTEGER (0..7),
    rpp16-2                         INTEGER (0..15),
    rpp16-4                         INTEGER (0..15),
    rpp32-2                         INTEGER (0..31),
    rpp32-4                         INTEGER (0..31),
    rpp64-2                         INTEGER (0..63),
    rpp64-4                         INTEGER (0..63)
}

RestrictedTrCH ::=                  SEQUENCE {
    dl-restrictedTrCh-Type          DL-TrCH-Type,
    restrictedDL-TrCH-Identity      TransportChannelIdentity,
    allowedTFIList                  AllowedTFI-List
}

RestrictedTrCH-InfoList ::=         SEQUENCE (SIZE(1..maxTrCH)) OF
                                        RestrictedTrCH

RL-AdditionInformation ::=          SEQUENCE {
    primaryCPICH-Info               PrimaryCPICH-Info,
    dl-DPCH-InfoPerRL               DL-DPCH-InfoPerRL,
    tfci-CombiningIndicator         BOOLEAN,
    sccpch-InfoforFACH              SCCPCH-InfoForFACH                  OPTIONAL
}

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

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

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

RPP ::=                             ENUMERATED {
                                        mode0, mode1 }

S-Field ::=                         ENUMERATED {
                                        e1bit, e2bits }
```

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

SCCPCH-ChannelisationCodeList ::=     SEQUENCE (SIZE (1..16)) OF
                                          SCCPCH-ChannelisationCode

SCCPCH-InfoForFACH ::=                SEQUENCE {
    secondaryCCPCH-Info                   SecondaryCCPCH-Info,
    tfcs                                  TFCS,
    modeSpecificInfo                      CHOICE {
        fdd                                   SEQUENCE {
            fach-PCH-InformationList              FACH-PCH-InformationList,
            sib-ReferenceListFACH                 SIB-ReferenceListFACH
        },
        tdd                                   SEQUENCE {
            fach-PCH-InformationList              FACH-PCH-InformationList
        }
    }
}

SCCPCH-SystemInformation ::=          SEQUENCE {
    secondaryCCPCH-Info                   SecondaryCCPCH-Info,
    tfcs                                  TFCS                              OPTIONAL,
    fach-PCH-InformationList              FACH-PCH-InformationList          OPTIONAL,
    pich-Info                             PICH-Info                         OPTIONAL
}

SCCPCH-SystemInformationList ::=      SEQUENCE (SIZE (1..maxSCCPCH)) OF
                                          SCCPCH-SystemInformation

ScramblingCodeChange ::=              ENUMERATED {
                                          codeChange, noCodeChange }

ScramblingCodeType ::=                ENUMERATED {
                                          shortSC,
                                          longSC }

SecondaryCCPCH-Info ::=               SEQUENCE {
    modeSpecificInfo                      CHOICE {
        fdd                                   SEQUENCE {
            -- dummy1 is not used in this version of the specification and should be ignored.
            dummy1                                PCPICH-UsageForChannelEst,
            -- dummy2 is not used in this version of the specification. It should not
            -- be sent and if received it should be ignored.
            dummy2                                SecondaryCPICH-Info               OPTIONAL,
            secondaryScramblingCode               SecondaryScramblingCode           OPTIONAL,
            sttd-Indicator                        BOOLEAN,
            sf-AndCodeNumber                      SF256-AndCodeNumber,
            pilotSymbolExistence                  BOOLEAN,
            tfci-Existence                        BOOLEAN,
            positionFixedOrFlexible               PositionFixedOrFlexible,
            timingOffset                          TimingOffset                      DEFAULT 0
        },
        tdd                                   SEQUENCE {
            -- TABULAR: the offset is included in CommonTimeslotInfoSCCPCH
            commonTimeslotInfo                    CommonTimeslotInfoSCCPCH,
            individualTimeslotInfo                IndividualTimeslotInfo,
            channelisationCode                    SCCPCH-ChannelisationCodeList
        }
    }
}

SecondaryCPICH-Info ::=               SEQUENCE {
    secondaryDL-ScramblingCode            SecondaryScramblingCode           OPTIONAL,
    channelisationCode                    ChannelisationCode256
}

SecondaryScramblingCode ::=           INTEGER (1..15)

SecondInterleavingMode ::=            ENUMERATED {
                                          frameRelated, timeslotRelated }

-- SF256-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF256-AndCodeNumber ::=               CHOICE {
    sf4                                   INTEGER (0..3),
```

```
    sf8                             INTEGER (0..7),
    sf16                            INTEGER (0..15),
    sf32                            INTEGER (0..31),
    sf64                            INTEGER (0..63),
    sf128                           INTEGER (0..127),
    sf256                           INTEGER (0..255)
}

-- SF512-AndCodeNumber encodes both "Spreading factor" and "Code Number"
SF512-AndCodeNumber ::=         CHOICE {
    sf4                             INTEGER (0..3),
    sf8                             INTEGER (0..7),
    sf16                            INTEGER (0..15),
    sf32                            INTEGER (0..31),
    sf64                            INTEGER (0..63),
    sf128                           INTEGER (0..127),
    sf256                           INTEGER (0..255),
    sf512                           INTEGER (0..511)
}

-- SF512-AndPilot encodes both "Spreading factor" and "Number of bits for Pilot bits"
SF512-AndPilot ::=              CHOICE {
    sfd4                            NULL,
    sfd8                            NULL,
    sfd16                           NULL,
    sfd32                           NULL,
    sfd64                           NULL,
    sfd128                          PilotBits128,
    sfd256                          PilotBits256,
    sfd512                          NULL
}
SF-PDSCH ::=                     ENUMERATED {
                                    sfp4, sfp8, sfp16, sfp32,
                                    sfp64, sfp128, sfp256 }

SF-PRACH ::=                     ENUMERATED {
                                    sfpr32, sfpr64, sfpr128, sfpr256 }

SFN-TimeInfo ::=                 SEQUENCE {
    activationTimeSFN                INTEGER (0..4095),
    physChDuration                 DurationTimeInfo
}

SpecialBurstScheduling ::=       INTEGER (0..7)

SpreadingFactor::=               ENUMERATED {
                                    sf4, sf8, sf16, sf32,
                                    sf64, sf128, sf256 }

SRB-delay ::=                   INTEGER (0..7)

SSDT-CellIdentity ::=            ENUMERATED {
                                    ssdt-id-a, ssdt-id-b, ssdt-id-c,
                                    ssdt-id-d, ssdt-id-e, ssdt-id-f,
                                    ssdt-id-g, ssdt-id-h }

SSDT-Information ::=             SEQUENCE {
    s-Field                          S-Field,
    codeWordSet                      CodeWordSet
}

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

TDD-PRACH-CCode8 ::=            ENUMERATED {
                                    cc8-1, cc8-2, cc8-3, cc8-4,
                                    cc8-5, cc8-6, cc8-7, cc8-8 }

TDD-PRACH-CCode16 ::=           ENUMERATED {
                                    cc16-1, cc16-2, cc16-3, cc16-4,
                                    cc16-5, cc16-6, cc16-7, cc16-8,
                                    cc16-9, cc16-10, cc16-11, cc16-12,
                                    cc16-13, cc16-14, cc16-15, cc16-16 }

TDD-PRACH-CCodeList ::=         CHOICE {
```

```
    sf8                                 SEQUENCE (SIZE (1..8)) OF
                                            TDD-PRACH-CCode8,
    sf16                                SEQUENCE (SIZE (1..8)) OF
                                            TDD-PRACH-CCode16
}

TFC-ControlDuration ::=             ENUMERATED {
                                        tfc-cd1, tfc-cd2, tfc-cd4, tfc-cd8,
                                        tfc-cd16, tfc-cd24, tfc-cd32,
                                        tfc-cd48, tfc-cd64, tfc-cd128,
                                        tfc-cd192, tfc-cd256, tfc-cd512 }

TFCI-Coding ::=                     ENUMERATED {
                                        tfci-bits-4, tfci-bits-8,
                                        tfci-bits-16, tfci-bits-32 }

TGCFN ::=                           INTEGER (0..255)

-- In TGD, value 270 represents "undefined" in the tabular description.
TGD ::=                             INTEGER (15..270)

TGL ::=                             INTEGER (1..14)

TGMP ::=                            ENUMERATED {
                                        tdd-Measurement, fdd-Measurement,
                                        gsm-CarrierRSSIMeasurement,
                                        gsm-initialBSICIdentification, gsmBSICReconfirmation,
                                        multi-carrier }

TGP-Sequence ::=                    SEQUENCE {
    tgpsi                               TGPSI,
    tgps-Status                         CHOICE {
        activate                            SEQUENCE {
            tgcfn                               TGCFN
        },
        deactivate                          NULL
    },
    tgps-ConfigurationParams            TGPS-ConfigurationParams        OPTIONAL
}

TGP-SequenceList ::=                SEQUENCE (SIZE (1..maxTGPS)) OF
                                        TGP-Sequence

TGP-SequenceShort ::=               SEQUENCE {
    tgpsi                               TGPSI,
    tgps-Status                         CHOICE {
        activate                            SEQUENCE {
            tgcfn                               TGCFN
        },
        deactivate                          NULL
    }
}

TGPL ::=                            INTEGER (1..144)

-- TABULAR: In TGPRC, value 0 represents "infinity" in the tabular description.
TGPRC ::=                           INTEGER (0..511)

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

```
}

TGPSI ::=                          INTEGER (1..maxTGPS)

TGSN ::=                           INTEGER (0..14)

TimeInfo ::=                       SEQUENCE {
    activationTime                     ActivationTime                      OPTIONAL,
    durationTimeInfo                   DurationTimeInfo                    OPTIONAL
}

TimeslotList ::=                   SEQUENCE (SIZE (1..maxTS)) OF
                                       TimeslotNumber

TimeslotNumber ::=                 INTEGER (0..14)

TimeslotSync2 ::=              INTEGER (0..6)

-- Actual value TimingOffset = IE value * 256
TimingOffset ::=                   INTEGER (0..149)

TPC-CombinationIndex ::=           INTEGER (0..5)

-- Actual value TPC-StepSizeFDD = IE value + 1
TPC-StepSizeFDD ::=                INTEGER (0..1)

TPC-StepSizeTDD ::=                INTEGER (1..3)

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

TX-DiversityMode ::=               ENUMERATED {
                                       noDiversity,
                                       sttd,
                                       closedLoopMode1,
                                       closedLoopMode2 }

UARFCN ::=                         INTEGER (0..16383)

UCSM-Info ::=                      SEQUENCE {
    minimumSpreadingFactor             MinimumSpreadingFactor,
    nf-Max                             NF-Max,
    channelReqParamsForUCSM            ChannelReqParamsForUCSM
}

UL-CCTrCH ::=                      SEQUENCE {
    tfcs-ID                            TFCS-IdentityPlain              DEFAULT 1,
    ul-TargetSIR                       UL-TargetSIR,
    timeInfo                           TimeInfo,
    commonTimeslotInfo                 CommonTimeslotInfo              OPTIONAL,
    ul-CCTrCH-TimeslotsCodes           UplinkTimeslotsCodes           OPTIONAL
}

UL-CCTrCHList ::=                  SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       UL-CCTrCH

UL-CCTrCHListToRemove ::=          SEQUENCE (SIZE (1..maxCCTrCH)) OF
                                       TFCS-IdentityPlain

-- The size of UL-CCTrChTPCList should be from 1..maxCCTrCH
-- This should be corrected in a later release of the specification
UL-CCTrChTPCList ::=               SEQUENCE (SIZE (0..maxCCTrCH)) OF
                                        TFCS-Identity

UL-ChannelRequirement ::=          CHOICE {
    ul-DPCH-Info                       UL-DPCH-Info,
    cpch-SetInfo                       CPCH-SetInfo
}

UL-ChannelRequirementWithCPCH-SetID ::= CHOICE {
    ul-DPCH-Info                       UL-DPCH-Info,
    cpch-SetInfo                       CPCH-SetInfo,
    cpch-SetID                         CPCH-SetID
}

UL-CompressedModeMethod ::=        ENUMERATED {
                                       sf-2,
                                       higherLayerScheduling }
```

```
UL-DL-Mode ::=                      CHOICE {
    ul                                  UL-CompressedModeMethod,
    dl                                  DL-CompressedModeMethod,
    ul-and-dl                           SEQUENCE {
        ul                                  UL-CompressedModeMethod,
        dl                                  DL-CompressedModeMethod
    }
}

UL-DPCCH-SlotFormat ::=             ENUMERATED {
                                    slf0, slf1, slf2 }

UL-DPCH-Info ::=                    SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfo            OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            scramblingCodeType                  ScramblingCodeType,
            scramblingCode                      UL-ScramblingCode,
            numberOfDPDCH                       NumberOfDPDCH               DEFAULT 1,
            spreadingFactor                     SpreadingFactor,
            tfci-Existence                      BOOLEAN,
            -- numberOfFBI-Bits is conditional based on history
            numberOfFBI-Bits                    NumberOfFBI-Bits           OPTIONAL,
            puncturingLimit                     PuncturingLimit
        },
        tdd                                 SEQUENCE {
            ul-TimingAdvance                    UL-TimingAdvanceControl    OPTIONAL,
            ul-CCTrCHList                       UL-CCTrCHList              OPTIONAL,
            ul-CCTrCHListToRemove               UL-CCTrCHListToRemove     OPTIONAL
        }
    }
}

UL-DPCH-InfoPostFDD ::=             SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPostFDD,
        scramblingCodeType                  ScramblingCodeType,
        reducedScramblingCodeNumber         ReducedScramblingCodeNumber,
        spreadingFactor                     SpreadingFactor

}

UL-DPCH-InfoPostTDD ::=             SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPostTDD,
    ul-TimingAdvance                    UL-TimingAdvanceControl                    OPTIONAL,
    ul-CCTrCH-TimeslotsCodes            UplinkTimeslotsCodes
}

UL-DPCH-InfoPredef ::=              SEQUENCE {
    ul-DPCH-PowerControlInfo            UL-DPCH-PowerControlInfoPredef,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            tfci-Existence                      BOOLEAN,
            puncturingLimit                     PuncturingLimit
        },
        tdd                                 SEQUENCE {
            commonTimeslotInfo                  CommonTimeslotInfo
        }
    }
}

UL-DPCH-PowerControlInfo ::=        CHOICE {
    fdd                                 SEQUENCE {
        dpcch-PowerOffset                   DPCCH-PowerOffset,
        pc-Preamble                         PC-Preamble,
        sRB-delay                           SRB-delay,
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        powerControlAlgorithm               PowerControlAlgorithm
    },
    tdd                                 SEQUENCE {
        ul-TargetSIR                        UL-TargetSIR                OPTIONAL,
        ul-OL-PC-Signalling                 CHOICE {
            broadcast-UL-OL-PC-info             NULL,
            handoverGroup                       SEQUENCE {
                individualTS-InterferenceList       IndividualTS-InterferenceList,
                dpch-ConstantValue                  ConstantValueTdd,
                primaryCCPCH-TX-Power               PrimaryCCPCH-TX-Power
            }
```

```
        }                                                        OPTIONAL
    }
}

UL-DPCH-PowerControlInfoPostFDD ::= SEQUENCE {
    -- DPCCH-PowerOffset2 has a smaller range to save bits
    dpcch-PowerOffset              DPCCH-PowerOffset2,
    pc-Preamble                    PC-Preamble,
    sRB-delay                      SRB-delay
}

UL-DPCH-PowerControlInfoPostTDD ::= SEQUENCE {
    ul-TargetSIR                   UL-TargetSIR,
    ul-TimeslotInterference        TDD-UL-Interference
}

UL-DPCH-PowerControlInfoPredef ::=     CHOICE {
    fdd                            SEQUENCE {
        -- TABULAR: TPC step size nested inside PowerControlAlgorithm
        powerControlAlgorithm          PowerControlAlgorithm
    },
    tdd                            SEQUENCE {
        dpch-ConstantValue             ConstantValueTdd
    }
}


UL-Interference ::=               INTEGER (-110..-70)

TDD-UL-Interference ::=           INTEGER (-110..-52)

UL-ScramblingCode ::=             INTEGER (0..16777215)

-- Actual value UL-TargetSIR = (IE value * 0.5) - 11
UL-TargetSIR ::=                  INTEGER (0..62)

UL-TimingAdvance ::=              INTEGER (0..63)

UL-TimingAdvanceControl ::=       CHOICE {
    disabled                       NULL,
    enabled                        SEQUENCE {
        ul-TimingAdvance               UL-TimingAdvance           OPTIONAL,
        activationTime                 ActivationTime             OPTIONAL
    }
}

UL-TS-ChannelisationCode ::=      ENUMERATED {
                                   cc1-1, cc2-1, cc2-2,
                                   cc4-1, cc4-2, cc4-3, cc4-4,
                                   cc8-1, cc8-2, cc8-3, cc8-4,
                                   cc8-5, cc8-6, cc8-7, cc8-8,
                                   cc16-1, cc16-2, cc16-3, cc16-4,
                                   cc16-5, cc16-6, cc16-7, cc16-8,
                                   cc16-9, cc16-10, cc16-11, cc16-12,
                                   cc16-13, cc16-14, cc16-15, cc16-16 }

UL-TS-ChannelisationCodeList ::=  SEQUENCE (SIZE (1..2)) OF
                                   UL-TS-ChannelisationCode

UplinkAdditionalTimeslots ::=     SEQUENCE {
    parameters                     CHOICE {
        sameAsLast                     SEQUENCE {
            timeslotNumber                 TimeslotNumber
        },
        newParameters                  SEQUENCE {
            individualTimeslotInfo             IndividualTimeslotInfo,
            ul-TS-ChannelisationCodeList       UL-TS-ChannelisationCodeList
        }
    }
}

UplinkTimeslotsCodes ::=          SEQUENCE {
    dynamicSFusage                 BOOLEAN,
    firstIndividualTimeslotInfo    IndividualTimeslotInfo,
    ul-TS-ChannelisationCodeList   UL-TS-ChannelisationCodeList,
    moreTimeslots                  CHOICE {
        noMore                         NULL,
        additionalTimeslots            CHOICE {
            consecutive                    SEQUENCE {
```

```
                numAdditionalTimeslots                INTEGER (1..maxTS-1)
            },
            timeslotList                             SEQUENCE (SIZE (1..maxTS-1)) OF
                                                       UplinkAdditionalTimeslots
        }
    }
}

-- **************************************************
--
--     MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- **************************************************

AcquisitionSatInfo ::=               SEQUENCE {
    satID                                SatID,
    -- Actual value doppler0thOrder = IE value * 2.5
    doppler0thOrder                      INTEGER (-2048..2047),
    extraDopplerInfo                     ExtraDopplerInfo                   OPTIONAL,
    codePhase                            INTEGER (0..1022),
    integerCodePhase                     INTEGER (0..19),
    gps-BitNumber                        INTEGER (0..3),
    codePhaseSearchWindow                CodePhaseSearchWindow,
    azimuthAndElevation                  AzimuthAndElevation               OPTIONAL
}

AcquisitionSatInfoList ::=           SEQUENCE (SIZE (1..maxSat)) OF
                                       AcquisitionSatInfo


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

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

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

AverageRLC-BufferPayload ::=         ENUMERATED {
                                       pla0, pla4, pla8, pla16, pla32,
                                       pla64, pla128, pla256, pla512,
                                       pla1024, pla2k, pla4k, pla8k, pla16k,
                                       pla32k, pla64k, pla128k, pla256k,
                                       pla512k, pla1024k, spare12, spare11,
                                       spare10, spare9, spare8, spare7, spare6,
                                       spare5, spare4, spare3, spare2, spare1 }

AzimuthAndElevation ::=              SEQUENCE {
    -- Actual value azimuth = IE value * 11.25
    azimuth                              INTEGER (0..31),
    -- Actual value elevation = IE value * 11.25
    elevation                            INTEGER (0..7)
}

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

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

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

BLER-MeasurementResults ::=          SEQUENCE {
    transportChannelIdentity             TransportChannelIdentity,
```

```
    dl-TransportChannelBLER             DL-TransportChannelBLER             OPTIONAL
}

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

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

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

BSICReported ::=                   CHOICE {
    -- Value maxCellMeas is not allowed for verifiedBSIC
    verifiedBSIC                        INTEGER (0..maxCellMeas),
    nonVerifiedBSIC                     BCCH-ARFCN
}

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

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

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

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

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

CellInfoSI-ECN0 ::=                SEQUENCE {
    cellIndividualOffset                CellIndividualOffset               DEFAULT 0,
    referenceTimeDifferenceToCell       ReferenceTimeDifferenceToCell      OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info          OPTIONAL,
            primaryCPICH-TX-Power               PrimaryCPICH-TX-Power      OPTIONAL,
```

```
                readSFN-Indicator                 BOOLEAN,
                tx-DiversityIndicator             BOOLEAN
            },
            tdd                           SEQUENCE {
                primaryCCPCH-Info                 PrimaryCCPCH-Info,
                primaryCCPCH-TX-Power             PrimaryCCPCH-TX-Power     OPTIONAL,
                timeslotInfoList                  TimeslotInfoList          OPTIONAL,
                readSFN-Indicator                 BOOLEAN
            }
        },
        cellSelectionReselectionInfo     CellSelectReselectInfoSIB-11-12-ECN0    OPTIONAL
}

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

CellInfoSI-HCS-ECN0 ::=             SEQUENCE {
    cellIndividualOffset             CellIndividualOffset               DEFAULT 0,
    referenceTimeDifferenceToCell    ReferenceTimeDifferenceToCell      OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                           SEQUENCE {
            primaryCPICH-Info                 PrimaryCPICH-Info         OPTIONAL,
            primaryCPICH-TX-Power             PrimaryCPICH-TX-Power     OPTIONAL,
            readSFN-Indicator                 BOOLEAN,
            tx-DiversityIndicator             BOOLEAN
        },
        tdd                           SEQUENCE {
            primaryCCPCH-Info                 PrimaryCCPCH-Info,
            primaryCCPCH-TX-Power             PrimaryCCPCH-TX-Power     OPTIONAL,
            timeslotInfoList                  TimeslotInfoList          OPTIONAL,
            readSFN-Indicator                 BOOLEAN
        }
    },
    cellSelectionReselectionInfo     CellSelectReselectInfoSIB-11-12-HCS-ECN0    OPTIONAL
}

CellMeasuredResults ::=             SEQUENCE {
    cellIdentity                     CellIdentity                       OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    dummy           SFN-SFN-ObsTimeDifference             OPTIONAL,
    cellSynchronisationInfo          CellSynchronisationInfo            OPTIONAL,
    modeSpecificInfo                 CHOICE {
        fdd                           SEQUENCE {
            primaryCPICH-Info                 PrimaryCPICH-Info,
            cpich-Ec-N0                       CPICH-Ec-N0               OPTIONAL,
            cpich-RSCP                        CPICH-RSCP                OPTIONAL,
            pathloss                          Pathloss                  OPTIONAL
        },
        tdd                           SEQUENCE {
            cellParametersID                  CellParametersID,
            proposedTGSN                      TGSN                      OPTIONAL,
            primaryCCPCH-RSCP                 PrimaryCCPCH-RSCP         OPTIONAL,
            pathloss                          Pathloss                  OPTIONAL,
            timeslotISCP-List                 TimeslotISCP-List         OPTIONAL
        }
    }
}

CellMeasurementEventResults ::=     CHOICE {
    fdd                              SEQUENCE (SIZE (1..maxCellMeas)) OF
```

```
                                                PrimaryCPICH-Info,
    tdd                                 SEQUENCE (SIZE (1..maxCellMeas)) OF
                                                PrimaryCCPCH-Info
}

CellReportingQuantities ::=         SEQUENCE {
    -- dummy is not used in this version of the specification, it should
    -- be ignored by the receiver
    dummy                       SFN-SFN-OTD-Type,
    cellIdentity-reportingIndicator                     BOOLEAN,
    cellSynchronisationInfoReportingIndicator           BOOLEAN,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            cpich-Ec-N0-reportingIndicator                      BOOLEAN,
            cpich-RSCP-reportingIndicator                       BOOLEAN,
            pathloss-reportingIndicator                     BOOLEAN
        },
        tdd                                 SEQUENCE {
            timeslotISCP-reportingIndicator                     BOOLEAN,
            proposedTGSN-ReportingRequired                      BOOLEAN,
            primaryCCPCH-RSCP-reportingIndicator                    BOOLEAN,
            pathloss-reportingIndicator                     BOOLEAN
        }
    }
}

CellSelectReselectInfoSIB-11-12 ::= SEQUENCE {
    q-Offset1S-N                        Q-OffsetS-N                         DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                         OPTIONAL,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP        HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin               OPTIONAL,
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-RSCP ::=    SEQUENCE {
    q-OffsetS-N                         Q-OffsetS-N                         DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin               OPTIONAL,
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-ECN0 ::=    SEQUENCE {
    q-Offset1S-N                        Q-OffsetS-N                         DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                         DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power               OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin               OPTIONAL,
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin              OPTIONAL
        }
```

```
    }
}

CellSelectReselectInfoSIB-11-12-HCS-RSCP ::=    SEQUENCE {
    q-OffsetS-N                         Q-OffsetS-N                             DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power                   OPTIONAL,
    hcs-NeighbouringCellInformation-RSCP    HCS-NeighbouringCellInformation-RSCP
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

CellSelectReselectInfoSIB-11-12-HCS-ECN0 ::=    SEQUENCE {
    q-Offset1S-N                        Q-OffsetS-N                             DEFAULT 0,
    q-Offset2S-N                        Q-OffsetS-N                             DEFAULT 0,
    maxAllowedUL-TX-Power               MaxAllowedUL-TX-Power                   OPTIONAL,
    hcs-NeighbouringCellInformation-ECN0    HCS-NeighbouringCellInformation-ECN0
    OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            q-QualMin                           Q-QualMin                   OPTIONAL,
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        tdd                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        },
        gsm                                 SEQUENCE {
            q-RxlevMin                          Q-RxlevMin                  OPTIONAL
        }
    }
}

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

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

CellToReport ::=                    SEQUENCE {
    bsicReported                        BSICReported
}

CellToReportList ::=                SEQUENCE (SIZE (1..maxCellMeas)) OF
                                    CellToReport

CodePhaseSearchWindow ::=           ENUMERATED {
                                    w1023, w1, w2, w3, w4, w6, w8,
                                    w12, w16, w24, w32, w48, w64,
                                    w96, w128, w192 }

CountC-SFN-Frame-difference ::= SEQUENCE {
    -- Actual value countC-SFN-High = IE value * 256
    countC-SFN-High                 INTEGER(0..15),
    off                             INTEGER(0..255)
}
```

```
-- SPARE: CPICH-Ec-No, Max = 49
-- Values above Max are spare
CPICH-Ec-N0 ::=                         INTEGER (0..63)

-- SPARE: CPICH- RSCP, Max = 91
-- Values above Max are spare
CPICH-RSCP ::=                          INTEGER (0..127)


DeltaPRC ::=                            INTEGER (-127..127)

-- Actual value DeltaRRC = IE value * 0.032
DeltaRRC ::=                            INTEGER (-7..7)

DGPS-CorrectionSatInfo ::=          SEQUENCE {
    satID                               SatID,
    iode                                IODE,
    udre                                UDRE,
    prc                                 PRC,
    rrc                                 RRC,
    deltaPRC2                           DeltaPRC,
    deltaRRC2                           DeltaRRC,
    deltaPRC3                           DeltaPRC           OPTIONAL,
    deltaRRC3                           DeltaRRC           OPTIONAL
}

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

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

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

DopplerUncertainty ::=              ENUMERATED {
                                        hz12-5, hz25, hz50, hz100, hz200,
                                        spare3, spare2, spare1 }

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


EllipsoidPointAltitude ::=          SEQUENCE {
    latitudeSign        ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607),
    altitudeDirection   ENUMERATED {height, depth},
    altitude            INTEGER (0..32767)
}


EllipsoidPointAltitudeEllipsoide ::=    SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    altitudeDirection       ENUMERATED {height, depth},
    altitude                INTEGER (0..32767),
    uncertaintySemiMajor    INTEGER (0..127),
    uncertaintySemiMinor    INTEGER (0..127),
    orientationMajorAxis    INTEGER (0..89),
    uncertaintyAltitude     INTEGER (0..127),
    confidence              INTEGER (0..100)
}


EllipsoidPointUncertCircle ::=      SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude                INTEGER (0..8388607),
    longitude               INTEGER (-8388608..8388607),
    uncertaintyCode         INTEGER (0..127)
}
```

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


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

Event1a ::=                     SEQUENCE {
    triggeringCondition             TriggeringCondition2,
    reportingRange                  ReportingRange,
    forbiddenAffectCellList         ForbiddenAffectCellList         OPTIONAL,
    w                               W,
    reportDeactivationThreshold     ReportDeactivationThreshold,
    reportingAmount                 ReportingAmount,
    reportingInterval               ReportingInterval
}

Event1b ::=                     SEQUENCE {
    triggeringCondition             TriggeringCondition1,
    reportingRange                  ReportingRange,
    forbiddenAffectCellList         ForbiddenAffectCellList         OPTIONAL,
    w                               W
}

Event1c ::=                     SEQUENCE {
    replacementActivationThreshold  ReplacementActivationThreshold,
    reportingAmount                 ReportingAmount,
    reportingInterval               ReportingInterval
}

Event1e ::=                     SEQUENCE {
    triggeringCondition             TriggeringCondition2,
    thresholdUsedFrequency          ThresholdUsedFrequency
}

Event1f ::=                     SEQUENCE {
    triggeringCondition             TriggeringCondition1,
    thresholdUsedFrequency          ThresholdUsedFrequency
}

Event2a ::=                     SEQUENCE {
    -- dummy is not used in this version of the specification and should be ignored
    dummy               Threshold,
    usedFreqW                       W,
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList        NonUsedFreqParameterList        OPTIONAL
}

Event2b ::=                     SEQUENCE {
    usedFreqThreshold               Threshold,
    usedFreqW                       W,
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList        NonUsedFreqParameterList        OPTIONAL
}

Event2c ::=                     SEQUENCE {
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus             OPTIONAL,
    nonUsedFreqParameterList        NonUsedFreqParameterList        OPTIONAL
}

Event2d ::=                     SEQUENCE {
    usedFreqThreshold               Threshold,
```

```
    usedFreqW                       W,
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus              OPTIONAL
}

Event2e ::=                     SEQUENCE {
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus              OPTIONAL,
    nonUsedFreqParameterList        NonUsedFreqParameterList         OPTIONAL
}

Event2f ::=                     SEQUENCE {
    usedFreqThreshold               Threshold,
    usedFreqW                       W,
    hysteresis                      HysteresisInterFreq,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus              OPTIONAL
}

Event3a ::=                     SEQUENCE {
    thresholdOwnSystem              Threshold,
    w                               W,
    thresholdOtherSystem            Threshold,
    hysteresis                      Hysteresis,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus              OPTIONAL
}

Event3b ::=                     SEQUENCE {
    thresholdOtherSystem            Threshold,
    hysteresis                      Hysteresis,
    timeToTrigger                   TimeToTrigger,
    reportingCellStatus             ReportingCellStatus              OPTIONAL

}

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

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

EventIDInterFreq ::=            ENUMERATED {
                                    e2a, e2b, e2c, e2d, e2e, e2f, spare2, spare1 }

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

EventIDIntraFreq ::=            ENUMERATED {
                                    e1a, e1b, e1c, e1d, e1e,
                                    e1f, e1g, e1h, e1i, spare7,
                                    spare6, spare5, spare4, spare3, spare2,
                                    spare1 }

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

ExtraDopplerInfo ::=           SEQUENCE {
    -- Actual value doppler1stOrder = IE value * 0.023
    doppler1stOrder                 INTEGER (-42..21),
    dopplerUncertainty              DopplerUncertainty
```

```
}

FACH-MeasurementOccasionInfo ::=      SEQUENCE {
    fACH-meas-occasion-coeff              INTEGER (1..12)                   OPTIONAL,
    inter-freq-FDD-meas-ind               BOOLEAN,
    inter-freq-TDD-meas-ind               BOOLEAN,
    inter-RAT-meas-ind                    SEQUENCE (SIZE (1..maxOtherRAT)) OF
                                              RAT-Type                      OPTIONAL
}

FilterCoefficient ::=                 ENUMERATED {
                                          fc0, fc1, fc2, fc3, fc4, fc5,
                                          fc6, fc7, fc8, fc9, fc11, fc13,
                                          fc15, fc17, fc19, spare1 }

-- Actual value FineSFN-SFN = IE value * 0.0625
FineSFN-SFN ::=                       INTEGER (0..15)

ForbiddenAffectCell ::=               CHOICE {
    fdd                                   PrimaryCPICH-Info,
    tdd                                   PrimaryCCPCH-Info
}

ForbiddenAffectCellList ::=           SEQUENCE (SIZE (1..maxCellMeas)) OF
                                          ForbiddenAffectCell

FreqQualityEstimateQuantity-FDD ::=   ENUMERATED {
                                          cpich-Ec-N0,
                                          cpich-RSCP }

FreqQualityEstimateQuantity-TDD ::=   ENUMERATED {
                                          primaryCCPCH-RSCP }

GPS-MeasurementParam ::=              SEQUENCE {
    satelliteID                           INTEGER (0..63),
    c-N0                                  INTEGER (0..63),
    doppler                               INTEGER (-32768..32768),
    wholeGPS-Chips                        INTEGER (0..1022),
    fractionalGPS-Chips                   INTEGER (0..1023),
    multipathIndicator                    MultipathIndicator,
    pseudorangeRMS-Error                  INTEGER (0..63)
}

GPS-MeasurementParamList ::=          SEQUENCE (SIZE (1..maxSat)) OF
                                          GPS-MeasurementParam

GSM-CarrierRSSI ::=                   BIT STRING (SIZE (6))


GSM-MeasuredResults ::=          SEQUENCE {
    gsm-CarrierRSSI                       GSM-CarrierRSSI                   OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    dummy                                 INTEGER (46..173)                OPTIONAL,
    bsicReported                          BSICReported,
    observedTimeDifferenceToGSM           ObservedTimeDifferenceToGSM      OPTIONAL
}

GSM-MeasuredResultsList ::=           SEQUENCE (SIZE (1..maxReportedGSMCells)) OF
                                          GSM-MeasuredResults

GPS-TOW-1msec ::=                     INTEGER (0..604799999)

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

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

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

```
}

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

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

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

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

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

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

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

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

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

InterFreqCellInfoList ::=            SEQUENCE {
    removedInterFreqCellList          RemovedInterFreqCellList             OPTIONAL,
    newInterFreqCellList              NewInterFreqCellList                 OPTIONAL,
    cellsForInterFreqMeasList         CellsForInterFreqMeasList            OPTIONAL
}

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

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

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

InterFreqCellList ::=                SEQUENCE (SIZE (1..maxFreq)) OF
                                     InterFreqCell

InterFreqCellMeasuredResultsList ::= SEQUENCE (SIZE (1..maxCellMeas)) OF
                                     CellMeasuredResults

InterFreqEvent ::=               CHOICE {
    event2a                           Event2a,
    event2b                           Event2b,
    event2c                           Event2c,
    event2d                           Event2d,
    event2e                           Event2e,
```

```
    event2f                              Event2f
}

InterFreqEventList ::=                SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                        InterFreqEvent


InterFreqEventResults ::=             SEQUENCE {
    eventID                             EventIDInterFreq,
    interFreqCellList                   InterFreqCellList               OPTIONAL
}


InterFreqMeasQuantity ::=             SEQUENCE {
    reportingCriteria                   CHOICE {
        intraFreqReportingCriteria          SEQUENCE {
            intraFreqMeasQuantity               IntraFreqMeasQuantity
        },
        interFreqReportingCriteria          SEQUENCE {
            filterCoefficient                   FilterCoefficient           DEFAULT fc0,
            modeSpecificInfo                    CHOICE {
                fdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-FDD     FreqQualityEstimateQuantity-FDD
                },
                tdd                                 SEQUENCE {
                    freqQualityEstimateQuantity-TDD     FreqQualityEstimateQuantity-TDD
                }
            }
        }
    }
}

InterFreqMeasuredResults ::=         SEQUENCE {
    frequencyInfo                       FrequencyInfo                   OPTIONAL,
    utra-CarrierRSSI                    UTRA-CarrierRSSI                OPTIONAL,
    interFreqCellMeasuredResultsList    InterFreqCellMeasuredResultsList    OPTIONAL
}

InterFreqMeasuredResultsList ::=     SEQUENCE (SIZE (1..maxFreq)) OF
                                        InterFreqMeasuredResults


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

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

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

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

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

InterFreqReportingCriteria ::=       SEQUENCE {
    interFreqEventList                  InterFreqEventList              OPTIONAL
}

InterFreqReportingQuantity ::=       SEQUENCE {
    utra-Carrier-RSSI                   BOOLEAN,
    frequencyQualityEstimate            BOOLEAN,
    nonFreqRelatedQuantities            CellReportingQuantities
}

InterFrequencyMeasurement ::=        SEQUENCE {
    interFreqCellInfoList               InterFreqCellInfoList,
    interFreqMeasQuantity               InterFreqMeasQuantity               OPTIONAL,
```

```
    interFreqReportingQuantity         InterFreqReportingQuantity         OPTIONAL,
    measurementValidity                MeasurementValidity                OPTIONAL,
    interFreqSetUpdate                 UE-AutonomousUpdateMode            OPTIONAL,
    reportCriteria                     InterFreqReportCriteria
}

InterRAT-TargetCellDescription::=   SEQUENCE {
    technologySpecificInfo             CHOICE {
        gsm                                    SEQUENCE {
            bsic                                   BSIC,
            frequency-band                         Frequency-Band,
            bcch-ARFCN                             BCCH-ARFCN,
            ncMode                                 NC-Mode          OPTIONAL
        },
        is-2000                            NULL,
        spare2                             NULL,
        spare1                             NULL
    }
}

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

InterRATCellInfoList ::=           SEQUENCE {
    removedInterRATCellList            RemovedInterRATCellList,
    -- NOTE: Future revisions of dedicated messages including IE newInterRATCellList
    -- should use a corrected version of this IE
    newInterRATCellList               NewInterRATCellList,
    cellsForInterRATMeasList          CellsForInterRATMeasList           OPTIONAL
}

InterRATCellInfoList-B ::=         SEQUENCE {
    removedInterRATCellList            RemovedInterRATCellList,
    -- NOTE: IE newInterRATCellList should be optional.  However, system information
    -- does not support message versions.  Hence, this can not be corrected
    newInterRATCellList               NewInterRATCellList-B
}

InterRATCellIndividualOffset ::=           INTEGER (-50..50)

InterRATEvent ::=                  CHOICE {
    event3a                            Event3a,
    event3b                            Event3b,
    event3c                            Event3c,
    event3d                            Event3d
}

InterRATEventList ::=              SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                       InterRATEvent

InterRATEventResults ::=           SEQUENCE {
    eventID                            EventIDInterRAT,
    cellToReportList                   CellToReportList
}

InterRATInfo ::=                   ENUMERATED {
                                       gsm }

InterRATMeasQuantity ::=                   SEQUENCE {
    measQuantityUTRAN-QualityEstimate      IntraFreqMeasQuantity          OPTIONAL,
    ratSpecificInfo                    CHOICE {
        gsm                                    SEQUENCE {
            measurementQuantity                    MeasurementQuantityGSM,
            filterCoefficient                      FilterCoefficient    DEFAULT fc0,
            bsic-VerificationRequired              BSIC-VerificationRequired
        },
        is-2000                            SEQUENCE {
            tadd-EcIo                              INTEGER (0..63),
            tcomp-EcIo                             INTEGER (0..15),
            softSlope                              INTEGER (0..63)      OPTIONAL,
            addIntercept                           INTEGER (0..63)      OPTIONAL
        }
    }
}

InterRATMeasuredResults ::=        CHOICE {
    gsm                                GSM-MeasuredResultsList,
    spare                              NULL
}
```

```
InterRATMeasuredResultsList ::= SEQUENCE (SIZE (1..maxOtherRAT-16)) OF
                                      InterRATMeasuredResults

InterRATMeasurement ::=         SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList            OPTIONAL,
    interRATMeasQuantity            InterRATMeasQuantity            OPTIONAL,
    interRATReportingQuantity       InterRATReportingQuantity       OPTIONAL,
    reportCriteria                  InterRATReportCriteria
}

InterRATMeasurementSysInfo ::=  SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList            OPTIONAL
}

InterRATMeasurementSysInfo-B ::=    SEQUENCE {
    interRATCellInfoList            InterRATCellInfoList-B          OPTIONAL
}

InterRATReportCriteria ::=      CHOICE {
    interRATReportingCriteria       InterRATReportingCriteria,
    periodicalReportingCriteria     PeriodicalWithReportingCellStatus,
    noReporting                     ReportingCellStatusOpt
}

InterRATReportingCriteria ::=   SEQUENCE {
    interRATEventList               InterRATEventList               OPTIONAL
}

InterRATReportingQuantity ::=   SEQUENCE {
    utran-EstimatedQuality          BOOLEAN,
    ratSpecificInfo                 CHOICE {
        gsm                                 SEQUENCE {
            dummy                               BOOLEAN,
            observedTimeDifferenceGSM           BOOLEAN,
            gsm-Carrier-RSSI                    BOOLEAN
        }
    }
}

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

IntraFreqCellInfoList ::=           SEQUENCE {
    removedIntraFreqCellList            RemovedIntraFreqCellList            OPTIONAL,
    newIntraFreqCellList                NewIntraFreqCellList                OPTIONAL,
    cellsForIntraFreqMeasList           CellsForIntraFreqMeasList           OPTIONAL
}

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

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

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

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

IntraFreqEvent ::=                  CHOICE {
    e1a                                 Event1a,
    e1b                                 Event1b,
    e1c                                 Event1c,
    e1d                                 NULL,
    e1e                                 Event1e,
    e1f                                 Event1f,
    e1g                                 NULL,
    e1h                                 ThresholdUsedFrequency,
    e1i                                 ThresholdUsedFrequency
```

```
}

IntraFreqEventCriteria ::=          SEQUENCE {
    event                               IntraFreqEvent,
    hysteresis                          Hysteresis,
    timeToTrigger                       TimeToTrigger,
    reportingCellStatus                 ReportingCellStatus             OPTIONAL
}

IntraFreqEventCriteriaList ::=      SEQUENCE (SIZE (1..maxMeasEvent)) OF
                                    IntraFreqEventCriteria

IntraFreqEventResults ::=           SEQUENCE {
    eventID                             EventIDIntraFreq,
    cellMeasurementEventResults         CellMeasurementEventResults
}

IntraFreqMeasQuantity ::=           SEQUENCE {
    filterCoefficient                   FilterCoefficient               DEFAULT fc0,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                                 SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-N0 and cpich-RSCP are allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-N0,
                                        cpich-RSCP,
                                        pathloss,
                                        dummy }

-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        dummy }

IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                    IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                    CellMeasuredResults

IntraFreqMeasurementSysInfo-RSCP ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentity         DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-RSCP    OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity            OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH           OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH          OPTIONAL
}

IntraFreqMeasurementSysInfo-ECN0 ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentity         DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-ECN0    OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity            OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH           OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH          OPTIONAL
}

IntraFreqMeasurementSysInfo-HCS-RSCP ::=    SEQUENCE {
    intraFreqMeasurementID              MeasurementIdentity         DEFAULT 1,
    intraFreqCellInfoSI-List            IntraFreqCellInfoSI-List-HCS-RSCP OPTIONAL,
    intraFreqMeasQuantity               IntraFreqMeasQuantity            OPTIONAL,
    intraFreqReportingQuantityForRACH   IntraFreqReportingQuantityForRACH OPTIONAL,
    maxReportedCellsOnRACH              MaxReportedCellsOnRACH           OPTIONAL,
    reportingInfoForCellDCH             ReportingInfoForCellDCH          OPTIONAL
```

```
}

IntraFreqMeasurementSysInfo-HCS-ECN0 ::=     SEQUENCE {
    intraFreqMeasurementID             MeasurementIdentity         DEFAULT 1,
    intraFreqCellInfoSI-List           IntraFreqCellInfoSI-List-HCS-ECN0   OPTIONAL,
    intraFreqMeasQuantity              IntraFreqMeasQuantity               OPTIONAL,
    intraFreqReportingQuantityForRACH  IntraFreqReportingQuantityForRACH   OPTIONAL,
    maxReportedCellsOnRACH             MaxReportedCellsOnRACH              OPTIONAL,
    reportingInfoForCellDCH            ReportingInfoForCellDCH             OPTIONAL
}

IntraFreqReportCriteria ::=         CHOICE {
    intraFreqReportingCriteria         IntraFreqReportingCriteria,
    periodicalReportingCriteria        PeriodicalWithReportingCellStatus,
    noReporting                        ReportingCellStatusOpt
}

IntraFreqReportingCriteria ::=      SEQUENCE {
    eventCriteriaList                  IntraFreqEventCriteriaList    OPTIONAL
}

IntraFreqReportingQuantity ::=      SEQUENCE {
    activeSetReportingQuantities       CellReportingQuantities,
    monitoredSetReportingQuantities    CellReportingQuantities,
    detectedSetReportingQuantities     CellReportingQuantities          OPTIONAL
}

IntraFreqReportingQuantityForRACH ::= SEQUENCE {
    sfn-SFN-OTD-Type                   SFN-SFN-OTD-Type,
    modeSpecificInfo                   CHOICE {
        fdd                                SEQUENCE {
            intraFreqRepQuantityRACH-FDD       IntraFreqRepQuantityRACH-FDD
        },
        tdd                                SEQUENCE {
            intraFreqRepQuantityRACH-TDDList   IntraFreqRepQuantityRACH-TDDList
        }
    }
}

IntraFreqRepQuantityRACH-FDD ::=    ENUMERATED {
                                    cpich-EcN0, cpich-RSCP,
                                    pathloss, noReport }

IntraFreqRepQuantityRACH-TDD ::=    ENUMERATED {
                                    timeslotISCP,
                                    primaryCCPCH-RSCP,
                                    noReport }

IntraFreqRepQuantityRACH-TDDList ::= SEQUENCE (SIZE (1..2)) OF
                                    IntraFreqRepQuantityRACH-TDD

IntraFrequencyMeasurement ::=       SEQUENCE {
    intraFreqCellInfoList              IntraFreqCellInfoList              OPTIONAL,
    intraFreqMeasQuantity              IntraFreqMeasQuantity              OPTIONAL,
    intraFreqReportingQuantity         IntraFreqReportingQuantity         OPTIONAL,
    measurementValidity                MeasurementValidity                OPTIONAL,
    reportCriteria                     IntraFreqReportCriteria            OPTIONAL
}

IODE ::=                            INTEGER (0..255)

IP-Length ::=                       ENUMERATED {
                                    ipl5, ipl10 }

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

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

MaxNumberOfReportingCellsType1 ::=  ENUMERATED {
                                    e1, e2, e3, e4, e5, e6}

MaxNumberOfReportingCellsType2 ::=  ENUMERATED {
                                    e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12}
```

```
MaxNumberOfReportingCellsType3 ::=  ENUMERATED {
                                    viactCellsPlus1,
                                    viactCellsPlus2,
                                    viactCellsPlus3,
                                    viactCellsPlus4,
                                    viactCellsPlus5,
                                    viactCellsPlus6 }

MaxReportedCellsOnRACH ::=          ENUMERATED {
                                    noReport,
                                    currentCell,
                                    currentAnd-1-BestNeighbour,
                                    currentAnd-2-BestNeighbour,
                                    currentAnd-3-BestNeighbour,
                                    currentAnd-4-BestNeighbour,
                                    currentAnd-5-BestNeighbour,
                                    currentAnd-6-BestNeighbour }

MeasuredResults ::=                 CHOICE {
    intraFreqMeasuredResultsList        IntraFreqMeasuredResultsList,
    interFreqMeasuredResultsList        InterFreqMeasuredResultsList,
    interRATMeasuredResultsList      InterRATMeasuredResultsList,
    trafficVolumeMeasuredResultsList    TrafficVolumeMeasuredResultsList,
    qualityMeasuredResults              QualityMeasuredResults,
    ue-InternalMeasuredResults          UE-InternalMeasuredResults,
    ue-positioning-MeasuredResults                  UE-Positioning-MeasuredResults,
    spare                           NULL
}

MeasuredResults-v390ext ::=             SEQUENCE {
    ue-positioning-MeasuredResults-v390ext                  UE-Positioning-MeasuredResults-v390ext
}

MeasuredResultsList ::=             SEQUENCE (SIZE (1..maxAdditionalMeas)) OF
                                    MeasuredResults

MeasuredResultsOnRACH ::=           SEQUENCE {
    currentCell                     SEQUENCE {
        modeSpecificInfo                    CHOICE {
            fdd                                 SEQUENCE {
                measurementQuantity                 CHOICE {
                    cpich-Ec-N0                         CPICH-Ec-N0,
                    cpich-RSCP                          CPICH-RSCP,
                    pathloss                            Pathloss,
                    spare                               NULL
                }
            },
            tdd                                 SEQUENCE {
                timeslotISCP                        TimeslotISCP-List      OPTIONAL,
                primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP      OPTIONAL
            }
        }
    },
    monitoredCells                  MonitoredCellRACH-List          OPTIONAL
}

MeasurementCommand ::=              CHOICE {
    setup                           MeasurementType,
    modify                          SEQUENCE {
        measurementType                     MeasurementType             OPTIONAL
    },
    release                         NULL
}

MeasurementControlSysInfo ::=       SEQUENCE {
    use-of-HCS                      CHOICE {
        hcs-not-used                    SEQUENCE     {
            cellSelectQualityMeasure    CHOICE {
                cpich-RSCP              SEQUENCE     {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-RSCP
        OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-RSCP    OPTIONAL
                },
                cpich-Ec-N0            SEQUENCE     {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-ECN0
        OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-ECN0    OPTIONAL
                }
```

```
        },
            interRATMeasurementSysInfo      InterRATMeasurementSysInfo-B        OPTIONAL
        },
        hcs-used                        SEQUENCE    {
            cellSelectQualityMeasure    CHOICE  {
                cpich-RSCP              SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-HCS-RSCP
    OPTIONAL
                },
                cpich-Ec-N0            SEQUENCE    {
                    intraFreqMeasurementSysInfo         IntraFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL,
                    interFreqMeasurementSysInfo         InterFreqMeasurementSysInfo-HCS-ECN0
    OPTIONAL                }
            },
            interRATMeasurementSysInfo      InterRATMeasurementSysInfo      OPTIONAL
        }
    },

    trafficVolumeMeasSysInfo            TrafficVolumeMeasSysInfo            OPTIONAL,
    -- dummy is not used in this version of specification and it shall be ignored by the UE.
    dummy                               UE-InternalMeasurementSysInfo       OPTIONAL
}

MeasurementIdentity ::=     INTEGER (1..16)

MeasurementQuantityGSM ::=          ENUMERATED {
                                    gsm-CarrierRSSI,
                                    dummy }

MeasurementReportingMode ::=        SEQUENCE {
    measurementReportTransferMode       TransferMode,
    periodicalOrEventTrigger            PeriodicalOrEventTrigger
}

MeasurementType ::=                 CHOICE {
    intraFrequencyMeasurement           IntraFrequencyMeasurement,
    interFrequencyMeasurement           InterFrequencyMeasurement,
    interRATMeasurement                 InterRATMeasurement,
    ue-positioning-Measurement                  UE-Positioning-Measurement,
    trafficVolumeMeasurement            TrafficVolumeMeasurement,
    qualityMeasurement                  QualityMeasurement,
    ue-InternalMeasurement              UE-InternalMeasurement
}

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

MonitoredCellRACH-List ::=          SEQUENCE (SIZE (1..8)) OF
                                    MonitoredCellRACH-Result

MonitoredCellRACH-Result ::=        SEQUENCE {
    sfn-SFN-ObsTimeDifference           SFN-SFN-ObsTimeDifference           OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info,
            measurementQuantity                 CHOICE {
                cpich-Ec-N0                         CPICH-Ec-N0,
                cpich-RSCP                          CPICH-RSCP,
                pathloss                            Pathloss,
                spare                               NULL
            }                                                               OPTIONAL
        },
        tdd                                 SEQUENCE {
            cellParametersID                    CellParametersID,
            primaryCCPCH-RSCP                   PrimaryCCPCH-RSCP
        }
    }
}

MultipathIndicator ::=              ENUMERATED {
                                    nm,
                                    low,
                                    medium,
```

```
                                        high }

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


NavigationModelSatInfo ::=          SEQUENCE {
    satID                               SatID,
    satelliteStatus                     SatelliteStatus,
    ephemerisParameter                  EphemerisParameter      OPTIONAL
}


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

EphemerisParameter ::=              SEQUENCE {
    codeOnL2                            BIT STRING (SIZE (2)),
    uraIndex                            BIT STRING (SIZE (4)),
    satHealth                           BIT STRING (SIZE (6)),
    iodc                                BIT STRING (SIZE (10)),
    l2Pflag                             BIT STRING (SIZE (1)),
    sf1Revd                             SubFrame1Reserved,
    t-GD                                BIT STRING (SIZE (8)),
    t-oc                                BIT STRING (SIZE (16)),
    af2                                 BIT STRING (SIZE (8)),
    af1                                 BIT STRING (SIZE (16)),
    af0                                 BIT STRING (SIZE (22)),
    c-rs                                BIT STRING (SIZE (16)),
    delta-n                             BIT STRING (SIZE (16)),
    m0                                  BIT STRING (SIZE (32)),
    c-uc                                BIT STRING (SIZE (16)),
    e                                   BIT STRING (SIZE (32)),
    c-us                                BIT STRING (SIZE (16)),
    a-Sqrt                              BIT STRING (SIZE (32)),
    t-oe                                BIT STRING (SIZE (16)),
    fitInterval                         BIT STRING (SIZE (1)),
    aodo                                BIT STRING (SIZE (5)),
    c-ic                                BIT STRING (SIZE (16)),
    omega0                              BIT STRING (SIZE (32)),
    c-is                                BIT STRING (SIZE (16)),
    i0                                  BIT STRING (SIZE (32)),
    c-rc                                BIT STRING (SIZE (16)),
    omega                               BIT STRING (SIZE (32)),
    omegaDot                            BIT STRING (SIZE (24)),
    iDot                                BIT STRING (SIZE (14))
}
NC-Mode::=                          BIT STRING (SIZE (3))

Neighbour ::=                       SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            neighbourIdentity                   PrimaryCPICH-Info                   OPTIONAL,
            uE-RX-TX-TimeDifferenceType2Info    UE-RX-TX-TimeDifferenceType2Info   OPTIONAL
        },
        tdd                                 SEQUENCE {
            neighbourAndChannelIdentity   CellAndChannelIdentity                   OPTIONAL
        }
    },
    neighbourQuality                    NeighbourQuality,
    sfn-SFN-ObsTimeDifference2          SFN-SFN-ObsTimeDifference2
}

Neighbour-v390ext ::=                   SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            frequencyInfo                       FrequencyInfo
        },
        tdd                             NULL
    }
}


NeighbourList ::=                   SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        Neighbour

-- The order of the cells in IE NeighbourList-v390ext shall be the
-- same as the order in IE NeighbourList
NeighbourList-v390ext ::=           SEQUENCE (SIZE (1..maxCellMeas)) OF
```

```
                                        Neighbour-v390ext
NeighbourQuality ::=                 SEQUENCE {
    uE-Positioning-OTDOA-Quality     UE-Positioning-OTDOA-Quality
}

NewInterFreqCell ::=                 SEQUENCE {
    interFreqCellID                  InterFreqCellID                 OPTIONAL,
    frequencyInfo                    FrequencyInfo                   OPTIONAL,
    cellInfo                         CellInfo
}

NewInterFreqCellList ::=             SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCell

NewInterFreqCellSI-RSCP ::=          SEQUENCE {
    interFreqCellID                  InterFreqCellID                 OPTIONAL,
    frequencyInfo                    FrequencyInfo                   OPTIONAL,
    cellInfo                         CellInfoSI-RSCP
}

NewInterFreqCellSI-ECN0 ::=          SEQUENCE {
    interFreqCellID                  InterFreqCellID                 OPTIONAL,
    frequencyInfo                    FrequencyInfo                   OPTIONAL,
    cellInfo                         CellInfoSI-ECN0
}

NewInterFreqCellSI-HCS-RSCP ::=         SEQUENCE {
    interFreqCellID                  InterFreqCellID                 OPTIONAL,
    frequencyInfo                    FrequencyInfo                   OPTIONAL,
    cellInfo                         CellInfoSI-HCS-RSCP
}

NewInterFreqCellSI-HCS-ECN0 ::=         SEQUENCE {
    interFreqCellID                  InterFreqCellID                 OPTIONAL,
    frequencyInfo                    FrequencyInfo                   OPTIONAL,
    cellInfo                         CellInfoSI-HCS-ECN0
}

NewInterFreqCellSI-List-ECN0 ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-ECN0

NewInterFreqCellSI-List-HCS-RSCP ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-RSCP

NewInterFreqCellSI-List-HCS-ECN0 ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-HCS-ECN0

NewInterFreqCellSI-List-RSCP ::=     SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        NewInterFreqCellSI-RSCP

NewInterRATCell ::=              SEQUENCE {
    interRATCellID                   InterRATCellID          OPTIONAL,
    technologySpecificInfo           CHOICE {
        gsm                                  SEQUENCE {
            cellSelectionReselectionInfo     CellSelectReselectInfoSIB-11-12    OPTIONAL,
            interRATCellIndividualOffset     InterRATCellIndividualOffset,
            bsic                             BSIC,
            frequency-band                   Frequency-Band,
            bcch-ARFCN                       BCCH-ARFCN,
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            dummy                            NULL            OPTIONAL
        },
        is-2000                              SEQUENCE {
            is-2000SpecificMeasInfo          IS-2000SpecificMeasInfo
        },
        -- ASN.1 inconsistency: NewInterRATCellList should be optional within
        -- InterRATCellInfoList. The UE shall consider IE NewInterRATCell with
        -- technologySpecificInfo set to "absent" as valid and handle the message
        -- as if IE NewInterRATCell was absent
        absent                           NULL,
        spare1                           NULL
    }
}

NewInterRATCell-B ::=                SEQUENCE {
    interRATCellID                   InterRATCellID          OPTIONAL,
```

```
    technologySpecificInfo              CHOICE {
        gsm                                 SEQUENCE {
            cellSelectionReselectionInfo    CellSelectReselectInfoSIB-11-12    OPTIONAL,
            interRATCellIndividualOffset    InterRATCellIndividualOffset,
            bsic                            BSIC,
            frequency-band                  Frequency-Band,
            bcch-ARFCN                      BCCH-ARFCN,
            -- dummy is not used in this version of the specification, it should
            -- not be sent and if received it should be ignored.
            dummy                           NULL               OPTIONAL
        },
        is-2000                             SEQUENCE {
            is-2000SpecificMeasInfo         IS-2000SpecificMeasInfo
        },
        -- ASN.1 inconsistency: NewInterRATCellList-B should be optional within
        -- InterRATCellInfoList-B. UE shall consider IE NewInterRATCell-B with
        -- technologySpecificInfo set to "absent" as valid and handle the message
        -- as if IE NewInterRATCell-B was absent
        absent                              NULL,
        spare1                              NULL
    }
}

NewInterRATCellList ::=         SEQUENCE (SIZE (1..maxCellMeas)) OF
                                    NewInterRATCell

NewInterRATCellList-B ::=       SEQUENCE (SIZE (1..maxCellMeas)) OF
                                    NewInterRATCell-B

NewIntraFreqCell ::=            SEQUENCE {
    intraFreqCellID                 IntraFreqCellID              OPTIONAL,
    cellInfo                        CellInfo
}

NewIntraFreqCellList ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                    NewIntraFreqCell

NewIntraFreqCellSI-RSCP ::=        SEQUENCE {
    intraFreqCellID                 IntraFreqCellID              OPTIONAL,
    cellInfo                        CellInfoSI-RSCP
}

NewIntraFreqCellSI-ECN0 ::=        SEQUENCE {
    intraFreqCellID                 IntraFreqCellID              OPTIONAL,
    cellInfo                        CellInfoSI-ECN0
}
NewIntraFreqCellSI-HCS-RSCP ::=    SEQUENCE {
    intraFreqCellID                 IntraFreqCellID              OPTIONAL,
    cellInfo                        CellInfoSI-HCS-RSCP
}

NewIntraFreqCellSI-HCS-ECN0 ::=    SEQUENCE {
    intraFreqCellID                 IntraFreqCellID              OPTIONAL,
    cellInfo                        CellInfoSI-HCS-ECN0
}

NewIntraFreqCellSI-List-RSCP ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-RSCP

NewIntraFreqCellSI-List-ECN0 ::=        SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-ECN0

NewIntraFreqCellSI-List-HCS-RSCP ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-HCS-RSCP

NewIntraFreqCellSI-List-HCS-ECN0 ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            NewIntraFreqCellSI-HCS-ECN0

NonUsedFreqParameter ::=           SEQUENCE {
    -- IE "nonUsedFreqThreshold" is not needed in case of event 2a
    -- In case of event 2a UTRAN should include value 0 within IE "nonUsedFreqThreshold"
    -- In case of event 2a, the UE shall be ignore IE "nonUsedFreqThreshold"
    -- In later versions of the message including this IE, a special version of
    -- IE "NonUsedFreqParameterList" may be defined for event 2a, namely a
    -- version not including IE "nonUsedFreqThreshold"
    nonUsedFreqThreshold            Threshold,
    nonUsedFreqW                    W
}
```

```
NonUsedFreqParameterList ::=        SEQUENCE (SIZE (1..maxFreq)) OF
                                        NonUsedFreqParameter

ObservedTimeDifferenceToGSM ::=     INTEGER (0..4095)

OTDOA-SearchWindowSize ::=          ENUMERATED {
                                        c20, c40, c80, c160, c320,
                                        c640, c1280, moreThan1280 }

-- SPARE: Pathloss, Max = 158
-- Values above Max are spare
Pathloss ::=                        INTEGER (46..173)

PenaltyTime-RSCP ::=                CHOICE {
    notUsed                             NULL,
    pt10                                TemporaryOffset1,
    pt20                                TemporaryOffset1,
    pt30                                TemporaryOffset1,
    pt40                                TemporaryOffset1,
    pt50                                TemporaryOffset1,
    pt60                                TemporaryOffset1
}

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

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

PeriodicalOrEventTrigger ::=        ENUMERATED {
                                        periodical,
                                        eventTrigger }

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

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

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

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

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

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

PositionEstimate ::=                CHOICE {
    ellipsoidPoint                      EllipsoidPoint,
    ellipsoidPointUncertCircle          EllipsoidPointUncertCircle,
    ellipsoidPointUncertEllipse         EllipsoidPointUncertEllipse,
    ellipsoidPointAltitude              EllipsoidPointAltitude,
```

```
        ellipsoidPointAltitudeEllipse        EllipsoidPointAltitudeEllipsoide
}

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

-- Actual value PRC = IE value * 0.32
PRC ::=                              INTEGER (-2047..2047)

-- SPARE: PrimaryCCPCH-RSCP, Max = 91
-- Values above Max are spare
PrimaryCCPCH-RSCP ::=                INTEGER (0..127)

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

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

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

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

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

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

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

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

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

QualityReportingCriteriaSingle ::=   SEQUENCE {
    transportChannelIdentity             TransportChannelIdentity,
    totalCRC                             INTEGER (1..512),
    badCRC                               INTEGER (1..512),
    pendingAfterTrigger                  INTEGER (1..512)
}

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

RAT-Type ::=                         ENUMERATED {
                                         gsm, is2000 }

ReferenceCellPosition ::=            CHOICE {
    ellipsoidPoint                       EllipsoidPoint,
    ellipsoidPointWithAltitude           EllipsoidPointAltitude
}
```

```
-- ReferenceLocation, as defined in 23.032
ReferenceLocation ::=           SEQUENCE {
    ellipsoidPointAltitudeEllipsoide        EllipsoidPointAltitudeEllipsoide
}

ReferenceTimeDifferenceToCell ::=   CHOICE {
    -- Actual value accuracy40 = IE value * 40
    accuracy40                  INTEGER (0..960),
    -- Actual value accuracy256 = IE value * 256
    accuracy256                 INTEGER (0..150),
    -- Actual value accuracy2560 = IE value * 2560
    accuracy2560                INTEGER (0..15)
}

RemovedInterFreqCellList ::=        CHOICE {
    removeAllInterFreqCells             NULL,
    removeSomeInterFreqCells            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            InterFreqCellID,
    removeNoInterFreqCells              NULL
}

RemovedInterRATCellList ::=     CHOICE {
    removeAllInterRATCells              NULL,
    removeSomeInterRATCells             SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            InterRATCellID,
    removeNoInterRATCells               NULL
}

RemovedIntraFreqCellList ::=        CHOICE {
    removeAllIntraFreqCells             NULL,
    removeSomeIntraFreqCells            SEQUENCE (SIZE (1..maxCellMeas)) OF
                                            IntraFreqCellID,
    removeNoIntraFreqCells              NULL
}

ReplacementActivationThreshold ::=  ENUMERATED {
                                    notApplicable, t1, t2,
                                    t3, t4, t5, t6, t7 }

ReportDeactivationThreshold ::=     ENUMERATED {
                                    notApplicable, t1, t2,
                                    t3, t4, t5, t6, t7 }

ReportingAmount ::=                 ENUMERATED {
                                    ra1, ra2, ra4, ra8, ra16, ra32,
                                    ra64, ra-Infinity }

ReportingCellStatus ::=             CHOICE{
    withinActiveSet                     MaxNumberOfReportingCellsType1,
    withinMonitoredSetUsedFreq          MaxNumberOfReportingCellsType1,
    withinActiveAndOrMonitoredUsedFreq  MaxNumberOfReportingCellsType1,
    withinDetectedSetUsedFreq           MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrDetectedUsedFreq
                                        MaxNumberOfReportingCellsType1,
    allActiveplusMonitoredSet           MaxNumberOfReportingCellsType3,
    allActivePlusDetectedSet            MaxNumberOfReportingCellsType3,
    allActivePlusMonitoredAndOrDetectedSet
                                        MaxNumberOfReportingCellsType3,
    withinVirtualActSet                 MaxNumberOfReportingCellsType1,
    withinMonitoredSetNonUsedFreq       MaxNumberOfReportingCellsType1,
    withinMonitoredAndOrVirtualActiveSetNonUsedFreq
                                        MaxNumberOfReportingCellsType1,
    allVirtualActSetplusMonitoredSetNonUsedFreq
                                        MaxNumberOfReportingCellsType3,
    withinActSetOrVirtualActSet-InterRATcells
                                        MaxNumberOfReportingCellsType2,
    withinActSetAndOrMonitoredUsedFreqOrVirtualActSetAndOrMonitoredNonUsedFreq
                                        MaxNumberOfReportingCellsType2
}

ReportingCellStatusOpt ::=          SEQUENCE {
    reportingCellStatus                 ReportingCellStatus             OPTIONAL
}


ReportingInfoForCellDCH ::=         SEQUENCE {
    intraFreqReportingQuantity          IntraFreqReportingQuantity,
    measurementReportingMode            MeasurementReportingMode,
```

```
    reportCriteria                    CellDCH-ReportCriteria
}

ReportingInterval ::=                 ENUMERATED {
                                          noPeriodicalreporting, ri0-25,
                                          ri0-5, ri1, ri2, ri4, ri8, ri16 }

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

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

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

RL-InformationLists ::=               SEQUENCE {
    rl-AdditionInfoList                   RL-AdditionInfoList              OPTIONAL,
    rl-RemovalInformationList             RL-RemovalInformationList        OPTIONAL
}

RLC-BuffersPayload ::=                ENUMERATED {
                                          pl0, pl4, pl8, pl16, pl32,
                                          pl64, pl128, pl256, pl512, pl1024,
                                          pl2k, pl4k, pl8k, pl16k, pl32k,
                                          pl64k, pl128k, pl256k, pl512k, pl1024k,
                                          spare12, spare11, spare10, spare9, spare8,
                                          spare7, spare6, spare5, spare4, spare3,
                                          spare2, spare1 }

-- Actual value RRC = IE value * 0.032
RRC ::=                               INTEGER (-127..127)

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

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

SatelliteStatus ::=                   ENUMERATED {
                                          ns-NN-U,
                                          es-SN,
                                          es-NN-U,
                                          rev2,
                                          rev }

SatID ::=                             INTEGER (0..63)

SFN-SFN-Drift ::=                     ENUMERATED {
                                      sfnsfndrift0, sfnsfndrift1, sfnsfndrift2, sfnsfndrift3,
                                      sfnsfndrift4, sfnsfndrift5, sfnsfndrift8, sfnsfndrift10,
                                      sfnsfndrift15, sfnsfndrift25, sfnsfndrift35, sfnsfndrift50,
                                      sfnsfndrift65, sfnsfndrift80, sfnsfndrift100, sfnsfndrift-1,
                                      sfnsfndrift-2, sfnsfndrift-3, sfnsfndrift-4, sfnsfndrift-5,
                                      sfnsfndrift-8, sfnsfndrift-10, sfnsfndrift-15, sfnsfndrift-25,
                                      sfnsfndrift-35, sfnsfndrift-50, sfnsfndrift-65, sfnsfndrift-80,
                                      sfnsfndrift-100}

SFN-SFN-ObsTimeDifference ::=         CHOICE {
    type1                                 SFN-SFN-ObsTimeDifference1,
    type2                                 SFN-SFN-ObsTimeDifference2
}

-- SPARE: SFN-SFN-ObsTimeDifference1, Max = 9830399
-- Values above Max are spare
SFN-SFN-ObsTimeDifference1 ::=        INTEGER (0..16777215)

-- SPARE: SFN-SFN-ObsTimeDifference2, Max = 40961
-- Values above Max are spare
SFN-SFN-ObsTimeDifference2 ::=        INTEGER (0..65535)

SFN-SFN-OTD-Type ::=                  ENUMERATED {
                                          noReport,
```

```
                                        type1,
                                        type2 }

SFN-Offset-Validity ::=                 ENUMERATED { false }

SFN-SFN-RelTimeDifference1 ::=          SEQUENCE {
    sfn-Offset                              INTEGER (0 .. 4095),
    sfn-sfn-Reltimedifference               INTEGER (0.. 38399)
}

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

SIR ::=                                 INTEGER (0..63)


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


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

SIR-TFCS ::=                            TFCS-IdentityPlain


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

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

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

T-CRMax ::=                             CHOICE {
    notUsed                                 NULL,
    t30                                     N-CR-T-CRMaxHyst,
    t60                                     N-CR-T-CRMaxHyst,
    t120                                    N-CR-T-CRMaxHyst,
    t180                                    N-CR-T-CRMaxHyst,
    t240                                    N-CR-T-CRMaxHyst
}

T-CRMaxHyst ::=                         ENUMERATED {
                                            notUsed, t10, t20, t30,
                                            t40, t50, t60, t70 }

TemporaryOffset1 ::=                    ENUMERATED {
                                            to3, to6, to9, to12, to15,
                                            to18, to21, infinite }

TemporaryOffset2 ::=                    ENUMERATED {
                                            to2, to3, to4, to6, to8,
                                            to10, to12, infinite }

TemporaryOffsetList ::=                 SEQUENCE    {
        temporaryOffset1                    TemporaryOffset1,
        temporaryOffset2                    TemporaryOffset2
}

Threshold ::=                           INTEGER (-115..0)

ThresholdPositionChange ::=             ENUMERATED {
                                            pc10, pc20, pc30, pc40, pc50,
                                            pc100, pc200, pc300, pc500,
                                            pc1000, pc2000, pc5000, pc10000,
                                            pc20000, pc50000, pc100000 }

ThresholdSFN-GPS-TOW ::=                ENUMERATED {
```

```
                                        ms1, ms2, ms3, ms5, ms10,
                                        ms20, ms50, ms100 }

ThresholdSFN-SFN-Change ::=             ENUMERATED {
                                        c0-25, c0-5, c1, c2, c3, c4, c5,
                                        c10, c20, c50, c100, c200, c500,
                                        c1000, c2000, c5000 }

ThresholdUsedFrequency ::=              INTEGER (-115..165)

-- Actual value TimeInterval = IE value * 20.
TimeInterval ::=                        INTEGER (1..13)

TimeslotInfo ::=                        SEQUENCE {
    timeslotNumber                          TimeslotNumber,
    burstType                               BurstType
}

TimeslotInfoList ::=                    SEQUENCE (SIZE (1..maxTS)) OF
                                            TimeslotInfo

-- SPARE: TimeslotISCP, Max = 91
-- Values above Max are spare
TimeslotISCP ::=                        INTEGER (0..127)

TimeslotISCP-List ::=                   SEQUENCE (SIZE (1..maxTS)) OF
                                            TimeslotISCP

TimeslotListWithISCP ::=                SEQUENCE (SIZE (1..maxTS)) OF
                                            TimeslotWithISCP

TimeslotWithISCP ::=                    SEQUENCE {
    timeslot                                TimeslotNumber,
    timeslotISCP                            TimeslotISCP
}

TimeToTrigger ::=                       ENUMERATED {
                                        ttt0, ttt10, ttt20, ttt40, ttt60,
                                        ttt80, ttt100, ttt120, ttt160,
                                        ttt200, ttt240, tt320, ttt640,
                                        ttt1280, ttt2560, ttt5000 }

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

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

TrafficVolumeEventType ::=              ENUMERATED {
                                        e4a,
                                        e4b }

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

TrafficVolumeMeasSysInfo ::=            SEQUENCE {
    trafficVolumeMeasurementID              MeasurementIdentity           DEFAULT 4,
    trafficVolumeMeasurementObjectList TrafficVolumeMeasurementObjectList OPTIONAL,
    trafficVolumeMeasQuantity               TrafficVolumeMeasQuantity     OPTIONAL,
    trafficVolumeReportingQuantity          TrafficVolumeReportingQuantity OPTIONAL,
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.
    dummy                                   TrafficVolumeReportingCriteria OPTIONAL,
    measurementValidity                     MeasurementValidity           OPTIONAL,
    measurementReportingMode                MeasurementReportingMode,
    reportCriteriaSysInf                    TrafficVolumeReportCriteriaSysInfo

}
```

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

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

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

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

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

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

TrafficVolumeReportingCriteria ::= SEQUENCE {
    -- NOTE: transChCriteriaList should be mandatory in later versions of this message
    transChCriteriaList                 TransChCriteriaList             OPTIONAL
}

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

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

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

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

TransferMode ::=                    ENUMERATED {
                                        acknowledgedModeRLC,
                                        unacknowledgedModeRLC }

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

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

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

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

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

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

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

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

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

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

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

UE-InternalMeasQuantity ::=         SEQUENCE {
    measurementQuantity                 UE-MeasurementQuantity,
    filterCoefficient                   FilterCoefficient                DEFAULT fc0
}

UE-InternalMeasuredResults ::=      SEQUENCE {
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            ue-TransmittedPowerFDD              UE-TransmittedPower       OPTIONAL,
            ue-RX-TX-ReportEntryList           UE-RX-TX-ReportEntryList  OPTIONAL
        },
        tdd                                 SEQUENCE {
            ue-TransmittedPowerTDD-List         UE-TransmittedPowerTDD-List OPTIONAL,
            appliedTA                           UL-TimingAdvance          OPTIONAL
        }
    }
}

UE-InternalMeasurement ::=          SEQUENCE {
    ue-InternalMeasQuantity             UE-InternalMeasQuantity          OPTIONAL,
    ue-InternalReportingQuantity        UE-InternalReportingQuantity     OPTIONAL,
    reportCriteria                      UE-InternalReportCriteria
}

UE-InternalMeasurementSysInfo ::=   SEQUENCE {
    ue-InternalMeasurementID            MeasurementIdentity              DEFAULT 5,
    ue-InternalMeasQuantity             UE-InternalMeasQuantity
```

```
}

UE-InternalReportCriteria ::=         CHOICE {
    ue-InternalReportingCriteria       UE-InternalReportingCriteria,
    periodicalReportingCriteria        PeriodicalReportingCriteria,
    noReporting                        NULL
}

UE-InternalReportingCriteria ::=      SEQUENCE {
    ue-InternalEventParamList          UE-InternalEventParamList          OPTIONAL
}

UE-InternalReportingQuantity ::=      SEQUENCE {
    ue-TransmittedPower                BOOLEAN,
    modeSpecificInfo                   CHOICE {
        fdd                                 SEQUENCE {
            ue-RX-TX-TimeDifference             BOOLEAN
        },
        tdd                                 SEQUENCE {
            appliedTA                           BOOLEAN
        }
    }
}

-- TABULAR: UE-MeasurementQuantity, for TDD only the values
-- ue-TransmittedPower and utra-Carrier-RSSI are used.
UE-MeasurementQuantity ::=            ENUMERATED {
                                         ue-TransmittedPower,
                                         utra-Carrier-RSSI,
                                         ue-RX-TX-TimeDifference }

UE-RX-TX-ReportEntry ::=              SEQUENCE {
    primaryCPICH-Info                  PrimaryCPICH-Info,
    ue-RX-TX-TimeDifferenceType1       UE-RX-TX-TimeDifferenceType1
}

UE-RX-TX-ReportEntryList ::=          SEQUENCE (SIZE (1..maxRL)) OF
                                         UE-RX-TX-ReportEntry

-- SPARE: UE-RX-TX-TimeDifferenceType1, Max = 1280
-- Values above Max are spare
UE-RX-TX-TimeDifferenceType1 ::=          INTEGER (768..1791)

-- Actual value UE-RX-TX-TimeDifferenceType2 = IE value * 0.0625 + 768
UE-RX-TX-TimeDifferenceType2 ::=     INTEGER (0..8191)

UE-RX-TX-TimeDifferenceType2Info ::=      SEQUENCE {
    ue-RX-TX-TimeDifferenceType2            UE-RX-TX-TimeDifferenceType2,
    neighbourQuality                        NeighbourQuality
}

UE-RX-TX-TimeDifferenceThreshold ::= INTEGER (768..1280)

UE-TransmittedPower ::=               INTEGER (0..104)

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

UL-TrCH-Identity ::=                  CHOICE{
    dch                                TransportChannelIdentity,
    -- Default transport channel in the UL is either RACH or CPCH, but not both.
    rachorcpch                         NULL,
    usch                               TransportChannelIdentity
}

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


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

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

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

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

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

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

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

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

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

UE-Positioning-GPS-AssistanceData ::=               SEQUENCE {
    ue-positioning-GPS-ReferenceTime            UE-Positioning-GPS-ReferenceTime
    OPTIONAL,
    ue-positioning-GPS-ReferenceLocation        ReferenceLocation               OPTIONAL,
    ue-positioning-GPS-DGPS-Corrections         UE-Positioning-GPS-DGPS-Corrections
    OPTIONAL,
    ue-positioning-GPS-NavigationModel          UE-Positioning-GPS-NavigationModel
    OPTIONAL,
    ue-positioning-GPS-IonosphericModel         UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
    ue-positioning-GPS-UTC-Model                UE-Positioning-GPS-UTC-Model
    OPTIONAL,
    ue-positioning-GPS-Almanac                  UE-Positioning-GPS-Almanac
    OPTIONAL,
    ue-positioning-GPS-AcquisitionAssistance    UE-Positioning-GPS-AcquisitionAssistance
    OPTIONAL,
    ue-positioning-GPS-Real-timeIntegrity       BadSatList                          OPTIONAL,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    dummy           UE-Positioning-GPS-ReferenceCellInfo        OPTIONAL
}

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

```
}

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

UE-Positioning-GPS-MeasurementResults ::=               SEQUENCE {
    referenceTime                   CHOICE {
        utran-GPSReferenceTimeResult        UTRAN-GPSReferenceTimeResult,
        gps-ReferenceTimeOnly               INTEGER (0..604799999)
    },
    gps-MeasurementParamList        GPS-MeasurementParamList
}

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

UE-Positioning-GPS-NavModelAddDataReq ::=       SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    -- SPARE: gps-Toe, Max = 167
    -- Values above Max are spare
    gps-Toe                         INTEGER (0..255),
    -- SPARE: tToeLimit, Max = 10
    -- Values above Max are spare
    tToeLimit                       INTEGER (0..15),
    satDataList                     SatDataList
}

UE-Positioning-GPS-ReferenceCellInfo ::=        SEQUENCE{
    modeSpecificInfo            CHOICE {
        fdd                             SEQUENCE {
            referenceIdentity           PrimaryCPICH-Info
        },
        tdd                             SEQUENCE {
            referenceIdentity           CellParametersID
        }
    }
}

UE-Positioning-GPS-ReferenceTime ::=            SEQUENCE {
    gps-Week                        INTEGER (0..1023),
    gps-tow-1msec                   GPS-TOW-1msec,
    utran-GPSReferenceTime          UTRAN-GPSReferenceTime             OPTIONAL,
    sfn-tow-Uncertainty             SFN-TOW-Uncertainty               OPTIONAL,
    utran-GPS-DriftRate             UTRAN-GPS-DriftRate               OPTIONAL,
    gps-TOW-AssistList              GPS-TOW-AssistList                OPTIONAL
}

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

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

UE-Positioning-MeasuredResults ::=              SEQUENCE {
    ue-positioning-OTDOA-Measurement                UE-Positioning-OTDOA-Measurement
    OPTIONAL,
```

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

UE-Positioning-MeasuredResults-v390ext ::=       SEQUENCE {
    ue-Positioning-OTDOA-Measurement-v390ext     UE-Positioning-OTDOA-Measurement-v390ext
}

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

UE-Positioning-Measurement-v390ext ::=           SEQUENCE {
    ue-positioning-ReportingQuantity-v390ext     UE-Positioning-ReportingQuantity-v390ext
        OPTIONAL,
    measurementValidity              MeasurementValidity               OPTIONAL,
    ue-positioning-OTDOA-AssistanceData-UEB      UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}

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

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

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

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

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

UE-Positioning-OTDOA-Measurement ::=             SEQUENCE {
    sfn                              INTEGER (0..4095),
    modeSpecificInfo             CHOICE {
        fdd                              SEQUENCE {
            referenceCellIDentity            PrimaryCPICH-Info,
            ue-RX-TX-TimeDifferenceType2Info    UE-RX-TX-TimeDifferenceType2Info
        },
        tdd                              SEQUENCE {
            referenceCellIdentity        CellParametersID
        } },
    neighbourList                    NeighbourList                           OPTIONAL
}

UE-Positioning-OTDOA-Measurement-v390ext ::=             SEQUENCE {
    neighbourList-v390ext            NeighbourList-v390ext
}


UE-Positioning-OTDOA-NeighbourCellInfo ::= SEQUENCE {
```

```
    modeSpecificInfo   CHOICE  {
        fdd                             SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                             SEQUENCE{
            cellAndChannelIdentity              CellAndChannelIdentity
        }
    },
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    ue-positioning-IPDL-Paremeters              UE-Positioning-IPDL-Parameters
    OPTIONAL,
    sfn-SFN-RelTimeDifference           SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                       SFN-SFN-Drift       OPTIONAL,
    searchWindowSize                    OTDOA-SearchWindowSize,
    positioningMode CHOICE{
        ueBased                             SEQUENCE {},
        ueAssisted                          SEQUENCE {}
    }
}

UE-Positioning-OTDOA-NeighbourCellInfo-UEB  ::= SEQUENCE {
    modeSpecificInfo   CHOICE  {
        fdd                             SEQUENCE {
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                             SEQUENCE{
            cellAndChannelIdentity              CellAndChannelIdentity
        }
    },
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    ue-positioning-IPDL-Paremeters      UE-Positioning-IPDL-Parameters      OPTIONAL,
    sfn-SFN-RelTimeDifference           SFN-SFN-RelTimeDifference1,
    sfn-SFN-Drift                       SFN-SFN-Drift                       OPTIONAL,
    searchWindowSize                    OTDOA-SearchWindowSize,
    relativeNorth                       INTEGER (-20000..20000)             OPTIONAL,
    relativeEast                        INTEGER (-20000..20000)             OPTIONAL,
    relativeAltitude                    INTEGER (-4000..4000)               OPTIONAL,
    fineSFN-SFN                         FineSFN-SFN,
    -- Actual value roundTripTime = (IE value * 0.0625) + 876
    roundTripTime                       INTEGER (0.. 32766)                 OPTIONAL
}

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

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

UE-Positioning-OTDOA-Quality ::=            SEQUENCE {
    stdResolution                   BIT STRING (SIZE (2)),
    numberOfOTDOA-Measurements      BIT STRING (SIZE (3)),
    stdOfOTDOA-Measurements         BIT STRING (SIZE (5))
}

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

UE-Positioning-OTDOA-ReferenceCellInfo-UEB ::=      SEQUENCE {
    sfn                             INTEGER (0..4095)
    OPTIONAL,
    modeSpecificInfo CHOICE {
        fdd                                 SEQUENCE {
```

```
            primaryCPICH-Info                   PrimaryCPICH-Info
        },
        tdd                                     SEQUENCE{
            cellAndChannelIdentity              CellAndChannelIdentity
        }
    },
    frequencyInfo                       FrequencyInfo                       OPTIONAL,
    cellPosition                        ReferenceCellPosition               OPTIONAL,
    -- Actual value roundTripTime = (IE value * 0.0625) + 876
    roundTripTime                       INTEGER (0..32766)                  OPTIONAL,
    ue-positioning-IPDL-Paremeters      UE-Positioning-IPDL-Parameters      OPTIONAL
}

UE-Positioning-PositionEstimateInfo ::=                 SEQUENCE {
    referenceTime                       CHOICE {
        utran-GPSReferenceTimeResult        UTRAN-GPSReferenceTimeResult,
        gps-ReferenceTimeOnly               INTEGER (0..604799999),
        cell-Timing                         SEQUENCE {
            sfn                                 INTEGER (0..4095),
            modeSpecificInfo CHOICE {
                fdd                                     SEQUENCE {
                    primaryCPICH-Info                       PrimaryCPICH-Info
                },
                tdd                                     SEQUENCE{
                    cellAndChannelIdentity                  CellAndChannelIdentity
                }
            }
        }
    },
    positionEstimate                    PositionEstimate
}

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

UE-Positioning-ReportingQuantity ::=            SEQUENCE {
    methodType                          UE-Positioning-MethodType,
    positioningMethod                   PositioningMethod,
    -- dummy1 is not used in this version of specification and it should
    -- be ignored.
    dummy1                              UE-Positioning-ResponseTime,
    horizontal-Accuracy                 UE-Positioning-Accuracy             OPTIONAL,
    gps-TimingOfCellWanted              BOOLEAN,
    -- dummy2 is not used in this version of specification and it should
    -- be ignored.
    dummy2                              BOOLEAN,
    additionalAssistanceDataRequest     BOOLEAN,
    environmentCharacterisation         EnvironmentCharacterisation         OPTIONAL
}

UE-Positioning-ReportingQuantity-v390ext ::=        SEQUENCE {
    vertical-Accuracy                   UE-Positioning-Accuracy
}

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

-- SPARE: UTRA-CarrierRSSI, Max = 76
-- Values above Max are spare
UTRA-CarrierRSSI ::=                INTEGER (0..127)

UTRAN-GPS-DriftRate ::=             ENUMERATED {
                                        utran-GPSDrift0, utran-GPSDrift1, utran-GPSDrift2,
                                        utran-GPSDrift5, utran-GPSDrift10, utran-GPSDrift15,
                                        utran-GPSDrift25, utran-GPSDrift50, utran-GPSDrift-1,
                                        utran-GPSDrift-2, utran-GPSDrift-5, utran-GPSDrift-10,
                                        utran-GPSDrift-15, utran-GPSDrift-25, utran-GPSDrift-50}

UTRAN-GPSReferenceTime ::=          SEQUENCE {
    -- For utran-GPSTimingOfCell values above 2322431999999 are not
    -- used in this version of the specification
    -- Actual value utran-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
    utran-GPSTimingOfCell           SEQUENCE {
        ms-part                     INTEGER (0..1023),
```

```
        ls-part                          INTEGER (0..4294967295)
    },
    modeSpecificInfo            CHOICE {
        fdd                             SEQUENCE {
            referenceIdentity               PrimaryCPICH-Info
        },
        tdd                             SEQUENCE {
            referenceIdentity               CellParametersID
        }
    }           OPTIONAL,
    sfn                              INTEGER (0..4095)
}

UTRAN-GPSReferenceTimeResult ::=    SEQUENCE {
    -- For ue-GPSTimingOfCell values above 37158911999999 are not
    -- used in this version of the specification
    -- Actual value ue-GPSTimingOfCell = (ms-part * 4294967296) + ls-part
    ue-GPSTimingOfCell          SEQUENCE {
        ms-part                         INTEGER (0..16383),
        ls-part                         INTEGER (0..4294967295)
    },
    modeSpecificInfo            CHOICE {
        fdd                             SEQUENCE {
            referenceIdentity               PrimaryCPICH-Info
        },
        tdd                             SEQUENCE {
            referenceIdentity               CellParametersID
        }
    },
    sfn                         INTEGER (0..4095)
}

VarianceOfRLC-BufferPayload ::=     ENUMERATED {
                                    plv0, plv4, plv8, plv16, plv32, plv64,
                                    plv128, plv256, plv512, plv1024,
                                    plv2k, plv4k, plv8k, plv16k, spare2, spare1 }

-- Actual value W = IE value * 0.1
W ::=                               INTEGER (0..20)

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

BCC ::=                             INTEGER (0..7)

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

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

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

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

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

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

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

CellValueTag ::=                        INTEGER (1..4)
```

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

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

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

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

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

GSM-Classmark2::=               OCTET STRING (SIZE (5))

GSM-Classmark3::=               OCTET STRING (SIZE (1..32))

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

GsmSecurityCapability ::=       BIT STRING {
                                    a5-7(0),
                                    a5-6(1),
                                    a5-5(2),
                                    a5-4(3),
                                    a5-3(4),
                                    a5-2(5),
                                    a5-1(6)
                                    }  (SIZE (7))

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

InterRAT-ChangeFailureCause ::=     CHOICE {
    configurationUnacceptable         NULL,
    physicalChannelFailure            NULL,
    protocolError                     ProtocolErrorInformation,
    unspecified                       NULL,
    spare4                            NULL,
    spare3                            NULL,
    spare2                            NULL,
    spare1                            NULL
}

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

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

InterRAT-UE-SecurityCapability ::= CHOICE {
    gsm                               SEQUENCE {
        gsmSecurityCapability             GsmSecurityCapability
    }
}

InterRAT-UE-SecurityCapList ::= SEQUENCE (SIZE(1..maxInterSysMessages)) OF
                                              InterRAT-UE-SecurityCapability

InterRAT-HO-FailureCause ::=        CHOICE {
    configurationUnacceptable         NULL,
    physicalChannelFailure            NULL,
```

```
    protocolError                      ProtocolErrorInformation,
    interRAT-ProtocolError             NULL,
    unspecified                        NULL,
    spare11                            NULL,
    spare10                            NULL,
    spare9                             NULL,
    spare8                             NULL,
    spare7                             NULL,
    spare6                             NULL,
    spare5                             NULL,
    spare4                             NULL,
    spare3                             NULL,
    spare2                             NULL,
    spare1                             NULL
}

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

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

NCC ::=                            INTEGER (0..7)

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


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

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

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

Rplmn-Information               ::=    SEQUENCE {
```

```
                                              gsm-BA-Range-List        GSM-BA-Range-List    OPTIONAL,
                                              fdd-UMTS-Frequency-List FDD-UMTS-Frequency-List
    OPTIONAL,
                                              tdd-UMTS-Frequency-List TDD-UMTS-Frequency-List
    OPTIONAL,
                                              cdma2000-UMTS-Frequency-List   CDMA2000-UMTS-Frequency-
List   OPTIONAL
}

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

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

SchedulingInformationSIBSb ::=      SEQUENCE {
    sibSb-Type                      SIBSb-TypeAndTag,
    scheduling                      SchedulingInformation
}

SegCount ::=                        INTEGER (1..16)

SegmentIndex ::=                    INTEGER (1..15)

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


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


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

SIBOccurIdentity ::=                INTEGER (0..15)

SIBOccurrenceIdentityAndValueTag ::=    SEQUENCE {
    sibOccurIdentity                SIBOccurIdentity,
    sibOccurValueTag                SIBOccurValueTag
}

SIBOccurValueTag ::=                INTEGER (0..15)

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

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

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

SIB-Type ::=                        ENUMERATED {
                                        masterInformationBlock,
                                        systemInformationBlockType1,
                                        systemInformationBlockType2,
                                        systemInformationBlockType3,
                                        systemInformationBlockType4,
```

```
                                            systemInformationBlockType5,
                                            systemInformationBlockType6,
                                            systemInformationBlockType7,
                                            systemInformationBlockType8,
                                            systemInformationBlockType9,
                                            systemInformationBlockType10,
                                            systemInformationBlockType11,
                                            systemInformationBlockType12,
                                            systemInformationBlockType13,
                                            systemInformationBlockType13-1,
                                            systemInformationBlockType13-2,
                                            systemInformationBlockType13-3,
                                            systemInformationBlockType13-4,
                                            systemInformationBlockType14,
                                            systemInformationBlockType15,
                                            systemInformationBlockType15-1,
                                            systemInformationBlockType15-2,
                                            systemInformationBlockType15-3,
                                            systemInformationBlockType16,
                                            systemInformationBlockType17,
                                            systemInformationBlockType15-4,
                                            systemInformationBlockType18,
                                            schedulingBlock1,
                                            schedulingBlock2,
                                            systemInformationBlockType15-5,
                                            spare1, spare2 }

SIB-TypeAndTag ::=               CHOICE {
    sysInfoType1                     PLMN-ValueTag,
    sysInfoType2                     CellValueTag,
    sysInfoType3                     CellValueTag,
    sysInfoType4                     CellValueTag,
    sysInfoType5                     CellValueTag,
    sysInfoType6                     CellValueTag,
    sysInfoType7                     NULL,
    sysInfoType8                     CellValueTag,
    sysInfoType9                     NULL,
    sysInfoType10                    NULL,
    sysInfoType11                    CellValueTag,
    sysInfoType12                    CellValueTag,
    sysInfoType13                    CellValueTag,
    sysInfoType13-1                  CellValueTag,
    sysInfoType13-2                  CellValueTag,
    sysInfoType13-3                  CellValueTag,
    sysInfoType13-4                  CellValueTag,
    sysInfoType14                    NULL,
    sysInfoType15                    CellValueTag,
    sysInfoType16                    PredefinedConfigIdentityAndValueTag,
    sysInfoType17                    NULL,
    sysInfoType15-1                  CellValueTag,
    sysInfoType15-2                  SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-3                  SIBOccurrenceIdentityAndValueTag,
    sysInfoType15-4                  CellValueTag,
    sysInfoType18                    CellValueTag,
    sysInfoType15-5                  CellValueTag,
    spare5                           NULL,
    spare4                           NULL,
    spare3                           NULL,
    spare2                           NULL,
    spare1                           NULL
}

SIBSb-TypeAndTag ::=             CHOICE {
    sysInfoType1                     PLMN-ValueTag,
    sysInfoType2                     CellValueTag,
    sysInfoType3                     CellValueTag,
    sysInfoType4                     CellValueTag,
    sysInfoType5                     CellValueTag,
    sysInfoType6                     CellValueTag,
    sysInfoType7                     NULL,
    sysInfoType8                     CellValueTag,
    sysInfoType9                     NULL,
    sysInfoType10                    NULL,
    sysInfoType11                    CellValueTag,
    sysInfoType12                    CellValueTag,
    sysInfoType13                    CellValueTag,
    sysInfoType13-1                  CellValueTag,
    sysInfoType13-2                  CellValueTag,
```

```
        sysInfoType13-3                 CellValueTag,
        sysInfoType13-4                 CellValueTag,
        sysInfoType14                   NULL,
        sysInfoType15                   CellValueTag,
        sysInfoType16                   PredefinedConfigIdentityAndValueTag,
        sysInfoType17                   NULL,
        sysInfoTypeSB1                  CellValueTag,
        sysInfoTypeSB2                  CellValueTag,
        sysInfoType15-1                 CellValueTag,
        sysInfoType15-2                 SIBOccurrenceIdentityAndValueTag,
        sysInfoType15-3                 SIBOccurrenceIdentityAndValueTag,
        sysInfoType15-4                 CellValueTag,
        sysInfoType18                   CellValueTag,
        sysInfoType15-5                 CellValueTag,
        spare3                          NULL,
        spare2                          NULL,
        spare1                          NULL
}

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

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

SysInfoType1 ::=                    SEQUENCE {
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList            CN-DomainSysInfoList,
    -- User equipment IEs
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants       OPTIONAL,
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants       OPTIONAL,
    -- Extension mechanism for non- release99 information
        v3a0NonCriticalExtensions       SEQUENCE {
            sysInfoType1-v3a0ext            SysInfoType1-v3a0ext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
}

SysInfoType1-v3a0ext-IEs ::=        SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext       UE-ConnTimersAndConstants-v3a0ext,
    ue-IdleTimersAndConstants-v3a0ext       UE-IdleTimersAndConstants-v3a0ext
}

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

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

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

SysInfoType5 ::=                    SEQUENCE {
        sib6indicator                   BOOLEAN,
    -- Physical channel IEs
        pich-PowerOffset                PICH-PowerOffset,
        modeSpecificInfo                CHOICE {
```

```
        fdd                             SEQUENCE {
            aich-PowerOffset                AICH-PowerOffset
        },
        tdd                             SEQUENCE {
            pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
            pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
            openLoopPowerControl-TDD        OpenLoopPowerControl-TDD
        }
    },
    primaryCCPCH-Info               PrimaryCCPCH-Info                  OPTIONAL,
    prach-SystemInformationList     PRACH-SystemInformationList,
    sCCPCH-SystemInformationList    SCCPCH-SystemInformationList,
    -- cbs-DRX-Level1Information is conditional on any of the CTCH indicator IEs in
    -- sCCPCH-SystemInformationList
    cbs-DRX-Level1Information        CBS-DRX-Level1Information          OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
}

SysInfoType6 ::=                SEQUENCE {
    -- Physical channel IEs
        pich-PowerOffset                PICH-PowerOffset,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                aich-PowerOffset                AICH-PowerOffset,
                -- dummy is not used in this version of specification, it should
                -- not be sent and if received it should be ignored.
                dummy                 CSICH-PowerOffset           OPTIONAL

            },
            tdd                             SEQUENCE {
                pusch-SysInfoList-SFN           PUSCH-SysInfoList-SFN       OPTIONAL,
                pdsch-SysInfoList-SFN           PDSCH-SysInfoList-SFN       OPTIONAL,
                openLoopPowerControl-TDD        OpenLoopPowerControl-TDD
            }
        },
        primaryCCPCH-Info               PrimaryCCPCH-Info                  OPTIONAL,
        prach-SystemInformationList     PRACH-SystemInformationList        OPTIONAL,
        sCCPCH-SystemInformationList    SCCPCH-SystemInformationList       OPTIONAL,
        -- cbs-DRX-Level1Information is conditional on any of the CTCH indicator IEs in
        -- sCCPCH-SystemInformationList
        cbs-DRX-Level1Information        CBS-DRX-Level1Information          OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}                        OPTIONAL
}

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

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

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

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

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

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

SysInfoType13 ::=                   SEQUENCE {
    -- Core network IEs
        cn-DomainSysInfoList            CN-DomainSysInfoList,
    -- User equipment IEs
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants        OPTIONAL,
        capabilityUpdateRequirement     CapabilityUpdateRequirement      OPTIONAL,
    -- Extension mechanism for non- release99 information
        v3a0NonCriticalExtensions       SEQUENCE {
            sysInfoType13-v3a0ext           SysInfoType13-v3a0ext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}

SysInfoType13-v3a0ext-IEs ::= SEQUENCE {
    ue-IdleTimersAndConstants-v3a0ext       UE-IdleTimersAndConstants-v3a0ext
}

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

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

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

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

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

```
SysInfoType15 ::=                   SEQUENCE {
    -- Measurement IEs
        ue-positioning-GPS-CipherParameters    UE-Positioning-CipherParameters    OPTIONAL,
        ue-positioning-GPS-ReferenceLocation   ReferenceLocation,
        ue-positioning-GPS-ReferenceTime       UE-Positioning-GPS-ReferenceTime,
        ue-positioning-GPS-Real-timeIntegrity  BadSatList                         OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}                               OPTIONAL
}

SysInfoType15-1 ::=                 SEQUENCE {
    -- DGPS corrections
        ue-positioning-GPS-DGPS-Corrections    UE-Positioning-GPS-DGPS-Corrections,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}            OPTIONAL
}

SysInfoType15-2 ::=                 SEQUENCE {
    -- Ephemeris and clock corrections
        transmissionTOW                INTEGER (0..604799),
        satID                          SatID,
        ephemerisParameter             EphemerisParameter,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}         OPTIONAL
}

SysInfoType15-3 ::=                 SEQUENCE {
    -- Almanac and other data
        transmissionTOW                INTEGER (0.. 604799),
        ue-positioning-GPS-Almanac               UE-Positioning-GPS-Almanac
    OPTIONAL,
        ue-positioning-GPS-IonosphericModel      UE-Positioning-GPS-IonosphericModel
    OPTIONAL,
        ue-positioning-GPS-UTC-Model             UE-Positioning-GPS-UTC-Model
    OPTIONAL,
        satMask                        BIT STRING (SIZE (1..32))  OPTIONAL,
        lsbTOW                         BIT STRING (SIZE (8))      OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}                OPTIONAL
}

SysInfoType15-4 ::=                 SEQUENCE {
    -- Measurement IEs
        ue-positioning-OTDOA-CipherParameters  UE-Positioning-CipherParameters       OPTIONAL,
        ue-positioning-OTDOA-AssistanceData    UE-Positioning-OTDOA-AssistanceData,
        v3a0NonCriticalExtensions          SEQUENCE {
            sysInfoType15-4-v3a0ext          SysInfoType15-4-v3a0ext,
    -- Extension mechanism for non- release99 information
            nonCriticalExtensions      SEQUENCE {}                           OPTIONAL
        }   OPTIONAL
}

SysInfoType15-4-v3a0ext ::=         SEQUENCE {
    sfn-Offset-Validity            SFN-Offset-Validity    OPTIONAL
}

SysInfoType15-5 ::=                 SEQUENCE {
    -- Measurement IEs
        ue-positioning-OTDOA-AssistanceData-UEB    UE-Positioning-OTDOA-AssistanceData-UEB,
        v3a0NonCriticalExtensions          SEQUENCE {
            sysInfoType15-5-v3a0ext          SysInfoType15-5-v3a0ext,
    -- Extension mechanism for non- release99 information
            nonCriticalExtensions      SEQUENCE {}                           OPTIONAL
        }   OPTIONAL
}

SysInfoType15-5-v3a0ext ::=         SEQUENCE {
    sfn-Offset-Validity            SFN-Offset-Validity    OPTIONAL
}

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

SysInfoType17 ::=                   SEQUENCE {
```

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

SysInfoType18 ::=                       SEQUENCE {
        idleModePLMNIdentities          PLMNIdentitiesOfNeighbourCells      OPTIONAL,
        connectedModePLMNIdentities PLMNIdentitiesOfNeighbourCells      OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}    OPTIONAL
}

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

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


-- **************************************************
--
--      ANSI-41 INFORMATION ELEMENTS (10.3.9)
--
-- **************************************************

ANSI-41-GlobalServiceRedirectInfo ::=   ANSI-41-NAS-Parameter
ANSI-41-PrivateNeighbourListInfo ::=    ANSI-41-NAS-Parameter
ANSI-41-RAND-Information ::=            ANSI-41-NAS-Parameter
ANSI-41-UserZoneID-Information ::=      ANSI-41-NAS-Parameter
ANSI-41-NAS-Parameter ::=              BIT STRING (SIZE (1..2048))

Min-P-REV ::=                          BIT STRING (SIZE (8))

NAS-SystemInformationANSI-41 ::=       ANSI-41-NAS-Parameter
NID ::=                                BIT STRING (SIZE (16))

P-REV ::=                              BIT STRING (SIZE (8))

SID ::=                                BIT STRING (SIZE (15))

END
```

11.4   Constant definitions

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

BEGIN

hiPDSCHidentities         INTEGER ::= 64
hiPUSCHidentities         INTEGER ::= 64
hiRM                      INTEGER ::= 256
maxAC                     INTEGER ::= 16
maxAdditionalMeas         INTEGER ::= 4
maxASC                    INTEGER ::= 8
maxASCmap                 INTEGER ::= 7
maxASCpersist             INTEGER ::= 6
maxCCTrCH                 INTEGER ::= 8
maxCellMeas           INTEGER ::= 32
maxCellMeas-1             INTEGER ::= 31
maxCNdomains              INTEGER ::= 4
maxCPCHsets               INTEGER ::= 16
maxDPCH-DLchan            INTEGER ::= 8
maxDPDCH-UL               INTEGER ::= 6
maxDRACclasses            INTEGER ::= 8
maxFACHPCH                INTEGER ::= 8
maxFreq                   INTEGER ::= 8
```

```
maxFreqBandsFDD          INTEGER ::= 8
maxFreqBandsTDD          INTEGER ::= 4
maxFreqBandsGSM          INTEGER ::= 16
maxInterSysMessages    INTEGER ::= 4
maxLoCHperRLC            INTEGER ::= 2
maxMeasEvent             INTEGER ::= 8
maxMeasIntervals         INTEGER ::= 3
maxMeasParEvent          INTEGER ::= 2
maxNumCDMA2000Freqs      INTEGER ::=  8
maxNumGSMFreqRanges      INTEGER ::= 32
maxNumFDDFreqs           INTEGER ::=  8
maxNumTDDFreqs           INTEGER ::=  8
maxNoOfMeas              INTEGER ::= 16
maxOtherRAT              INTEGER ::= 15
maxOtherRAT-16           INTEGER ::= 16
maxPage1                 INTEGER ::= 8
maxPCPCH-APsig           INTEGER ::= 16
maxPCPCH-APsubCh         INTEGER ::= 12
maxPCPCH-CDsig           INTEGER ::= 16
maxPCPCH-CDsubCh         INTEGER ::= 12
maxPCPCH-SF              INTEGER ::= 7
maxPCPCHs                INTEGER ::= 64
maxPDCPAlgoType          INTEGER ::= 8
maxPDSCH                 INTEGER ::= 8
maxPDSCH-TFCIgroups      INTEGER ::= 256
maxPRACH                 INTEGER ::= 16
maxPredefConfig          INTEGER ::= 16
maxPUSCH                 INTEGER ::= 8
maxRABsetup              INTEGER ::= 16
maxRAT                   INTEGER ::= 16
maxRB                    INTEGER ::= 32
maxRBallRABs             INTEGER ::= 27
maxRBMuxOptions          INTEGER ::= 8
maxRBperRAB              INTEGER ::= 8
maxReportedGSMCells      INTEGER ::= 8
maxRL                    INTEGER ::= 8
maxRL-1                  INTEGER ::= 7
maxSat                   INTEGER ::= 16
maxSCCPCH                INTEGER ::= 16
maxSIB                   INTEGER ::= 32
maxSIB-FACH              INTEGER ::= 8
maxSIBperMsg             INTEGER ::= 16
maxSRBsetup              INTEGER ::= 8
maxSystemCapability      INTEGER ::= 16
maxTF                    INTEGER ::= 32
maxTF-CPCH               INTEGER ::= 16
maxTFC                   INTEGER ::= 1024
maxTFCI-2-Combs          INTEGER ::= 512
maxTGPS                  INTEGER ::= 6
maxTrCH                  INTEGER ::= 32
-- maxTrCHpreconf should be 16 but has been set to 32 for compatibility
maxTrCHpreconf           INTEGER ::= 32
maxTS                    INTEGER ::= 14
maxTS-1                  INTEGER ::= 13
maxURA                   INTEGER ::= 8


END
```

CR-Form-v7

CHANGE REQUEST

⌘   **25.331 CR 1733**   ⌘ **rev** **1** ⌘   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 ☐ Radio Access Network ☐ Core Network ☐

Title: ⌘	Introduction of backwards compatible correction mechanism	
Source: ⌘	Nokia	
Work item code: ⌘	TEI	***Date:*** ⌘ 19/Nov/2002
Category: ⌘ **A**		***Release:*** ⌘ Rel-4

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

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

Reason for change: ⌘	Currently once backwards compatibility is started for Rel-4 there will be now mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change: ⌘	Extension Containers principle introduced. **Impact Analysis:** No Impact There is no impact as this does not actually make any changes to the protocol specification, but introduces the mechanism so that the changes can be made.
Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.
Clauses affected: ⌘	9.8, 10.1.1, 11.0, 11.2

		Y	N		
Other specs Affected:	⌘	X		Other core specifications ⌘	25.921 CR 043.
			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.

9.8 Unexpected non-critical message extension

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

1> If the non critical extension is included in the "Variable Length Extension Container":

2> ignore the content of the extension and the contents of this container after the not comprehended extension, and continue decoding the rest of the message

1> otherwise

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

If the UE receives a system information block on the BCCH containing an undefined non-critical message extension, the UE shall:

1> ignore the content of the extension and the system information block contents after the extension, but treat the parts of the system information block up to the extension normally.

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

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

10.1.1   Protocol extensions

RRC messages may be extended in future versions of this protocol, either by adding values for choices, enumerated and size constrained types or by adding information elements. An important aspect concerns the behaviour of a UE, conforming to this revision of the standard, upon receiving a not comprehended future extension. The details of this error handling behaviour are provided in clause 9.

> NOTE 1:   By avoiding the need for partial decoding (skipping uncomprehended IEs to continue decoding the remainder of the message), the RRC protocol extension mechanism also avoids the overhead of length determinants for extensions. "Variable length extension containers" (i.e. non critical extension containers that have their abstract syntax defined using the ASN.1 type "BIT STRING") have been defined to support the introduction of extensions to a release after the subsequent release is frozen (and UEs based on that subsequent may appear). For this container a length determinant is used, which facilitates partial decoding of the container as well as the decoding of the extensions included after the container.

Two kinds of protocol extensions are distinguished: non-critical and critical extensions. In general, a receiver shall process a message including not comprehended non-critical extensions as if the extensions were absent. However, a receiver shall entirely reject a message including not comprehended critical extensions (there is no partial rejection) and notify the sender, as specified in clause 9.

The general mechanism for adding critical extensions is by defining a new version of the message, which is indicated at the beginning of the message.

The UE shall always comprehend the complete transfer syntax specified for the protocol version it supports; if the UE comprehends the transfer syntax defined within protocol version A for message 1, it shall also comprehend the transfer syntax defined within protocol version A for message 2.

The following table shows for which messages only non-critical extensions may be added while for others both critical and non-critical extensions may be added.

> NOTE 2: Critical extensions can only be added to certain downlink messages.

Extensions	Message
Critical and non-critical extensions	ACTIVE SET UPDATE 10.2.1 ASSISTANCE DATA DELIVERY 10.2.4 CELL CHANGE ORDER FROM UTRAN 10.2.5 CELL UPDATE CONFIRM 10.2.8 COUNTER CHECK 10.2.9 DOWNLINK DIRECT TRANSFER 10.2.11 HANDOVER TO UTRAN COMMAND 10.2.16a HANDOVER FROM UTRAN COMMAND 10.2.15 MEASUREMENT CONTROL 10.2.17 PHYSICAL CHANNEL RECONFIGURATION 10.2.22 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.25 RADIO BEARER RECONFIGURATION 10.2.27 RADIO BEARER RELEASE 10.2.30 RADIO BEARER SETUP 10.2.33 RRC CONNECTION REJECT 10.2.36 RRC CONNECTION RELEASE 10.2.37 RRC CONNECTION SETUP 10.2.40 SECURITY MODE COMMAND 10.2.43 SIGNALLING CONNECTION RELEASE 10.2.46 TRANSPORT CHANNEL RECONFIGURATION 10.2.50 UE CAPABILITY ENQUIRY 10.2.55 UE CAPABILITY INFORMATION CONFIRM 10.2.57 UPLINK PHYSICAL CHANNEL CONTROL 10.2.59 URA UPDATE CONFIRM 10.2.61 UTRAN MOBILITY INFORMATION 10.2.62
Non-critical extensions only	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL CHANGE ORDER FROM UTRAN FAILURE 10.2.6 CELL UPDATE 10.2.7 COUNTER CHECK RESPONSE 10.2.10 HANDOVER TO UTRAN COMPLETE 10.2.16b INITIAL DIRECT TRANSFER 10.2.16c HANDOVER FROM UTRAN FAILURE 10.2.16

Extensions	Message
	MEASUREMENT CONTROL FAILURE 10.2.18
	MEASUREMENT REPORT 10.2.19
	PAGING TYPE 1 10.2.20
	PAGING TYPE 2 10.2.21
	PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.23
	PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.24
	PUSCH CAPACITY REQUEST 10.2.26
	RADIO BEARER RECONFIGURATION COMPLETE 10.2.28
	RADIO BEARER RECONFIGURATION FAILURE 10.2.29
	RADIO BEARER RELEASE COMPLETE 10.2.31
	RADIO BEARER RELEASE FAILURE 10.2.32
	RADIO BEARER SETUP COMPLETE 10.2.34
	RADIO BEARER SETUP FAILURE 10.2.35
	RRC CONNECTION RELEASE COMPLETE 10.2.38
	RRC CONNECTION REQUEST 10.2.39
	RRC CONNECTION SETUP COMPLETE 10.2.41
	RRC STATUS 10.2.42
	SECURITY MODE COMPLETE 10.2.44
	SECURITY MODE FAILURE 10.2.45
	SIGNALLING CONNECTION RELEASE INDICATION 10.2.47
	Master Information Block 10.2.48.8.1
	System Information Block type 1 to
	System Information Block type 17 10.2.48.8.2 to 10.2.48.8.19
	SYSTEM INFORMATION CHANGE INDICATION 10.2.49
	TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.51
	TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.52
	TRANSPORT FORMAT COMBINATION CONTROL 10.2.53
	TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.54
	UE CAPABILITY INFORMATION 10.2.56
	UPLINK DIRECT TRANSFER 10.2.58
	URA UPDATE 10.2.60
	UTRAN MOBILITY INFORMATION CONFIRM 10.2.63
	UTRAN MOBILITY INFORMATION FAILURE 10.2.64
No extensions	SYSTEM INFORMATION 10.2.48
	First Segment 10.2.48.1
	Subsequent or last Segment 10.2.48.3
	Complete SIB 10.2.48.5
	SIB content 10.2.48.8.1

NOTE 3: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks.

10.1.1.1 Non-critical extensions

10.1.1.1.1 Extension of an information element with additional values or choices

In future versions of this protocol, non-critical values may be added to choices, enumerated and size constrained types.

For choices, enumerated and size constrained types it is possible to indicate how many non-critical spare values need to be reserved for future extension. In this case, the tabular format should indicate the number of spare values that are needed. The value range defined in ASN.1 for the extensible IE should include the number of spares that are needed, since a value outside the range defined for this IE will result in a general ASN.1 violation error.

For downlink messages, spare values may be defined for non-critical information elements for which the need is specified to be MD or OP (or CV case leading to MD or OP). In this case, a receiver not comprehending the received spare value shall consider the information element to have the default value or consider it to be absent respectively.

For uplink messages spare values may be defined for all information elements, including those for which the need is specified to be MP (or CV case leading to MP).

In all cases at most one spare should be defined for choices. In this case, information elements applicable to the spare choices shall be added to the end of the message.

10.1.1.1.2 Extension of a message with additional information elements

In future versions of this protocol, non-critical information elements may be added to RRC messages. These additional information elements shall be normally appended at the end of the message; the transfer syntax specified in this revision of the standard facilitates this. A receiver conformant to this revision of the standard shall accept such extension, and proceed as if it was not included. Extensions to a release that are introduced after the subsequent release is frozen may however be inserted prior to the end of the message. To facilitate this, "variable length extension containers" have been introduced in most messages.

10.1.1.2 Critical extensions

10.1.1.2.1 Extension of an information element with additional values or choices

In versions of this protocol, choices, enumerated and size constrained types may be extended with critical values. For extension with critical values the general critical extension mechanism is used, i.e. for this no spare values are reserved since backward compatibility is not required.

10.1.1.2.2 Extension of a message with additional information elements

In future versions of this protocol, RRC messages may be extended with new information elements. Since messages including critical extensions are rejected by receivers not comprehending them, these messages may be modified completely, e.g. IEs may be inserted at any place and IEs may be removed or redefined.

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

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in [14]. PDU and IE definitions are grouped into separate ASN.1 modules.

11.0 General

Some messages and/or IEs may include one or more IEs with name "dummy" that are included only in the ASN.1. The UE should avoid sending information elements that are named "dummy" to UTRAN. Likewise, UTRAN should avoid sending IEs with name "dummy" to the UE. If the UE anyhow receives an information element named "dummy", it shall ignore the IE and process the rest of the message as if the IE was not included.

NOTE: An IE with name "dummy" concerns an information element that was (erroneously) included in a previous version of the specification and has been removed by replacing it with a dummy with same type.

The UE shall only include the "variable length extension container" when it sends a non critical extension that according to this specification shall be transferred within this container

If the abstract syntax of an IE is defined using the ASN.1 type "BIT STRING", and this IE corresponds to a functional IE definition in tabular format, in which the significance of bits is semantically defined, the following general rule shall be applied:

The bits in the ASN.1 bit string shall represent the semantics of the functional IE definition in decreasing order of bit significance;

- with the first (or leftmost) bit in the bit string representing the most significant bit; and

- with the last (or rightmost) bit in the bit string representing the least significant bit.

11.1 General message structure

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

BEGIN

IMPORTS

    ActiveSetUpdate,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    AssistanceDataDelivery,
    CellChangeOrderFromUTRAN,
    CellChangeOrderFromUTRANFailure,
    CellUpdate,
    CellUpdateConfirm-CCCH,
    CellUpdateConfirm,
    CounterCheck,
    CounterCheckResponse,
    DownlinkDirectTransfer,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    HandoverFromUTRANCommand-GSM,
    HandoverFromUTRANCommand-CDMA2000,
    HandoverFromUTRANFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
```

```
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionRelease-CCCH,
    RRCConnectionReleaseComplete,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SignallingConnectionReleaseIndication,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH,
    UTRANMobilityInformation,
    UTRANMobilityInformationConfirm,
    UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
    IntegrityCheckInfo
FROM InformationElements;

--*************************************************************
--
-- Downlink DCCH messages
--
--*************************************************************

DL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 DL-DCCH-MessageType
}

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                 ActiveSetUpdate,
    assistanceDataDelivery          AssistanceDataDelivery,
    cellChangeOrderFromUTRAN        CellChangeOrderFromUTRAN,
    cellUpdateConfirm               CellUpdateConfirm,
    counterCheck                    CounterCheck,
    downlinkDirectTransfer          DownlinkDirectTransfer,
    handoverFromUTRANCommand-GSM    HandoverFromUTRANCommand-GSM,
    handoverFromUTRANCommand-CDMA2000  HandoverFromUTRANCommand-CDMA2000,
    measurementControl              MeasurementControl,
    pagingType2                     PagingType2,
    physicalChannelReconfiguration  PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    radioBearerReconfiguration      RadioBearerReconfiguration,
    radioBearerRelease              RadioBearerRelease,
    radioBearerSetup                RadioBearerSetup,
    rrcConnectionRelease            RRCConnectionRelease,
    securityModeCommand             SecurityModeCommand,
    signallingConnectionRelease     SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
```

```
    transportFormatCombinationControl    TransportFormatCombinationControl,
    ueCapabilityEnquiry                  UECapabilityEnquiry,
    ueCapabilityInformationConfirm       UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl         UplinkPhysicalChannelControl,
    uraUpdateConfirm                     URAUpdateConfirm,
    utranMobilityInformation             UTRANMobilityInformation,
    spare7                               NULL,
    spare6                               NULL,
    spare5                               NULL,
    spare4                               NULL,
    spare3                               NULL,
    spare2                               NULL,
    spare1                               NULL
}


--***************************************************************
--
-- Uplink DCCH messages
--
--***************************************************************

UL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 UL-DCCH-MessageType
}

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete              ActiveSetUpdateComplete,
    activeSetUpdateFailure               ActiveSetUpdateFailure,
    cellChangeOrderFromUTRANFailure      CellChangeOrderFromUTRANFailure,
    counterCheckResponse                 CounterCheckResponse,
    handoverToUTRANComplete              HandoverToUTRANComplete,
    initialDirectTransfer                InitialDirectTransfer,
    handoverFromUTRANFailure             HandoverFromUTRANFailure,
    measurementControlFailure            MeasurementControlFailure,
    measurementReport                    MeasurementReport,
    physicalChannelReconfigurationComplete
                                         PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure
                                         PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete   RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure    RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete           RadioBearerReleaseComplete,
    radioBearerReleaseFailure            RadioBearerReleaseFailure,
    radioBearerSetupComplete             RadioBearerSetupComplete,
    radioBearerSetupFailure              RadioBearerSetupFailure,
    rrcConnectionReleaseComplete         RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete           RRCConnectionSetupComplete,
    rrcStatus                            RRCStatus,
    securityModeComplete                 SecurityModeComplete,
    securityModeFailure                  SecurityModeFailure,
    signallingConnectionReleaseIndication
                                         SignallingConnectionReleaseIndication,
    transportChannelReconfigurationComplete
                                         TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure
                                         TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure
                                         TransportFormatCombinationControlFailure,
    ueCapabilityInformation              UECapabilityInformation,
    uplinkDirectTransfer                 UplinkDirectTransfer,
    utranMobilityInformationConfirm      UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure      UTRANMobilityInformationFailure,
    spare2                               NULL,
    spare1                               NULL
}


--***************************************************************
--
-- Downlink CCCH messages
--
--***************************************************************

DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 DL-CCCH-MessageType
}
```

```
DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm                 CellUpdateConfirm-CCCH,
    rrcConnectionReject               RRCConnectionReject,
    rrcConnectionRelease              RRCConnectionRelease-CCCH,
    rrcConnectionSetup                RRCConnectionSetup,
    uraUpdateConfirm                  URAUpdateConfirm-CCCH,
    spare3                            NULL,
    spare2                            NULL,
    spare1                            NULL
}

--****************************************************************
--
-- Uplink CCCH messages
--
--****************************************************************

UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo     IntegrityCheckInfo     OPTIONAL,
    message                UL-CCCH-MessageType
}

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                        CellUpdate,
    rrcConnectionRequest              RRCConnectionRequest,
    uraUpdate                         URAUpdate,
    spare1                            NULL
}

--****************************************************************
--
-- PCCH messages
--
--****************************************************************

PCCH-Message ::= SEQUENCE {
    message            PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1                       PagingType1,
    spare                             NULL
}

--****************************************************************
--
-- Downlink SHCCH messages
--
--****************************************************************

DL-SHCCH-Message ::= SEQUENCE {
    message                DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation   PhysicalSharedChannelAllocation,
    extension                         NULL
}

--****************************************************************
--
-- Uplink SHCCH messages
--
--****************************************************************

UL-SHCCH-Message ::= SEQUENCE {
    message                UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
    puschCapacityRequest              PUSCHCapacityRequest,
    spare                             NULL
}


--****************************************************************
--
-- BCCH messages sent on FACH
```

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

BCCH-FACH-Message ::= SEQUENCE {
    message              BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation                   SystemInformation-FACH,
    systemInformationChangeIndication   SystemInformationChangeIndication,
    spare2                              NULL,
    spare1                              NULL
}

--***************************************************************
--
-- BCCH messages sent on BCH
--
--***************************************************************

BCCH-BCH-Message ::= SEQUENCE {
    message              SystemInformation-BCH
}

END
```

11.2   PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    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,
    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;

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

ActiveSetUpdate ::= CHOICE {
    r3                              SEQUENCE {
        activeSetUpdate-r3          ActiveSetUpdate-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdate-r3-add-ext      BIT STRING      OPTIONAL,
            v4xyNonCriticalExtensions       SEQUENCE {
                activeSetUpdate-v4xyext     ActiveSetUpdate-v4xyext-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
        criticalExtensions          SEQUENCE {}
    }
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy and dummy2 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy                           IntegrityProtectionModeInfo         OPTIONAL,
        dummy2                          CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        newU-RNTI                       U-RNTI                              OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        -- dummy3 is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy3                          DL-CounterSynchronisationInfo       OPTIONAL,
    -- Physical channel IEs
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        rl-AdditionInformationList      RL-AdditionInformationList          OPTIONAL,
        rl-RemovalInformationList       RL-RemovalInformationList           OPTIONAL,
        tx-DiversityMode                TX-DiversityMode                    OPTIONAL,
        ssdt-Information                SSDT-Information                    OPTIONAL
}

ActiveSetUpdate-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information. 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 RL-AdditionInformationList included in this message
        cell-id-PerRL-List              CellIdentity-PerRL-List             OPTIONAL
}


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

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtActivationInfo         OPTIONAL,
```

```
    -- Radio bearer IEs
        -- dummy2 and dummy3 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy2                          RB-ActivationTimeInfoList          OPTIONAL,
        dummy3                          UL-CounterSynchronisationInfo      OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdateComplete-r3-add-ext      BIT STRING      OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
}


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

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdateFailure-r3-add-ext       BIT STRING      OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
    } OPTIONAL
}


-- **************************************************
--
-- Assistance Data Delivery
--
-- **************************************************

AssistanceDataDelivery ::= CHOICE {
    r3                              SEQUENCE {
        assistanceDataDelivery-r3       AssistanceDataDelivery-r3-IEs,
        v3aoNonCriticalExextensions     SEQUENCE {
            assistanceDataDelivery-v3a0ext  AssistanceDataDelivery-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                assistanceDataDelivery-r3-add-ext       BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    assistanceDataDelivery-v4xyext
                                                    AssistanceDataDelivery-v4xyext-IEs,
                    nonCriticalExtensions       SEQUENCE {}                 OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Measurement Information Elements
    ue-positioning-GPS-AssistanceData           UE-Positioning-GPS-AssistanceData
    OPTIONAL,
    ue-positioning-OTDOA-AssistanceData-UEB     UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}

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

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

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

```
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- **************************************************

CellChangeOrderFromUTRAN ::= CHOICE {
    r3                              SEQUENCE {
        cellChangeOrderFromUTRAN-IEs      CellChangeOrderFromUTRAN-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRAN-r3-add-ext    BIT STRING     OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }    OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtectionModeInfo        OPTIONAL,
        activationTime                  ActivationTime                     OPTIONAL,
        -- the IE rab-InformationList is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored. The IE may be used in a later
        -- version of the protocol and hence it is not changed into a dummy
        rab-InformationList             RAB-InformationList                OPTIONAL,
        interRAT-TargetCellDescription  InterRAT-TargetCellDescription
}

-- **************************************************
--
-- CELL CHANGE ORDER FROM UTRAN FAILURE
--
-- **************************************************

CellChangeOrderFromUTRANFailure ::= CHOICE {
    r3                              SEQUENCE {
        cellChangeOrderFromUTRANFailure-r3
                                        CellChangeOrderFromUTRANFailure-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRANFailure-r3-add-ext    BIT STRING  OPTIONAL,
            nonCriticalExtensions                         SEQUENCE {} OPTIONAL
        }    OPTIONAL
    },
    -- dummy is not used in this version of the specification and it
    -- should be ignored.
    dummy                           SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtectionModeInfo        OPTIONAL,
        interRAT-ChangeFailureCause     InterRAT-ChangeFailureCause
}

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList       STARTList,
        am-RLC-ErrorIndicationRb2-3or4      BOOLEAN,
```

```
        am-RLC-ErrorIndicationRb5orAbove    BOOLEAN,
        cellUpdateCause                     CellUpdateCause,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
        failureCause                        FailureCauseWithProtErrTrId    OPTIONAL,
        rb-timer-indicator                  Rb-timer-indicator,
    -- Measurement IEs
        measuredResultsOnRACH               MeasuredResultsOnRACH          OPTIONAL,
        laterNonCriticalExtensions     SEQUENCE {
            -- Container for additional R99 extensions
            cellUpdate-r3-add-ext           BIT STRING  OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}


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

CellUpdateConfirm ::= CHOICE {
    r3                              SEQUENCE {
        cellUpdateConfirm-r3        CellUpdateConfirm-r3-IEs,
        v3a0NonCriticalExtensions          SEQUENCE {
            cellUpdateConfirm-v3a0ext          CellUpdateConfirm-v3a0ext,
            laterNonCriticalExtensions     SEQUENCE {
                -- Container for additional R99 extensions
                cellUpdateConfirm-r3-add-ext       BIT STRING  OPTIONAL,
                v4xyNonCriticalExtensions          SEQUENCE {
                    cellUpdateConfirm-v4xyext          CellUpdateConfirm-v4xyext-IEs,
                    nonCriticalExtensions              SEQUENCE {} OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                cellUpdateConfirm-r4            CellUpdateConfirm-r4-IEs,
                nonCriticalExtensions          SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
    cipheringModeInfo               CipheringModeInfo                  OPTIONAL,
    activationTime                  ActivationTime                     OPTIONAL,
    new-U-RNTI                      U-RNTI                             OPTIONAL,
    new-C-RNTI                      C-RNTI                             OPTIONAL,
    rrc-StateIndicator              RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    rlc-Re-establishIndicatorRb2-3or4      BOOLEAN,
    rlc-Re-establishIndicatorRb5orAbove    BOOLEAN,
    -- CN information elements
    cn-InformationInfo              CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
    rb-InformationReleaseList       RB-InformationReleaseList          OPTIONAL,
    rb-InformationReconfigList      RB-InformationReconfigList         OPTIONAL,
    rb-InformationAffectedList      RB-InformationAffectedList         OPTIONAL,
    dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo      OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo               OPTIONAL,
    ul-deletedTransChInfoList       UL-DeletedTransChInfoList          OPTIONAL,
    ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList        OPTIONAL,
    modeSpecificTransChInfo         CHOICE {
        fdd                             SEQUENCE {
            cpch-SetID                      CPCH-SetID                 OPTIONAL,
            addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
        },
```

```
            tdd                           NULL
        },
        dl-CommonTransChInfo          DL-CommonTransChInfo            OPTIONAL,
        dl-DeletedTransChInfoList     DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList     OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                 FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement         UL-ChannelRequirement           OPTIONAL,
        modeSpecificPhysChInfo        CHOICE {
            fdd                           SEQUENCE {
                dl-PDSCH-Information           DL-PDSCH-Information    OPTIONAL
            },
            tdd                           NULL
        },
        dl-CommonInformation          DL-CommonInformation            OPTIONAL,
        dl-InformationPerRL-List      DL-InformationPerRL-List        OPTIONAL
}

CellUpdateConfirm-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI               DSCH-RNTI                              OPTIONAL
}

CellUpdateConfirm-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

CellUpdateConfirm-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo   IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo             CipheringModeInfo               OPTIONAL,
        activationTime                ActivationTime                  OPTIONAL,
        new-U-RNTI                    U-RNTI                          OPTIONAL,
        new-C-RNTI                    C-RNTI                          OPTIONAL,
        new-DSCH-RNTI                 DSCH-RNTI                       OPTIONAL,
        rrc-StateIndicator            RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff    UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
        rlc-ResetIndicatorC-Plane     BOOLEAN,
        rlc-ResetIndicatorU-Plane     BOOLEAN,
    -- CN information elements
        cn-InformationInfo            CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                  URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rb-InformationReleaseList     RB-InformationReleaseList       OPTIONAL,
        rb-InformationReconfigList    RB-InformationReconfigList-r4    OPTIONAL,
        rb-InformationAffectedList    RB-InformationAffectedList       OPTIONAL,
        dl-CounterSynchronisationInfo DL-CounterSynchronisationInfo   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo          UL-CommonTransChInfo-r4          OPTIONAL,
        ul-deletedTransChInfoList     UL-DeletedTransChInfoList        OPTIONAL,
        ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList      OPTIONAL,
        modeSpecificTransChInfo       CHOICE {
            fdd                           SEQUENCE {
                cpch-SetID                    CPCH-SetID               OPTIONAL,
                addReconfTransChDRAC-Info     DRAC-StaticInformationList OPTIONAL
            },
            tdd                           NULL
        },
        dl-CommonTransChInfo          DL-CommonTransChInfo-r4          OPTIONAL,
        dl-DeletedTransChInfoList     DL-DeletedTransChInfoList        OPTIONAL,
        dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList-r4   OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                 FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power         MaxAllowedUL-TX-Power            OPTIONAL,
        ul-ChannelRequirement         UL-ChannelRequirement-r4         OPTIONAL,
        modeSpecificPhysChInfo        CHOICE {
            fdd                           SEQUENCE {
                dl-PDSCH-Information           DL-PDSCH-Information    OPTIONAL
            },
            tdd                           NULL
        },
```

```
                 dl-CommonInformation              DL-CommonInformation-r4              OPTIONAL,
                 dl-InformationPerRL-List          DL-InformationPerRL-List-r4         OPTIONAL
}

-- **************************************************
--
-- CELL UPDATE CONFIRM for CCCH
--
-- **************************************************

CellUpdateConfirm-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        -- User equipment IEs
            u-RNTI                      U-RNTI,
        -- The rest of the message is identical to the one sent on DCCH.
            cellUpdateConfirm-r3                CellUpdateConfirm-r3-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                cellUpdateConfirm-CCCH-r3-add-ext       BIT STRING  OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    cellUpdateConfirm-v4xyext       CellUpdateConfirm-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                -- The rest of the message is identical to the one sent on DCCH.
                cellUpdateConfirm-r4            CellUpdateConfirm-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}    OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

CounterCheck ::= CHOICE {
    r3                              SEQUENCE {
        counterCheck-r3                 CounterCheck-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            counterCheck-r3-add-ext     BIT STRING  OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

CounterCheckResponse ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Radio bearer IEs
        rb-COUNT-C-InformationList       RB-COUNT-C-InformationList          OPTIONAL,
```

```
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            counterCheckResponse-r3-add-ext        BIT STRING  OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions            SEQUENCE {} OPTIONAL
        } OPTIONAL
}


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

DownlinkDirectTransfer ::= CHOICE {
    r3                            SEQUENCE {
        downlinkDirectTransfer-r3      DownlinkDirectTransfer-r3-IEs,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            downlinkDirectTransfer-r3-add-ext        BIT STRING  OPTIONAL,
            nonCriticalExtensions                SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                 SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

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

-- **************************************************
--
-- HANDOVER TO UTRAN COMMAND
--
-- **************************************************


HandoverToUTRANCommand ::= CHOICE {
    r3                              SEQUENCE {
        handoverToUTRANCommand-r3      HandoverToUTRANCommand-r3-IEs,
        v4xyNonCriticalExtensions       SEQUENCE {
            handoverToUTRANCommand-v4xyext  HandoverToUTRANCommand-v4xyext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions            CHOICE {
        r4                            SEQUENCE {
            handoverToUTRANCommand-r4      HandoverToUTRANCommand-r4-IEs,
            nonCriticalExtensions         SEQUENCE {}    OPTIONAL
        },
        criticalExtensions            SEQUENCE {}
    }
}

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        new-U-RNTI                    U-RNTI-Short,
        -- dummy is not used in this version of specification, it should
        -- not be sent and if received it should be ignored.
        dummy                         ActivationTime                  OPTIONAL,
        cipheringAlgorithm            CipheringAlgorithm              OPTIONAL,
    -- Radio bearer IEs
    -- Specification mode information
        specificationMode             CHOICE {
            complete                      SEQUENCE {
                srb-InformationSetupList      SRB-InformationSetupList,
                rab-InformationSetupList      RAB-InformationSetupList            OPTIONAL,
                ul-CommonTransChInfo          UL-CommonTransChInfo,
                ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList,
                dl-CommonTransChInfo          DL-CommonTransChInfo,
                dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList,
```

```
                    ul-DPCH-Info                     UL-DPCH-Info,
                    modeSpecificInfo                 CHOICE {
                        fdd                              SEQUENCE {
                            dl-PDSCH-Information              DL-PDSCH-Information OPTIONAL,
                            cpch-SetInfo                     CPCH-SetInfo        OPTIONAL
                        },
                        tdd                              NULL
                    },
                    dl-CommonInformation             DL-CommonInformation,
                    dl-InformationPerRL-List         DL-InformationPerRL-List,
                    frequencyInfo                    FrequencyInfo
                },
                preconfiguration                SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
                    preConfigMode                    CHOICE {
                        predefinedConfigIdentity         PredefinedConfigIdentity,
                        defaultConfig                    SEQUENCE {
                            defaultConfigMode                DefaultConfigMode,
                            defaultConfigIdentity            DefaultConfigIdentity
                        }
                    },
                    rab-Info                         RAB-Info-Post       OPTIONAL,
                    modeSpecificInfo                 CHOICE {
                        fdd                              SEQUENCE {
                            ul-DPCH-Info                     UL-DPCH-InfoPostFDD,
                            dl-CommonInformationPost         DL-CommonInformationPost,
                            dl-InformationPerRL-List         DL-InformationPerRL-ListPostFDD,
                            frequencyInfo                    FrequencyInfoFDD
                        },
                        tdd                              SEQUENCE {
                            ul-DPCH-Info                     UL-DPCH-InfoPostTDD,
                            dl-CommonInformationPost         DL-CommonInformationPost,
                            dl-InformationPerRL              DL-InformationPerRL-PostTDD,
                            frequencyInfo                    FrequencyInfoTDD,
                            primaryCCPCH-TX-Power            PrimaryCCPCH-TX-Power
                        }

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

HandoverToUTRANCommand-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
        ssdt-UL                         SSDT-UL-r4                          OPTIONAL,
        cell-id                         CellIdentity                       OPTIONAL
}

HandoverToUTRANCommand-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        new-U-RNTI                  U-RNTI-Short,
        cipheringAlgorithm          CipheringAlgorithm              OPTIONAL,
    -- Radio bearer IEs
        rab-Info                    RAB-Info-Post,
    -- Specification mode information
        specificationMode           CHOICE {
            complete                    SEQUENCE {
                srb-InformationSetupList    SRB-InformationSetupList,
                rab-InformationSetupList    RAB-InformationSetupList-r4         OPTIONAL,
                ul-CommonTransChInfo        UL-CommonTransChInfo,
                ul-AddReconfTransChInfoList UL-AddReconfTransChInfoList,
                dl-CommonTransChInfo        DL-CommonTransChInfo,
                dl-AddReconfTransChInfoList DL-AddReconfTransChInfoList,
                ul-DPCH-Info                UL-DPCH-Info-r4,
                modeSpecificInfo            CHOICE {
                    fdd                         SEQUENCE {
                        dl-PDSCH-Information         DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo                CPCH-SetInfo        OPTIONAL
                    },
                    tdd                         NULL
                },
                dl-CommonInformation        DL-CommonInformation-r4,
```

```
                    dl-InformationPerRL-List        DL-InformationPerRL-List-r4,
                    frequencyInfo                   FrequencyInfo
                },
                preconfiguration               SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
                    preConfigMode                  CHOICE {
                        predefinedConfigIdentity   PredefinedConfigIdentity,
                        defaultConfig              SEQUENCE {
                            defaultConfigMode          DefaultConfigMode,
                            defaultConfigIdentity      DefaultConfigIdentity-r4
                        }
                    },
                    rab-Info                       RAB-Info-Post      OPTIONAL,
                    modeSpecificInfo               CHOICE {
                        fdd                            SEQUENCE {
                            ul-DPCH-Info               UL-DPCH-InfoPostFDD,
                            dl-CommonInformationPost   DL-CommonInformationPost,
                            dl-InformationPerRL-List   DL-InformationPerRL-ListPostFDD,
                            frequencyInfo              FrequencyInfoFDD
                        },
                        tdd                            CHOICE {
                            tdd384                         SEQUENCE {
                                ul-DPCH-Info               UL-DPCH-InfoPostTDD,
                                dl-InformationPerRL        DL-InformationPerRL-PostTDD,
                                frequencyInfo              FrequencyInfoTDD,
                                primaryCCPCH-TX-Power      PrimaryCCPCH-TX-Power
                            },
                            tdd128                         SEQUENCE {
                                ul-DPCH-Info               UL-DPCH-InfoPostTDD-LCR-r4,
                                dl-InformationPerRL        DL-InformationPerRL-PostTDD-LCR-r4,
                                frequencyInfo              FrequencyInfoTDD,
                                primaryCCPCH-TX-Power      PrimaryCCPCH-TX-Power
                            }
                        }
                    }
                }
            }
        },
    -- Physical channel IEs
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power
}

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

HandoverToUTRANComplete ::= SEQUENCE {
    --TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
    -- TABULAR: startList is conditional on history.
        startList                      STARTList                        OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime         ActivationTime                   OPTIONAL,
    -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions     SEQUENCE {
            -- Container for additional R99 extensions
            handoverToUTRANComplete-r3-add-ext     BIT STRING  OPTIONAL,
            nonCriticalExtensions                  SEQUENCE {}    OPTIONAL
        } 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,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            initialDirectTransfer-r3-add-ext        BIT STRING  OPTIONAL,
                -- Extension mechanism for non- release99 information
            nonCriticalExtensions            SEQUENCE {}     OPTIONAL
        }       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,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            handoverFromUTRANCommand-GSM-r3-add-ext     BIT STRING  OPTIONAL,
            -- 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
        }   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,
        laterNonCriticalExtensions     SEQUENCE {
            -- Container for additional R99 extensions
            handoverFromUTRANFailure-r3-add-ext     BIT STRING  OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions          SEQUENCE {}    OPTIONAL
        }    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,
                laterNonCriticalExtensions      SEQUENCE {
                    -- Container for additional R99 extensions
                    interRATHandoverInfo-r3-add-ext     BIT STRING  OPTIONAL,
                    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-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,
                laterNonCriticalExtensions      SEQUENCE {
                    -- Container for additional R99 extensions
                    measurementControl-r3-add-ext       BIT STRING  OPTIONAL,
                    v4xyNonCriticalExtensions           SEQUENCE{
                        measurementControl-v4xyext          MeasurementControl-v4xyext-IEs,
                        nonCriticalExtensions               SEQUENCE {}                    OPTIONAL
                    }                                   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
        laterNonCriticalExtensions  SEQUENCE {
            -- Container for additional R99 extensions
            measurementControlFailure-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                   SEQUENCE {}   OPTIONAL
        } OPTIONAL
}

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

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        measuredResults             MeasuredResults             OPTIONAL,
        measuredResultsOnRACH       MeasuredResultsOnRACH       OPTIONAL,
        additionalMeasuredResults   MeasuredResultsList         OPTIONAL,
        eventResults                EventResults                OPTIONAL,
    -- Non-critical extensions
        v390nonCriticalExtensions       SEQUENCE {
            measurementReport-v390ext       MeasurementReport-v390ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                measurementReport-r3-add-ext        BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    measurementReport-v4xyext       MeasurementReport-v4xyext-IEs,
                    -- Extension mechanism for non-Rel4 information
                    nonCriticalExtensions           SEQUENCE {}             OPTIONAL
                }                               OPTIONAL
            }                               OPTIONAL
        }                               OPTIONAL
}

MeasurementReport-v390ext ::= SEQUENCE {
        measuredResults-v390ext         MeasuredResults-v390ext         OPTIONAL
}

MeasurementReport-v4xyext-IEs ::= SEQUENCE {
    interFreqEventResults-LCR       InterFreqEventResults-LCR-r4-ext        OPTIONAL,
    additionalMeasuredResults-LCR   MeasuredResultsList-LCR-r4-ext          OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 1
--
-- **************************************************

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
        pagingRecordList                PagingRecordList                OPTIONAL,
    -- Other IEs
        bcch-ModificationInfo           BCCH-ModificationInfo           OPTIONAL,
```

```
        -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            pagingType1-r3-add-ext          BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}

-- **************************************************
--
-- PAGING TYPE 2
--
-- **************************************************

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    pagingCause                     PagingCause,
    -- Core network IEs
    cn-DomainIdentity               CN-DomainIdentity,
    pagingRecordTypeID              PagingRecordTypeID,
        -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            pagingType2-r3-add-ext          BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}

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

PhysicalChannelReconfiguration ::= CHOICE {
    r3                              SEQUENCE {
        physicalChannelReconfiguration-r3
                                        PhysicalChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions           SEQUENCE {
            physicalChannelReconfiguration-v3a0ext     PhysicalChannelReconfiguration-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                physicalChannelReconfiguration-r3-add-ext          BIT STRING      OPTIONAL,
                v4xyNonCriticalExtenstions                          SEQUENCE {
                    physicalChannelReconfiguration-v4xyext
                                        PhysicalChannelReconfiguration-v4xyext-IEs,
                    nonCriticalExtensions                          SEQUENCE {} OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                physicalChannelReconfiguration-r4
                                        PhysicalChannelReconfiguration-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

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

PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                   DSCH-RNTI                               OPTIONAL
}

PhysicalChannelReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

PhysicalChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                           OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo       OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID-r4  OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation-r4             OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4         OPTIONAL
}

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

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
```

```
        count-C-ActivationTime        ActivationTime                OPTIONAL,
        rb-UL-CiphActivationTimeInfo  RB-ActivationTimeInfoList     OPTIONAL,
        ul-CounterSynchronisationInfo UL-CounterSynchronisationInfo OPTIONAL,
        laterNonCriticalExtensions    SEQUENCE {
            -- Container for additional R99 extensions
            physicalChannelReconfigurationComplete-r3-add-ext    BIT STRING    OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions                                SEQUENCE {}   OPTIONAL
        } OPTIONAL
}

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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier     RRC-TransactionIdentifier     OPTIONAL,
        failureCause                  FailureCauseWithProtErr,
        laterNonCriticalExtensions    SEQUENCE {
            -- Container for additional R99 extensions
            physicalChannelReconfigurationFailure-r3-add-ext    BIT STRING    OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions                               SEQUENCE {}   OPTIONAL
        } OPTIONAL
}

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

PhysicalSharedChannelAllocation ::= CHOICE {
    r3                            SEQUENCE {
        physicalSharedChannelAllocation-r3
                                      PhysicalSharedChannelAllocation-r3-IEs,
        laterNonCriticalExtensions    SEQUENCE {
            -- Container for additional R99 extensions
            physicalSharedChannelAllocation-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                         SEQUENCE {}   OPTIONAL
        } OPTIONAL
    },
    later-than-r3                 SEQUENCE {
        dsch-RNTI                     DSCH-RNTI                     OPTIONAL,
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        criticalExtensions            CHOICE {
            r4                            SEQUENCE {
                physicalSharedChannelAllocation-r4
                                              PhysicalSharedChannelAllocation-r4-IEs,
                nonCriticalExtensions         SEQUENCE {}   OPTIONAL
            },
            criticalExtensions            SEQUENCE {}
        }
    }
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        dsch-RNTI                     DSCH-RNTI                     OPTIONAL,
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
    -- Physical channel IEs
        ul-TimingAdvance              UL-TimingAdvanceControl       OPTIONAL,
        pusch-CapacityAllocationInfo  PUSCH-CapacityAllocationInfo  OPTIONAL,
        pdsch-CapacityAllocationInfo  PDSCH-CapacityAllocationInfo  OPTIONAL,
        -- TABULAR: If the above value is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
        confirmRequest                ENUMERATED {
                                          confirmPDSCH, confirmPUSCH } OPTIONAL,
        trafficVolumeReportRequest    INTEGER (0..255)              OPTIONAL,
        iscpTimeslotList              TimeslotList                  OPTIONAL,
        requestPCCPCHRSCP             BOOLEAN
}

PhysicalSharedChannelAllocation-r4-IEs ::= SEQUENCE {
```

```
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- Physical channel IEs
        ul-TimingAdvance              UL-TimingAdvanceControl-r4        OPTIONAL,
        pusch-CapacityAllocationInfo  PUSCH-CapacityAllocationInfo-r4   OPTIONAL,
        pdsch-CapacityAllocationInfo  PDSCH-CapacityAllocationInfo-r4   OPTIONAL,
        -- TABULAR: If confirmRequest is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
        confirmRequest                ENUMERATED {
                                          confirmPDSCH, confirmPUSCH }  OPTIONAL,
        iscpTimeslotList              TimeslotList-r4                   OPTIONAL,
        requestPCCPCHRSCP             BOOLEAN
}

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

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
        dsch-RNTI                     DSCH-RNTI                        OPTIONAL,
    -- Measurement IEs
        trafficVolume                 TrafficVolumeMeasuredResultsList,
        timeslotListWithISCP          TimeslotListWithISCP             OPTIONAL,
        primaryCCPCH-RSCP             PrimaryCCPCH-RSCP                OPTIONAL,
        allocationConfirmation        CHOICE {
            pdschConfirmation             PDSCH-Identity,
            puschConfirmation             PUSCH-Identity
        }                                                              OPTIONAL,
        protocolErrorIndicator        ProtocolErrorIndicatorWithMoreInfo,
        laterNonCriticalExtensions    SEQUENCE {
            -- Container for additional R99 extensions
            puschCapacityRequest-r3-add-ext    BIT STRING    OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        }    OPTIONAL
}

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

RadioBearerReconfiguration ::= CHOICE {
    r3                              SEQUENCE {
        radioBearerReconfiguration-r3  RadioBearerReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions      SEQUENCE {
            radioBearerReconfiguration-v3a0ext  RadioBearerReconfiguration-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerReconfiguration-r3-add-ext      BIT STRING    OPTIONAL,
                v4xyNonCriticalExtensions           SEQUENCE {
                    radioBearerReconfiguration-v4xyext
                                                    RadioBearerReconfiguration-v4xyext-IEs,
                    nonCriticalExtensions               SEQUENCE {} OPTIONAL
                }    OPTIONAL
            }    OPTIONAL
        }    OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                radioBearerReconfiguration-r4  RadioBearerReconfiguration-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}    OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        integrityProtectionModeInfo   IntegrityProtectionModeInfo      OPTIONAL,
        cipheringModeInfo             CipheringModeInfo                OPTIONAL,
```

```
    activationTime                    ActivationTime                         OPTIONAL,
    new-U-RNTI                        U-RNTI                                 OPTIONAL,
    new-C-RNTI                        C-RNTI                                 OPTIONAL,
    rrc-StateIndicator                RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient       OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                CN-InformationInfo                     OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                      URA-Identity                           OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList       RAB-InformationReconfigList            OPTIONAL,
    -- NOTE: IE rb-InformationReconfigList should be optional in later versions
    -- of this message
    rb-InformationReconfigList        RB-InformationReconfigList,
    rb-InformationAffectedList        RB-InformationAffectedList             OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo              UL-CommonTransChInfo                   OPTIONAL,
    ul-deletedTransChInfoList         UL-DeletedTransChInfoList              OPTIONAL,
    ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList            OPTIONAL,
    modeSpecificTransChInfo           CHOICE {
        fdd                               SEQUENCE {
            cpch-SetID                        CPCH-SetID                     OPTIONAL,
            addReconfTransChDRAC-Info         DRAC-StaticInformationList     OPTIONAL
        },
        tdd                               NULL
    }                                                                        OPTIONAL,
    dl-CommonTransChInfo              DL-CommonTransChInfo                   OPTIONAL,
    dl-DeletedTransChInfoList         DL-DeletedTransChInfoList              OPTIONAL,
    dl-AddReconfTransChInfoList       DL-AddReconfTransChInfo2List           OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                     FrequencyInfo                          OPTIONAL,
    maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power                  OPTIONAL,
    ul-ChannelRequirement             UL-ChannelRequirement                  OPTIONAL,
    modeSpecificPhysChInfo            CHOICE {
        fdd                               SEQUENCE {
            dl-PDSCH-Information               DL-PDSCH-Information            OPTIONAL
        },
        tdd                               NULL
    },
    dl-CommonInformation             DL-CommonInformation                   OPTIONAL,
    -- NOTE: IE dl-InformationPerRL-List should be optional in later versions
    -- of this message
    dl-InformationPerRL-List         DL-InformationPerRL-List
}

RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                     DSCH-RNTI                              OPTIONAL
}

RadioBearerReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

RadioBearerReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
    integrityProtectionModeInfo       IntegrityProtectionModeInfo            OPTIONAL,
    cipheringModeInfo                 CipheringModeInfo                      OPTIONAL,
    activationTime                    ActivationTime                         OPTIONAL,
    new-U-RNTI                        U-RNTI                                 OPTIONAL,
    new-C-RNTI                        C-RNTI                                 OPTIONAL,
    new-DSCH-RNTI                     DSCH-RNTI                              OPTIONAL,
    rrc-StateIndicator                RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient       OPTIONAL,
    -- Core network IEs
    cn-InformationInfo                CN-InformationInfo                     OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                      URA-Identity                           OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList       RAB-InformationReconfigList            OPTIONAL,
    rb-InformationReconfigList        RB-InformationReconfigList-r4          OPTIONAL,
    rb-InformationAffectedList        RB-InformationAffectedList             OPTIONAL,
    -- Transport channel IEs
```

```
            ul-CommonTransChInfo             UL-CommonTransChInfo-r4              OPTIONAL,
            ul-deletedTransChInfoList        UL-DeletedTransChInfoList            OPTIONAL,
            ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList          OPTIONAL,
            modeSpecificTransChInfo          CHOICE {
                fdd                              SEQUENCE {
                    cpch-SetID                       CPCH-SetID                   OPTIONAL,
                    addReconfTransChDRAC-Info        DRAC-StaticInformationList  OPTIONAL
                },
                tdd                              NULL
            }                                                                     OPTIONAL,
            dl-CommonTransChInfo             DL-CommonTransChInfo-r4              OPTIONAL,
            dl-DeletedTransChInfoList        DL-DeletedTransChInfoList            OPTIONAL,
            dl-AddReconfTransChInfoList      DL-AddReconfTransChInfo2List         OPTIONAL,
    -- Physical channel IEs
            frequencyInfo                   FrequencyInfo                        OPTIONAL,
            maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power                OPTIONAL,
            ul-ChannelRequirement           UL-ChannelRequirement-r4             OPTIONAL,
            modeSpecificPhysChInfo          CHOICE {
                fdd                              SEQUENCE {
                    dl-PDSCH-Information              DL-PDSCH-Information         OPTIONAL
                },
                tdd                              NULL
            },
            dl-CommonInformation            DL-CommonInformation-r4              OPTIONAL,
            dl-InformationPerRL-List        DL-InformationPerRL-List-r4          OPTIONAL
}


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

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo          OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                     OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                       OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList            OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo        OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReconfigurationComplete-r3-add-ext      BIT STRING     OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions                              SEQUENCE {}    OPTIONAL
        }   OPTIONAL
}


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

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                      OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReconfigurationFailure-r3-add-ext       BIT STRING     OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}


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

RadioBearerRelease ::= CHOICE {
```

```
    r3                              SEQUENCE {
        radioBearerRelease-r3           RadioBearerRelease-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            radioBearerRelease-v3a0ext      RadioBearerRelease-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerRelease-r3-add-ext       BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    radioBearerRelease-v4xyext      RadioBearerRelease-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                radioBearerRelease-r4           RadioBearerRelease-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

RadioBearerRelease-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        activationTime                  ActivationTime                  OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
        signallingConnectionRelIndication   CN-DomainIdentity           OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList     OPTIONAL,
        rb-InformationReleaseList       RB-InformationReleaseList,
        rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo            OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                  OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                               OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo            OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement           OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation            OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List        OPTIONAL
}

RadioBearerRelease-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                       DSCH-RNTI                               OPTIONAL
}
```

```
RadioBearerRelease-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- IE 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
}

RadioBearerRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        activationTime                  ActivationTime                  OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                       OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
        signallingConnectionRelIndication  CN-DomainIdentity            OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList     OPTIONAL,
        rb-InformationReleaseList       RB-InformationReleaseList,
        rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4         OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID              OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                               OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4         OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r4        OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information    OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation-r4         OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4     OPTIONAL
}

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

RadioBearerReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo     OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                  OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList       OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo   OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReleaseComplete-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
```

```
             nonCriticalExtensions           SEQUENCE {}     OPTIONAL
         }   OPTIONAL
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                     OPTIONAL,
    -- Extension mechanism for non- release99 information
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReleaseFailure-r3-add-ext        BIT STRING     OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}

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

RadioBearerSetup ::= CHOICE {
    r3                              SEQUENCE {
        radioBearerSetup-r3         RadioBearerSetup-r3-IEs,
        v3a0NonCriticalExtensions   SEQUENCE {
            radioBearerSetup-v3a0ext    RadioBearerSetup-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerSetup-r3-add-ext     BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    radioBearerSetup-v4xyext        RadioBearerSetup-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
        criticalExtensions          CHOICE {
            r4                          SEQUENCE {
                radioBearerSetup-r4         RadioBearerSetup-r4-IEs,
                nonCriticalExtensions       SEQUENCE {}     OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

RadioBearerSetup-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList            OPTIONAL,
        rab-InformationSetupList        RAB-InformationSetupList            OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo       OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
```

```
        ul-deletedTransChInfoList        UL-DeletedTransChInfoList        OPTIONAL,
        ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList      OPTIONAL,
        modeSpecificTransChInfo          CHOICE {
            fdd                              SEQUENCE {
                cpch-SetID                       CPCH-SetID                OPTIONAL,
                addReconfTransChDRAC-Info        DRAC-StaticInformationList OPTIONAL
            },
            tdd                              NULL
        }                                                                 OPTIONAL,
        dl-CommonTransChInfo             DL-CommonTransChInfo             OPTIONAL,
        dl-DeletedTransChInfoList        DL-DeletedTransChInfoList        OPTIONAL,
        dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                    FrequencyInfo                    OPTIONAL,
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
        ul-ChannelRequirement            UL-ChannelRequirement            OPTIONAL,
        modeSpecificPhysChInfo           CHOICE {
            fdd                              SEQUENCE {
                dl-PDSCH-Information              DL-PDSCH-Information      OPTIONAL
            },
            tdd                              NULL
        },
        dl-CommonInformation             DL-CommonInformation             OPTIONAL,
        dl-InformationPerRL-List         DL-InformationPerRL-List         OPTIONAL
}

RadioBearerSetup-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                    DSCH-RNTI                            OPTIONAL
}

RadioBearerSetup-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

RadioBearerSetup-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo      IntegrityProtectionModeInfo      OPTIONAL,
        cipheringModeInfo                CipheringModeInfo                OPTIONAL,
        activationTime                   ActivationTime                   OPTIONAL,
        new-U-RNTI                       U-RNTI                           OPTIONAL,
        new-C-RNTI                       C-RNTI                           OPTIONAL,
        new-DSCH-RNTI                    DSCH-RNTI                        OPTIONAL,
        rrc-StateIndicator               RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                     URA-Identity                     OPTIONAL,
    -- Core network IEs
        cn-InformationInfo               CN-InformationInfo               OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList         SRB-InformationSetupList         OPTIONAL,
        rab-InformationSetupList         RAB-InformationSetupList-r4      OPTIONAL,
        rb-InformationAffectedList       RB-InformationAffectedList       OPTIONAL,
        dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo    OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo             UL-CommonTransChInfo-r4          OPTIONAL,
        ul-deletedTransChInfoList        UL-DeletedTransChInfoList        OPTIONAL,
        ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList      OPTIONAL,
        modeSpecificTransChInfo          CHOICE {
            fdd                              SEQUENCE {
                cpch-SetID                       CPCH-SetID                OPTIONAL,
                addReconfTransChDRAC-Info        DRAC-StaticInformationList OPTIONAL
            },
            tdd                              NULL
        }                                                                 OPTIONAL,
        dl-CommonTransChInfo             DL-CommonTransChInfo-r4          OPTIONAL,
        dl-DeletedTransChInfoList        DL-DeletedTransChInfoList        OPTIONAL,
        dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList-r4   OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                    FrequencyInfo                    OPTIONAL,
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power            OPTIONAL,
        ul-ChannelRequirement            UL-ChannelRequirement-r4         OPTIONAL,
        modeSpecificPhysChInfo           CHOICE {
```

```
                fdd                             SEQUENCE {
                    dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
                },
                tdd                             NULL
            },
            dl-CommonInformation            DL-CommonInformation-r4     OPTIONAL,
            dl-InformationPerRL-List        DL-InformationPerRL-List-r4 OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo     OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
        start-Value             START-Value                             OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                  OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList       OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo   OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupComplete-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                 OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupFailure-r3-add-ext      BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

RRCConnectionReject ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionReject-r3          RRCConnectionReject-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionReject-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

RRCConnectionReject-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
```

```
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        rejectionCause                  RejectionCause,
        waitTime                        WaitTime,
        redirectionInfo                 RedirectionInfo                 OPTIONAL
}

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

RRCConnectionRelease ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionRelease-r3         RRCConnectionRelease-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionRelease-r3-add-ext     BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionRelease-r4         RRCConnectionRelease-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

RRCConnectionRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        -- n-308 is conditional on the UE state.
        n-308                           N-308                           OPTIONAL,
        releaseCause                    ReleaseCause,
        rplmn-information               Rplmn-Information-r4            OPTIONAL
}

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

RRCConnectionRelease-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionRelease-CCCH-r3    RRCConnectionRelease-CCCH-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionRelease-CCCH-r3-add-ext        BIT STRING      OPTIONAL,
            nonCriticalExtensions                       SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionRelease-CCCH-r4    RRCConnectionRelease-CCCH-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
```

```
}

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

RRCConnectionRelease-CCCH-r4-IEs ::= SEQUENCE {
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionRelease            RRCConnectionRelease-r4-IEs
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        errorIndication                 FailureCauseWithProtErr         OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionReleaseComplete-r3-add-ext    BIT STRING      OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } 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,
        v4xyNonCriticalExtensions       SEQUENCE {
            rrcConnectionRequest-v4xyext        RRCConnectionRequest-v4xyext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } 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,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext       BIT STRING      OPTIONAL,
            v4xyNonCriticalExtensions       SEQUENCE {
                rrcConnectionSetup-v4xyext      RRCConnectionSetup-v4xyext-IEs,
                -- Extension mechanism for non- release99 information
                nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
            } 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,
                    laterNonCriticalExtensions          SEQUENCE {
                        -- Container for additional R99 extensions
                        rrcConnectionSetupComplete-r3-add-ext       BIT STRING      OPTIONAL,
                        v4xyNonCriticalExtensions           SEQUENCE {
                            rrcConnectionSetupComplete-v4xyext  RRCConnectionSetupComplete-v4xyext-IEs,
                            nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
                        }       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,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            rrc-FailureInfo-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions                       SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions                  SEQUENCE {}
}
```

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

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

RRCStatus ::= SEQUENCE {
    -- Other IEs
        -- TABULAR: Identification of received message is nested in
        -- ProtocolErrorMoreInformation
        protocolErrorInformation        ProtocolErrorMoreInformation,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcStatus-r3-add-ext        BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

SecurityModeCommand ::= CHOICE {
    r3                          SEQUENCE {
        securityModeCommand-r3       SecurityModeCommand-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            securityModeCommand-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions           SEQUENCE {}
    }
}

SecurityModeCommand-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        securityCapability              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                 OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo       OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Other IEs
        ue-SystemSpecificSecurityCap    InterRAT-UE-SecurityCapList       OPTIONAL
}

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

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

    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo       OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList         OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            securityModeComplete-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
```

```
}

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

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            securityModeFailure-r3-add-ext    BIT STRING    OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions             SEQUENCE {}    OPTIONAL
        } OPTIONAL
}
}

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

SignallingConnectionRelease ::= CHOICE {
    r3                              SEQUENCE {
        signallingConnectionRelease-r3  SignallingConnectionRelease-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            signallingConnectionRelease-r3-add-ext    BIT STRING    OPTIONAL,
            nonCriticalExtensions                     SEQUENCE {}    OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

SignallingConnectionReleaseIndication ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            signallingConnectionReleaseIndication-r3-add-ext    BIT STRING    OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions             SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

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

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
```

```
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                    LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
            spare1                          NULL
        }
}

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

SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
            spare1                          NULL
        }
}

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

FirstSegment ::=                    SEQUENCE {
```

```
    -- Other information elements
        sib-Type                        SIB-Type,
        seg-Count                       SegCount,
        sib-Data-fixed                  SIB-Data-fixed
}

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

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

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

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

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

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

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

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

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

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

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

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

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

SystemInformationChangeIndication ::=   SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo               BCCH-ModificationInfo,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            systemInformationChangeIndication-r3-add-ext        BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}

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

TransportChannelReconfiguration ::= CHOICE {
    r3                              SEQUENCE {
        transportChannelReconfiguration-r3
                                    TransportChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            transportChannelReconfiguration-v3a0ext
                                    TransportChannelReconfiguration-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                transportChannelReconfiguration-r3-add-ext       BIT STRING     OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    transportChannelReconfiguration-v4xyext
                                        TransportChannelReconfiguration-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }       OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                transportChannelReconfiguration-r4
                                        TransportChannelReconfiguration-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

```
    }                                                               OPTIONAL,
        dl-CommonTransChInfo              DL-CommonTransChInfo       OPTIONAL,
        dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                     FrequencyInfo              OPTIONAL,
        maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power      OPTIONAL,
        ul-ChannelRequirement             UL-ChannelRequirement      OPTIONAL,
        modeSpecificPhysChInfo            CHOICE {
            fdd                               SEQUENCE {
                dl-PDSCH-Information               DL-PDSCH-Information   OPTIONAL
            },
            tdd                           NULL
        },
        dl-CommonInformation              DL-CommonInformation       OPTIONAL,
        dl-InformationPerRL-List          DL-InformationPerRL-List   OPTIONAL
}

TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                     DSCH-RNTI                      OPTIONAL
}

TransportChannelReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

TransportChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo       IntegrityProtectionModeInfo OPTIONAL,
        cipheringModeInfo                 CipheringModeInfo          OPTIONAL,
        activationTime                    ActivationTime             OPTIONAL,
        new-U-RNTI                        U-RNTI                     OPTIONAL,
        new-C-RNTI                        C-RNTI                     OPTIONAL,
        new-DSCH-RNTI                     DSCH-RNTI                  OPTIONAL,
        rrc-StateIndicator                RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
    -- Core network IEs
        cn-InformationInfo                CN-InformationInfo         OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                      URA-Identity               OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo     DL-CounterSynchronisationInfo OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo              UL-CommonTransChInfo-r4    OPTIONAL,
        ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList OPTIONAL,
        modeSpecificTransChInfo           CHOICE {
            fdd                               SEQUENCE {
                cpch-SetID                        CPCH-SetID             OPTIONAL,
                addReconfTransChDRAC-Info         DRAC-StaticInformationList OPTIONAL
            },
            tdd                           NULL
        }                                                            OPTIONAL,
        dl-CommonTransChInfo              DL-CommonTransChInfo-r4    OPTIONAL,
        dl-AddReconfTransChInfoList       DL-AddReconfTransChInfoList-r4 OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                     FrequencyInfo              OPTIONAL,
        maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power      OPTIONAL,
        ul-ChannelRequirement             UL-ChannelRequirement-r4   OPTIONAL,
        modeSpecificPhysChInfo            CHOICE {
            fdd                               SEQUENCE {
                dl-PDSCH-Information               DL-PDSCH-Information   OPTIONAL
            },
            tdd                           NULL
        },
        dl-CommonInformation              DL-CommonInformation-r4    OPTIONAL,
        dl-InformationPerRL-List          DL-InformationPerRL-List-r4 OPTIONAL
}

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

```
TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo       IntegrityProtActivationInfo        OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                 UL-TimingAdvance                   OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime           ActivationTime                     OPTIONAL,
        rb-UL-CiphActivationTimeInfo     RB-ActivationTimeInfoList          OPTIONAL,
        ul-CounterSynchronisationInfo    UL-CounterSynchronisationInfo      OPTIONAL,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            transportChannelReconfigurationComplete-r3-add-ext    BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        failureCause                     FailureCauseWithProtErr,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            transportChannelReconfigurationFailure-r3-add-ext     BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

-- **********************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL in AM or UM RLC mode
--
-- **********************************************************

TransportFormatCombinationControl ::= SEQUENCE {
        -- rrc-TransactionIdentifier is always included in this message
        rrc-TransactionIdentifier        RRC-TransactionIdentifier          OPTIONAL,
        modeSpecificInfo                 CHOICE {
            fdd                              NULL,
            tdd                              SEQUENCE {
                tfcs-ID                          TFCS-Identity    OPTIONAL
            }
        },
        dpch-TFCS-InUplink               TFC-Subset,
        activationTimeForTFCSubset       ActivationTime                     OPTIONAL,
        tfc-ControlDuration              TFC-ControlDuration                OPTIONAL,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            transportFormatCombinationControl-r3-add-ext          BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        failureCause                     FailureCauseWithProtErr,
        laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            transportFormatCombinationControlFailure-r3-add-ext   BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
```

```
          }  OPTIONAL
}

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

UECapabilityEnquiry ::= CHOICE {
    r3                              SEQUENCE {
        ueCapabilityEnquiry-r3          UECapabilityEnquiry-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext      BIT STRING      OPTIONAL,
            v4xyNonCriticalExtensions           SEQUENCE {
                ueCapabilityEnquiry-v4xyext     UECapabilityEnquiry-v4xyext-IEs,
                nonCriticalExtensions           SEQUENCE {}                  OPTIONAL
            }       OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

UECapabilityEnquiry-v4xyext-IEs ::= SEQUENCE {
    capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext
}

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

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier           OPTIONAL,
    ue-RadioAccessCapability        UE-RadioAccessCapability            OPTIONAL,
    -- Other IEs
    ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
    v370NonCriticalExtensions           SEQUENCE {
        ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
        v380NonCriticalExtensions           SEQUENCE {
            ueCapabilityInformation-v380ext     UECapabilityInformation-v380ext-IEs,
            v3a0NonCriticalExtensions           SEQUENCE {
                ueCapabilityInformation-v3a0ext     UECapabilityInformation-v3a0ext,
                laterNonCriticalExtensions          SEQUENCE {
                    -- Container for additional R99 extensions
                    ueCapabilityInformation-r3-add-ext      BIT STRING      OPTIONAL,
                    -- Reserved for future non critical extension
                    v4xyNonCriticalExtensions           SEQUENCE {
                        ueCapabilityInformation-v4xyext     UECapabilityInformation-v4xyext,
                        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                    }       OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }       OPTIONAL
    }       OPTIONAL
}

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

UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
```

```
            ue-RadioAccessCapability-v380ext           UE-RadioAccessCapability-v380ext
        OPTIONAL,
            dl-PhysChCapabilityFDD-v380ext             DL-PhysChCapabilityFDD-v380ext
    }

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

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

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

    UECapabilityInformationConfirm ::= CHOICE {
        r3                                  SEQUENCE {
            ueCapabilityInformationConfirm-r3
                                            UECapabilityInformationConfirm-r3-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                ueCapabilityInformationConfirm-r3-add-ext       BIT STRING      OPTIONAL,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            } OPTIONAL
        },
        later-than-r3                       SEQUENCE {
            rrc-TransactionIdentifier       RRC-TransactionIdentifier,
            criticalExtensions              SEQUENCE {}
        }
    }

    UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
        -- User equipment IEs
            rrc-TransactionIdentifier       RRC-TransactionIdentifier
    }

    -- **************************************************
    --
    -- UPLINK DIRECT TRANSFER
    --
    -- **************************************************

    UplinkDirectTransfer ::= SEQUENCE {
        -- Core network IEs
            cn-DomainIdentity               CN-DomainIdentity,
            nas-Message                     NAS-Message,
        -- Measurement IEs
            measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                uplinkDirectTransfer-r3-add-ext     BIT STRING      OPTIONAL,
                -- Extension mechanism for non- release99 information
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            } OPTIONAL
    }

    -- **************************************************
    --
    -- UPLINK PHYSICAL CHANNEL CONTROL
    --
    -- **************************************************

    UplinkPhysicalChannelControl ::= CHOICE {
        r3                                  SEQUENCE {
            uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                uplinkPhysicalChannelControl-r3-add-ext     BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    uplinkPysicalChannelControl-v4xyext     UplinkPhysicalChannelControl-v4xyext-IEs,
                    -- Extension mechanism for non- release4 information
```

```
                noncriticalExtensions         SEQUENCE {}                    OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
        criticalExtensions           CHOICE {
            r4                          SEQUENCE {
                uplinkPhysicalChannelControl-r4 UplinkPhysicalChannelControl-r4-IEs,
                nonCriticalExtensions        SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier    RRC-TransactionIdentifier,
    -- Physical channel IEs
        ccTrCH-PowerControlInfo      CCTrCH-PowerControlInfo            OPTIONAL,
        timingAdvance                UL-TimingAdvanceControl            OPTIONAL,
        alpha                        Alpha                             OPTIONAL,
        specialBurstScheduling       SpecialBurstScheduling            OPTIONAL,
        prach-ConstantValue          ConstantValueTdd                  OPTIONAL,
        pusch-ConstantValue          ConstantValueTdd                  OPTIONAL
}

UplinkPhysicalChannelControl-v4xyext-IEs ::= SEQUENCE {
    -- In case of TDD, openLoopPowerControl-IPDL-TDD is included instead of IE
    -- up-IPDL-Parameters in up-OTDOA-AssistanceData
    openLoopPowerControl-IPDL-TDD   OpenLoopPowerControl-IPDL-TDD-r4    OPTIONAL
}

UplinkPhysicalChannelControl-r4-IEs ::= SEQUENCE {
    -- Physical channel IEs
        ccTrCH-PowerControlInfo      CCTrCH-PowerControlInfo-r4         OPTIONAL,
        tddOption                    CHOICE {
            tdd384                      SEQUENCE {
                timingAdvance                UL-TimingAdvanceControl-r4  OPTIONAL,
                alpha                        Alpha                       OPTIONAL,
                prach-ConstantValue          ConstantValueTdd            OPTIONAL,
                pusch-ConstantValue          ConstantValueTdd            OPTIONAL,
                openLoopPowerControl-IPDL-TDD   OpenLoopPowerControl-IPDL-TDD-r4    OPTIONAL
            },
            tdd128                      SEQUENCE {
                ul-SynchronisationParameters  UL-SynchronisationParameters-r4 OPTIONAL
            }
        }
}

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

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                       U-RNTI,
        ura-UpdateCause              URA-UpdateCause,
        protocolErrorIndicator       ProtocolErrorIndicatorWithMoreInfo,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            uraUpdate-r3-add-ext         BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions        SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}

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

URAUpdateConfirm ::= CHOICE {
    r3                          SEQUENCE {
```

```
                uraUpdateConfirm-r3              URAUpdateConfirm-r3-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                uraUpdateConfirm-r3-add-ext     BIT STRING      OPTIONAL,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            } OPTIONAL
        },
        later-than-r3                   SEQUENCE {
            rrc-TransactionIdentifier       RRC-TransactionIdentifier,
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

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

URAUpdateConfirm-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        uraUpdateConfirm-CCCH-r3        URAUpdateConfirm-CCCH-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            uraUpdateConfirm-CCCH-r3-add-ext        BIT STRING      OPTIONAL,
            nonCriticalExtensions                   SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

UTRANMobilityInformation ::= CHOICE {
    r3                              SEQUENCE {
        utranMobilityInformation-r3     UTRANMobilityInformation-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            utranMobilityInformation-v3a0ext    UTRANMobilityInformation-v3a0ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                utranMobilityInformation-r3-add-ext     BIT STRING      OPTIONAL,
                nonCriticalExtensions                   SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
```

```
            rrc-TransactionIdentifier      RRC-TransactionIdentifier,
            criticalExtensions             SEQUENCE {}
        }
}

UTRANMobilityInformation-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        integrityProtectionModeInfo    IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo              CipheringModeInfo                  OPTIONAL,
        new-U-RNTI                     U-RNTI                             OPTIONAL,
        new-C-RNTI                     C-RNTI                             OPTIONAL,
        ue-ConnTimersAndConstants      UE-ConnTimersAndConstants          OPTIONAL,
    -- CN information elements
        cn-InformationInfo             CN-InformationInfoFull             OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                   URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo      OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions          SEQUENCE {}     OPTIONAL
}

UTRANMobilityInformation-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext       UE-ConnTimersAndConstants-v3a0ext
}

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

UTRANMobilityInformationConfirm ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo     IntegrityProtActivationInfo        OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime         ActivationTime                     OPTIONAL,
        rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList          OPTIONAL,
        ul-CounterSynchronisationInfo  UL-CounterSynchronisationInfo      OPTIONAL,
        laterNonCriticalExtensions             SEQUENCE {
            -- Container for additional R99 extensions
                utranNMobilityInformationConfirm-r3-add-ext    BIT STRING     OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions          SEQUENCE {}     OPTIONAL
        }     OPTIONAL
}

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

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        failureCause                   FailureCauseWithProtErr,
        laterNonCriticalExtensions             SEQUENCE {
            -- Container for additional R99 extensions
                utranNMobilityInformationFailure-r3-add-ext    BIT STRING     OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions          SEQUENCE {}     OPTIONAL
        }     OPTIONAL
}

END
```

<div align="right">*CR-Form-v7*</div>

CHANGE REQUEST

| ⌘ | **25.331** CR **1734** | ⌘ **rev** | **1** | ⌘ | 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 ☐ Radio Access Network ☐ Core Network ☐

Title: ⌘	Introduction of backwards compatible correction mechanism	
Source: ⌘	Nokia	
Work item code: ⌘ TEI	***Date:*** ⌘	19/Nov/2002
Category: ⌘ **A**	***Release:*** ⌘	Rel-5

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 <u>TR 21.900</u>.

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: ⌘	Currently once backwards compatibility is started for Rel-4 there will be now mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change: ⌘	Extension Containers principle introduced.

Impact Analysis: No Impact
There is no impact as this does not actually make any changes to the protocol specification, but introduces the mechanism so that the changes can be made.

Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.

Clauses affected: ⌘	9.8, 10.1.1, 11.0, 11.2

	Y	**N**	
Other specs ⌘	X		Other core specifications ⌘ 25.921 CR 044.
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.

9.8 Unexpected non-critical message extension

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

1> If the non critical extension is included in the "Variable Length Extension Container":

2> ignore the content of the extension and the contents of this container after the not comprehended extension, and continue decoding the rest of the message

1> otherwise

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

If the UE receives a system information block on the BCCH containing an undefined non-critical message extension, the UE shall:

1> ignore the content of the extension and the system information block contents after the extension, but treat the parts of the system information block up to the extension normally.

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

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

10.1.1 Protocol extensions

RRC messages may be extended in future versions of this protocol, either by adding values for choices, enumerated and size constrained types or by adding information elements. An important aspect concerns the behaviour of a UE, conforming to this revision of the standard, upon receiving a not comprehended future extension. The details of this error handling behaviour are provided in clause 9.

NOTE 1:   By avoiding the need for partial decoding (skipping uncomprehended IEs to continue decoding the remainder of the message), the RRC protocol extension mechanism also avoids the overhead of length determinants for extensions. "Variable length extension containers" (i.e. non critical extension containers that have their abstract syntax defined using the ASN.1 type "BIT STRING") have been defined to support the introduction of extensions to a release after the subsequent release is frozen (and UEs based on that subsequent may appear). For this container a length determinant is used, which facilitates partial decoding of the container as well as the decoding of the extensions included after the container.

Two kinds of protocol extensions are distinguished: non-critical and critical extensions. In general, a receiver shall process a message including not comprehended non-critical extensions as if the extensions were absent. However, a receiver shall entirely reject a message including not comprehended critical extensions (there is no partial rejection) and notify the sender, as specified in clause 9.

The general mechanism for adding critical extensions is by defining a new version of the message, which is indicated at the beginning of the message.

The UE shall always comprehend the complete transfer syntax specified for the protocol version it supports; if the UE comprehends the transfer syntax defined within protocol version A for message 1, it shall also comprehend the transfer syntax defined within protocol version A for message 2.

The following table shows for which messages only non-critical extensions may be added while for others both critical and non-critical extensions may be added.

NOTE 2:   Critical extensions can only be added to certain downlink messages.

Extensions	Message
Critical and non-critical extensions	ACTIVE SET UPDATE 10.2.1 ASSISTANCE DATA DELIVERY 10.2.4 CELL CHANGE ORDER FROM UTRAN 10.2.5 CELL UPDATE CONFIRM 10.2.8 COUNTER CHECK 10.2.9 DOWNLINK DIRECT TRANSFER 10.2.11 HANDOVER TO UTRAN COMMAND 10.2.16a HANDOVER FROM UTRAN COMMAND 10.2.15 MEASUREMENT CONTROL 10.2.17 PHYSICAL CHANNEL RECONFIGURATION 10.2.22 PHYSICAL SHARED CHANNEL ALLOCATION 10.2.25 RADIO BEARER RECONFIGURATION 10.2.27 RADIO BEARER RELEASE 10.2.30 RADIO BEARER SETUP 10.2.33 RRC CONNECTION REJECT 10.2.36 RRC CONNECTION RELEASE 10.2.37 RRC CONNECTION SETUP 10.2.40 SECURITY MODE COMMAND 10.2.43 SIGNALLING CONNECTION RELEASE 10.2.46 TRANSPORT CHANNEL RECONFIGURATION 10.2.50 UE CAPABILITY ENQUIRY 10.2.55 UE CAPABILITY INFORMATION CONFIRM 10.2.57 UPLINK PHYSICAL CHANNEL CONTROL 10.2.59 URA UPDATE CONFIRM 10.2.61 UTRAN MOBILITY INFORMATION 10.2.62
Non-critical extensions only	ACTIVE SET UPDATE COMPLETE 10.2.2 ACTIVE SET UPDATE FAILURE 10.2.3 CELL CHANGE ORDER FROM UTRAN FAILURE 10.2.6 CELL UPDATE 10.2.7 COUNTER CHECK RESPONSE 10.2.10 HANDOVER TO UTRAN COMPLETE 10.2.16b INITIAL DIRECT TRANSFER 10.2.16c HANDOVER FROM UTRAN FAILURE 10.2.16

Extensions	Message
	MEASUREMENT CONTROL FAILURE 10.2.18
	MEASUREMENT REPORT 10.2.19
	PAGING TYPE 1 10.2.20
	PAGING TYPE 2 10.2.21
	PHYSICAL CHANNEL RECONFIGURATION COMPLETE 10.2.23
	PHYSICAL CHANNEL RECONFIGURATION FAILURE 10.2.24
	PUSCH CAPACITY REQUEST 10.2.26
	RADIO BEARER RECONFIGURATION COMPLETE 10.2.28
	RADIO BEARER RECONFIGURATION FAILURE 10.2.29
	RADIO BEARER RELEASE COMPLETE 10.2.31
	RADIO BEARER RELEASE FAILURE 10.2.32
	RADIO BEARER SETUP COMPLETE 10.2.34
	RADIO BEARER SETUP FAILURE 10.2.35
	RRC CONNECTION RELEASE COMPLETE 10.2.38
	RRC CONNECTION REQUEST 10.2.39
	RRC CONNECTION SETUP COMPLETE 10.2.41
	RRC STATUS 10.2.42
	SECURITY MODE COMPLETE 10.2.44
	SECURITY MODE FAILURE 10.2.45
	SIGNALLING CONNECTION RELEASE INDICATION 10.2.47
	Master Information Block 10.2.48.8.1
	System Information Block type 1 to
	System Information Block type 17 10.2.48.8.2 to 10.2.48.8.19
	SYSTEM INFORMATION CHANGE INDICATION 10.2.49
	TRANSPORT CHANNEL RECONFIGURATION COMPLETE 10.2.51
	TRANSPORT CHANNEL RECONFIGURATION FAILURE 10.2.52
	TRANSPORT FORMAT COMBINATION CONTROL 10.2.53
	TRANSPORT FORMAT COMBINATION CONTROL FAILURE 10.2.54
	UE CAPABILITY INFORMATION 10.2.56
	UPLINK DIRECT TRANSFER 10.2.58
	URA UPDATE 10.2.60
	UTRAN MOBILITY INFORMATION CONFIRM 10.2.63
	UTRAN MOBILITY INFORMATION FAILURE 10.2.64
No extensions	SYSTEM INFORMATION 10.2.48
	First Segment 10.2.48.1
	Subsequent or last Segment 10.2.48.3
	Complete SIB 10.2.48.5
	SIB content 10.2.48.8.1

NOTE 3: For the SYSTEM INFORMATION message protocol extensions are only possible at the level of system information blocks.

10.1.1.1   Non-critical extensions

10.1.1.1.1   Extension of an information element with additional values or choices

In future versions of this protocol, non-critical values may be added to choices, enumerated and size constrained types.

For choices, enumerated and size constrained types it is possible to indicate how many non-critical spare values need to be reserved for future extension. In this case, the tabular format should indicate the number of spare values that are needed. The value range defined in ASN.1 for the extensible IE should include the number of spares that are needed, since a value outside the range defined for this IE will result in a general ASN.1 violation error.

For downlink messages, spare values may be defined for non-critical information elements for which the need is specified to be MD or OP (or CV case leading to MD or OP). In this case, a receiver not comprehending the received spare value shall consider the information element to have the default value or consider it to be absent respectively.

For uplink messages spare values may be defined for all information elements, including those for which the need is specified to be MP (or CV case leading to MP).

In all cases at most one spare should be defined for choices. In this case, information elements applicable to the spare choices shall be added to the end of the message.

10.1.1.1.2 Extension of a message with additional information elements

In future versions of this protocol, non-critical information elements may be added to RRC messages. These additional information elements shall be <u>normally</u> appended at the end of the message; the transfer syntax specified in this revision of the standard facilitates this. A receiver conformant to this revision of the standard shall accept such extension, and proceed as if it was not included. <u>Extensions to a release that are introduced after the subsequent release is frozen may however be inserted prior to the end of the message. To facilitate this, "variable length extension containers" have been introduced in most messages.</u>

10.1.1.2 Critical extensions

10.1.1.2.1 Extension of an information element with additional values or choices

In versions of this protocol, choices, enumerated and size constrained types may be extended with critical values. For extension with critical values the general critical extension mechanism is used, i.e. for this no spare values are reserved since backward compatibility is not required.

10.1.1.2.2 Extension of a message with additional information elements

In future versions of this protocol, RRC messages may be extended with new information elements. Since messages including critical extensions are rejected by receivers not comprehending them, these messages may be modified completely, e.g. IEs may be inserted at any place and IEs may be removed or redefined.

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

This clause contains definitions for RRC PDUs and IEs using a subset of ASN.1 as specified in [14]. PDU and IE definitions are grouped into separate ASN.1 modules.

11.0 General

Some messages and/or IEs may include one or more IEs with name "dummy" that are included only in the ASN.1. The UE should avoid sending information elements that are named "dummy" to UTRAN. Likewise, UTRAN should avoid sending IEs with name "dummy" to the UE. If the UE anyhow receives an information element named "dummy", it shall ignore the IE and process the rest of the message as if the IE was not included.

NOTE: An IE with name "dummy" concerns an information element that was (erroneously) included in a previous version of the specification and has been removed by replacing it with a dummy with same type.

The UE shall only include the "variable length extension container" when it sends a non critical extension that according to this specification shall be transferred within this container

If the abstract syntax of an IE is defined using the ASN.1 type "BIT STRING", and this IE corresponds to a functional IE definition in tabular format, in which the significance of bits is semantically defined, the following general rule shall be applied:

The bits in the ASN.1 bit string shall represent the semantics of the functional IE definition in decreasing order of bit significance;

- with the first (or leftmost) bit in the bit string representing the most significant bit; and

- with the last (or rightmost) bit in the bit string representing the least significant bit.

11.1 General message structure

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

BEGIN

IMPORTS

    ActiveSetUpdate,
    ActiveSetUpdateComplete,
    ActiveSetUpdateFailure,
    AssistanceDataDelivery,
    CellChangeOrderFromUTRAN,
    CellChangeOrderFromUTRANFailure,
    CellUpdate,
    CellUpdateConfirm-CCCH,
    CellUpdateConfirm,
    CounterCheck,
    CounterCheckResponse,
    DownlinkDirectTransfer,
    HandoverToUTRANComplete,
    InitialDirectTransfer,
    HandoverFromUTRANCommand-GSM,
    HandoverFromUTRANCommand-CDMA2000,
    HandoverFromUTRANFailure,
    MeasurementControl,
    MeasurementControlFailure,
    MeasurementReport,
    PagingType1,
    PagingType2,
    PhysicalChannelReconfiguration,
    PhysicalChannelReconfigurationComplete,
    PhysicalChannelReconfigurationFailure,
    PhysicalSharedChannelAllocation,
    PUSCHCapacityRequest,
```

```
    RadioBearerReconfiguration,
    RadioBearerReconfigurationComplete,
    RadioBearerReconfigurationFailure,
    RadioBearerRelease,
    RadioBearerReleaseComplete,
    RadioBearerReleaseFailure,
    RadioBearerSetup,
    RadioBearerSetupComplete,
    RadioBearerSetupFailure,
    RRCConnectionReject,
    RRCConnectionRelease,
    RRCConnectionRelease-CCCH,
    RRCConnectionReleaseComplete,
    RRCConnectionRequest,
    RRCConnectionSetup,
    RRCConnectionSetupComplete,
    RRCStatus,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeFailure,
    SignallingConnectionRelease,
    SignallingConnectionReleaseIndication,
    SystemInformation-BCH,
    SystemInformation-FACH,
    SystemInformationChangeIndication,
    TransportChannelReconfiguration,
    TransportChannelReconfigurationComplete,
    TransportChannelReconfigurationFailure,
    TransportFormatCombinationControl,
    TransportFormatCombinationControlFailure,
    UECapabilityEnquiry,
    UECapabilityInformation,
    UECapabilityInformationConfirm,
    UplinkDirectTransfer,
    UplinkPhysicalChannelControl,
    URAUpdate,
    URAUpdateConfirm,
    URAUpdateConfirm-CCCH,
    UTRANMobilityInformation,
    UTRANMobilityInformationConfirm,
    UTRANMobilityInformationFailure
FROM PDU-definitions

-- User Equipment IEs :
    IntegrityCheckInfo
FROM InformationElements;

--*************************************************************
--
-- Downlink DCCH messages
--
--*************************************************************

DL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 DL-DCCH-MessageType
}

DL-DCCH-MessageType ::= CHOICE {
    activeSetUpdate                 ActiveSetUpdate,
    assistanceDataDelivery          AssistanceDataDelivery,
    cellChangeOrderFromUTRAN        CellChangeOrderFromUTRAN,
    cellUpdateConfirm               CellUpdateConfirm,
    counterCheck                    CounterCheck,
    downlinkDirectTransfer          DownlinkDirectTransfer,
    handoverFromUTRANCommand-GSM    HandoverFromUTRANCommand-GSM,
    handoverFromUTRANCommand-CDMA2000  HandoverFromUTRANCommand-CDMA2000,
    measurementControl              MeasurementControl,
    pagingType2                     PagingType2,
    physicalChannelReconfiguration  PhysicalChannelReconfiguration,
    physicalSharedChannelAllocation PhysicalSharedChannelAllocation,
    radioBearerReconfiguration      RadioBearerReconfiguration,
    radioBearerRelease              RadioBearerRelease,
    radioBearerSetup                RadioBearerSetup,
    rrcConnectionRelease            RRCConnectionRelease,
    securityModeCommand             SecurityModeCommand,
    signallingConnectionRelease     SignallingConnectionRelease,
    transportChannelReconfiguration TransportChannelReconfiguration,
```

```
    transportFormatCombinationControl    TransportFormatCombinationControl,
    ueCapabilityEnquiry                  UECapabilityEnquiry,
    ueCapabilityInformationConfirm       UECapabilityInformationConfirm,
    uplinkPhysicalChannelControl         UplinkPhysicalChannelControl,
    uraUpdateConfirm                     URAUpdateConfirm,
    utranMobilityInformation             UTRANMobilityInformation,
    spare7                               NULL,
    spare6                               NULL,
    spare5                               NULL,
    spare4                               NULL,
    spare3                               NULL,
    spare2                               NULL,
    spare1                               NULL
}


--***************************************************************
--
-- Uplink DCCH messages
--
--***************************************************************

UL-DCCH-Message ::= SEQUENCE {
    integrityCheckInfo       IntegrityCheckInfo       OPTIONAL,
    message                  UL-DCCH-MessageType
}

UL-DCCH-MessageType ::= CHOICE {
    activeSetUpdateComplete              ActiveSetUpdateComplete,
    activeSetUpdateFailure               ActiveSetUpdateFailure,
    cellChangeOrderFromUTRANFailure      CellChangeOrderFromUTRANFailure,
    counterCheckResponse                 CounterCheckResponse,
    handoverToUTRANComplete              HandoverToUTRANComplete,
    initialDirectTransfer                InitialDirectTransfer,
    handoverFromUTRANFailure             HandoverFromUTRANFailure,
    measurementControlFailure            MeasurementControlFailure,
    measurementReport                    MeasurementReport,
    physicalChannelReconfigurationComplete
                                         PhysicalChannelReconfigurationComplete,
    physicalChannelReconfigurationFailure
                                         PhysicalChannelReconfigurationFailure,
    radioBearerReconfigurationComplete   RadioBearerReconfigurationComplete,
    radioBearerReconfigurationFailure    RadioBearerReconfigurationFailure,
    radioBearerReleaseComplete           RadioBearerReleaseComplete,
    radioBearerReleaseFailure            RadioBearerReleaseFailure,
    radioBearerSetupComplete             RadioBearerSetupComplete,
    radioBearerSetupFailure              RadioBearerSetupFailure,
    rrcConnectionReleaseComplete         RRCConnectionReleaseComplete,
    rrcConnectionSetupComplete           RRCConnectionSetupComplete,
    rrcStatus                            RRCStatus,
    securityModeComplete                 SecurityModeComplete,
    securityModeFailure                  SecurityModeFailure,
    signallingConnectionReleaseIndication
                                         SignallingConnectionReleaseIndication,
    transportChannelReconfigurationComplete
                                         TransportChannelReconfigurationComplete,
    transportChannelReconfigurationFailure
                                         TransportChannelReconfigurationFailure,
    transportFormatCombinationControlFailure
                                         TransportFormatCombinationControlFailure,
    ueCapabilityInformation              UECapabilityInformation,
    uplinkDirectTransfer                 UplinkDirectTransfer,
    utranMobilityInformationConfirm      UTRANMobilityInformationConfirm,
    utranMobilityInformationFailure      UTRANMobilityInformationFailure,
    spare2                               NULL,
    spare1                               NULL
}


--***************************************************************
--
-- Downlink CCCH messages
--
--***************************************************************

DL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo       IntegrityCheckInfo       OPTIONAL,
    message                  DL-CCCH-MessageType
}
```

```
DL-CCCH-MessageType ::= CHOICE {
    cellUpdateConfirm                   CellUpdateConfirm-CCCH,
    rrcConnectionReject                 RRCConnectionReject,
    rrcConnectionRelease                RRCConnectionRelease-CCCH,
    rrcConnectionSetup                  RRCConnectionSetup,
    uraUpdateConfirm                    URAUpdateConfirm-CCCH,
    spare3                              NULL,
    spare2                              NULL,
    spare1                              NULL
}

--****************************************************************
--
-- Uplink CCCH messages
--
--****************************************************************

UL-CCCH-Message ::= SEQUENCE {
    integrityCheckInfo      IntegrityCheckInfo      OPTIONAL,
    message                 UL-CCCH-MessageType
}

UL-CCCH-MessageType ::= CHOICE {
    cellUpdate                          CellUpdate,
    rrcConnectionRequest                RRCConnectionRequest,
    uraUpdate                           URAUpdate,
    spare1                              NULL
}

--****************************************************************
--
-- PCCH messages
--
--****************************************************************

PCCH-Message ::= SEQUENCE {
    message             PCCH-MessageType
}

PCCH-MessageType ::= CHOICE {
    pagingType1                         PagingType1,
    spare                               NULL
}

--****************************************************************
--
-- Downlink SHCCH messages
--
--****************************************************************

DL-SHCCH-Message ::= SEQUENCE {
    message                 DL-SHCCH-MessageType
}

DL-SHCCH-MessageType ::= CHOICE {
    physicalSharedChannelAllocation     PhysicalSharedChannelAllocation,
    extension                           NULL
}

--****************************************************************
--
-- Uplink SHCCH messages
--
--****************************************************************

UL-SHCCH-Message ::= SEQUENCE {
    message                 UL-SHCCH-MessageType
}

UL-SHCCH-MessageType ::= CHOICE {
    puschCapacityRequest                PUSCHCapacityRequest,
    spare                               NULL
}


--****************************************************************
--
-- BCCH messages sent on FACH
```

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

BCCH-FACH-Message ::= SEQUENCE {
    message             BCCH-FACH-MessageType
}

BCCH-FACH-MessageType ::= CHOICE {
    systemInformation                 SystemInformation-FACH,
    systemInformationChangeIndication SystemInformationChangeIndication,
    spare2                            NULL,
    spare1                            NULL
}

--**************************************************************
--
-- BCCH messages sent on BCH
--
--**************************************************************

BCCH-BCH-Message ::= SEQUENCE {
    message             SystemInformation-BCH
}

END
```

11.2   PDU definitions

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

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    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,
    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;

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

ActiveSetUpdate ::= CHOICE {
    r3                              SEQUENCE {
        activeSetUpdate-r3          ActiveSetUpdate-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdate-r3-add-ext      BIT STRING      OPTIONAL,
            v4xyNonCriticalExtensions       SEQUENCE {
                activeSetUpdate-v4xyext     ActiveSetUpdate-v4xyext-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

ActiveSetUpdate-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy and dummy2 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy                           IntegrityProtectionModeInfo         OPTIONAL,
        dummy2                          CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        newU-RNTI                       U-RNTI                              OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        -- dummy3 is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy3                          DL-CounterSynchronisationInfo       OPTIONAL,
    -- Physical channel IEs
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        rl-AdditionInformationList      RL-AdditionInformationList          OPTIONAL,
        rl-RemovalInformationList       RL-RemovalInformationList           OPTIONAL,
        tx-DiversityMode                TX-DiversityMode                    OPTIONAL,
        ssdt-Information                SSDT-Information                    OPTIONAL
}

ActiveSetUpdate-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information. 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 RL-AdditionInformationList included in this message
        cell-id-PerRL-List              CellIdentity-PerRL-List             OPTIONAL
}
```

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

ActiveSetUpdateComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                           IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        -- dummy2 and dummy3 are not used in this version of the specification, they should
        -- not be sent and if received they should be ignored.
        dummy2                          RB-ActivationTimeInfoList           OPTIONAL,
        dummy3                          UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdateComplete-r3-add-ext      BIT STRING      OPTIONAL,
        Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}

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

ActiveSetUpdateFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            activeSetUpdateFailure-r3-add-ext       BIT STRING      OPTIONAL,
        Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}

-- **************************************************
--
-- Assistance Data Delivery
--
-- **************************************************

AssistanceDataDelivery ::= CHOICE {
    r3                              SEQUENCE {
        assistanceDataDelivery-r3       AssistanceDataDelivery-r3-IEs,
        v3aoNonCriticalExetensions      SEQUENCE {
            assistanceDataDelivery-v3a0ext  AssistanceDataDelivery-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                assistanceDataDelivery-r3-add-ext       BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions           SEQUENCE {
                    assistanceDataDelivery-v4xyext
                                                        AssistanceDataDelivery-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {}             OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

AssistanceDataDelivery-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Measurement Information Elements
    ue-positioning-GPS-AssistanceData           UE-Positioning-GPS-AssistanceData
    OPTIONAL,
```

```
    ue-positioning-OTDOA-AssistanceData-UEB     UE-Positioning-OTDOA-AssistanceData-UEB
    OPTIONAL
}

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

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

 -- **************************************************
--
-- CELL CHANGE ORDER FROM UTRAN
--
-- **************************************************

CellChangeOrderFromUTRAN ::= CHOICE {
    r3                              SEQUENCE {
        cellChangeOrderFromUTRAN-IEs        CellChangeOrderFromUTRAN-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRAN-r3-add-ext     BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRAN-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                               IntegrityProtectionModeInfo         OPTIONAL,
        activationTime                      ActivationTime                      OPTIONAL,
        -- the IE rab-InformationList is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored. The IE may be used in a later
        -- version of the protocol and hence it is not changed into a dummy
        rab-InformationList             RAB-InformationList                 OPTIONAL,
        interRAT-TargetCellDescription  InterRAT-TargetCellDescription
}

-- **************************************************
--
-- CELL CHANGE ORDER FROM UTRAN FAILURE
--
-- **************************************************

CellChangeOrderFromUTRANFailure ::= CHOICE {
    r3                              SEQUENCE {
        cellChangeOrderFromUTRANFailure-r3
                                        CellChangeOrderFromUTRANFailure-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            cellChangeOrderFromUTRANFailure-r3-add-ext      BIT STRING  OPTIONAL,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
        }   OPTIONAL
    },
    -- dummy is not used in this version of the specification and it
    -- should be ignored.
    dummy                           SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

CellChangeOrderFromUTRANFailure-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        -- dummy is not used in this version of the specification, it should
        -- not be sent and if received it should be ignored.
        dummy                               IntegrityProtectionModeInfo         OPTIONAL,
        interRAT-ChangeFailureCause     InterRAT-ChangeFailureCause
```

```
}

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

CellUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                          U-RNTI,
        startList       STARTList,
        am-RLC-ErrorIndicationRb2-3or4      BOOLEAN,
        am-RLC-ErrorIndicationRb5orAbove    BOOLEAN,
        cellUpdateCause                 CellUpdateCause,
        -- TABULAR: RRC transaction identifier is nested in FailureCauseWithProtErrTrId
        failureCause                    FailureCauseWithProtErrTrId         OPTIONAL,
        rb-timer-indicator              Rb-timer-indicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            cellUpdate-r3-add-ext           BIT STRING  OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
}

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

CellUpdateConfirm ::= CHOICE {
    r3                              SEQUENCE {
        cellUpdateConfirm-r3            CellUpdateConfirm-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            cellUpdateConfirm-v3a0ext       CellUpdateConfirm-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                cellUpdateConfirm-r3-add-ext            BIT STRING  OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    cellUpdateConfirm-v4xyext       CellUpdateConfirm-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }           OPTIONAL
            }           OPTIONAL
        }       OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                cellUpdateConfirm-r4            CellUpdateConfirm-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              CHOICE {
                r5                              SEQUENCE {
                    cellUpdateConfirm-r5            CellUpdateConfirm-r5-IEs,
                    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}

CellUpdateConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
        rlc-Re-establishIndicatorRb2-3or4       BOOLEAN,
```

```
        rlc-Re-establishIndicatorRb5orAbove       BOOLEAN,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rb-InformationReleaseList       RB-InformationReleaseList       OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList      OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo            OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                  CPCH-SetID                  OPTIONAL,
                addReconfTransChDRAC-Info   DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonTransChInfo            DL-CommonTransChInfo            OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList     OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement           OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information         DL-PDSCH-Information         OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation            OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List        OPTIONAL
}

CellUpdateConfirm-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI               DSCH-RNTI                               OPTIONAL
}

CellUpdateConfirm-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

CellUpdateConfirm-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        activationTime                  ActivationTime                  OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                       OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
        rlc-ResetIndicatorC-Plane       BOOLEAN,
        rlc-ResetIndicatorU-Plane       BOOLEAN,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rb-InformationReleaseList       RB-InformationReleaseList       OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList-r4   OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList      OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4         OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
```

```
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID              OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4         OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList       OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList-r4  OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r4        OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation-r4         OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4     OPTIONAL
}


CellUpdateConfirm-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo     OPTIONAL,
        cipheringModeInfo               CipheringModeInfo               OPTIONAL,
        activationTime                  ActivationTime                  OPTIONAL,
        new-U-RNTI                      U-RNTI                          OPTIONAL,
        new-C-RNTI                      C-RNTI                          OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                       OPTIONAL,
        new-H-RNTI                      H-RNTI                          OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient OPTIONAL,
        rlc-ResetIndicatorC-Plane       BOOLEAN,
        rlc-ResetIndicatorU-Plane       BOOLEAN,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                    OPTIONAL,
    -- Radio bearer IEs
        rb-InformationReleaseList       RB-InformationReleaseList       OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList-r5       OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList-r5       OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5    OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4         OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList        OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList      OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID              OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4         OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList-r5        OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList-r5  OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r5        OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
            },
            tdd                             NULL
        },
        dl-HSPDSCH-Information           DL-HSPDSCH-Information           OPTIONAL,
        dl-CommonInformation            DL-CommonInformation-r4         OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r5     OPTIONAL
}


-- **************************************************
--
-- CELL UPDATE CONFIRM for CCCH
--
```

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

CellUpdateConfirm-CCCH ::= CHOICE {
    r3                                  SEQUENCE {
        -- User equipment IEs
            u-RNTI                      U-RNTI,
        -- The rest of the message is identical to the one sent on DCCH.
            cellUpdateConfirm-r3        CellUpdateConfirm-r3-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                cellUpdateConfirm-CCCH-r3-add-ext           BIT STRING  OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    cellUpdateConfirm-v4xyext       CellUpdateConfirm-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                          SEQUENCE {
                -- The rest of the message is identical to the one sent on DCCH.
                cellUpdateConfirm-r4        CellUpdateConfirm-r4-IEs,
                nonCriticalExtensions       SEQUENCE {}     OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

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

CounterCheck ::= CHOICE {
    r3                              SEQUENCE {
        counterCheck-r3             CounterCheck-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            counterCheck-r3-add-ext     BIT STRING  OPTIONAL,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

CounterCheckResponse ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Radio bearer IEs
        rb-COUNT-C-InformationList      RB-COUNT-C-InformationList          OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            counterCheckResponse-r3-add-ext     BIT STRING  OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
}
```

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

DownlinkDirectTransfer ::= CHOICE {
    r3                              SEQUENCE {
        downlinkDirectTransfer-r3       DownlinkDirectTransfer-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            downlinkDirectTransfer-r3-add-ext       BIT STRING  OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

-- **************************************************
--
-- HANDOVER TO UTRAN COMMAND
--
-- **************************************************


HandoverToUTRANCommand ::= CHOICE {
    r3                              SEQUENCE {
        handoverToUTRANCommand-r3       HandoverToUTRANCommand-r3-IEs,
        v4xyNonCriticalExtensions       SEQUENCE {
            handoverToUTRANCommand-v4xyext  HandoverToUTRANCommand-v4xyext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions              CHOICE {
        r4                              SEQUENCE {
            handoverToUTRANCommand-r4       HandoverToUTRANCommand-r4-IEs,
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        },
        criticalExtensions              SEQUENCE {}
    }
}

HandoverToUTRANCommand-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    new-U-RNTI                      U-RNTI-Short,
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.
    dummy                           ActivationTime                  OPTIONAL,
    cipheringAlgorithm              CipheringAlgorithm              OPTIONAL,
    -- Radio bearer IEs
    -- Specification mode information
    specificationMode               CHOICE {
        complete                        SEQUENCE {
            srb-InformationSetupList        SRB-InformationSetupList,
            rab-InformationSetupList        RAB-InformationSetupList        OPTIONAL,
            ul-CommonTransChInfo            UL-CommonTransChInfo,
            ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
            dl-CommonTransChInfo            DL-CommonTransChInfo,
            dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
            ul-DPCH-Info                    UL-DPCH-Info,
            modeSpecificInfo                CHOICE {
                fdd                             SEQUENCE {
                    dl-PDSCH-Information             DL-PDSCH-Information OPTIONAL,
                    cpch-SetInfo                    CPCH-SetInfo        OPTIONAL
                },
                tdd                             NULL
            },
```

```
                       dl-CommonInformation             DL-CommonInformation,
                       dl-InformationPerRL-List         DL-InformationPerRL-List,
                       frequencyInfo                    FrequencyInfo
                  },
                  preconfiguration                 SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
                       preConfigMode                   CHOICE {
                           predefinedConfigIdentity      PredefinedConfigIdentity,
                           defaultConfig                 SEQUENCE {
                               defaultConfigMode             DefaultConfigMode,
                               defaultConfigIdentity         DefaultConfigIdentity
                           }
                       },
                       rab-Info                       RAB-Info-Post       OPTIONAL,
                       modeSpecificInfo               CHOICE {
                           fdd                             SEQUENCE {
                               ul-DPCH-Info                  UL-DPCH-InfoPostFDD,
                               dl-CommonInformationPost      DL-CommonInformationPost,
                               dl-InformationPerRL-List      DL-InformationPerRL-ListPostFDD,
                               frequencyInfo                 FrequencyInfoFDD
                           },
                           tdd                             SEQUENCE {
                               ul-DPCH-Info                  UL-DPCH-InfoPostTDD,
                               dl-CommonInformationPost      DL-CommonInformationPost,
                               dl-InformationPerRL           DL-InformationPerRL-PostTDD,
                               frequencyInfo                 FrequencyInfoTDD,
                               primaryCCPCH-TX-Power         PrimaryCCPCH-TX-Power
                           }

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

HandoverToUTRANCommand-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
        ssdt-UL                         SSDT-UL-r4                        OPTIONAL,
        cell-id                         CellIdentity                     OPTIONAL
}

HandoverToUTRANCommand-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        new-U-RNTI                    U-RNTI-Short,
        cipheringAlgorithm            CipheringAlgorithm               OPTIONAL,
    -- Radio bearer IEs
        rab-Info                      RAB-Info-Post,
    -- Specification mode information
        specificationMode             CHOICE {
            complete                        SEQUENCE {
                srb-InformationSetupList      SRB-InformationSetupList,
                rab-InformationSetupList      RAB-InformationSetupList-r4       OPTIONAL,
                ul-CommonTransChInfo          UL-CommonTransChInfo,
                ul-AddReconfTransChInfoList   UL-AddReconfTransChInfoList,
                dl-CommonTransChInfo          DL-CommonTransChInfo,
                dl-AddReconfTransChInfoList   DL-AddReconfTransChInfoList,
                ul-DPCH-Info                  UL-DPCH-Info-r4,
                modeSpecificInfo              CHOICE {
                    fdd                             SEQUENCE {
                        dl-PDSCH-Information           DL-PDSCH-Information OPTIONAL,
                        cpch-SetInfo                  CPCH-SetInfo        OPTIONAL
                    },
                    tdd                             NULL
                },
                dl-CommonInformation          DL-CommonInformation-r4,
                dl-InformationPerRL-List      DL-InformationPerRL-List-r4,
                frequencyInfo                 FrequencyInfo
            },
            preconfiguration              SEQUENCE {
-- All IEs that include an FDD/TDD choice are split in two IEs for this message,
-- one for the FDD only elements and one for the TDD only elements, so that one
-- FDD/TDD choice in this level is sufficient.
                preConfigMode                   CHOICE {
```

```
                         predefinedConfigIdentity        PredefinedConfigIdentity,
                         defaultConfig                   SEQUENCE {
                             defaultConfigMode               DefaultConfigMode,
                             defaultConfigIdentity           DefaultConfigIdentity-r4
                         }
                     },
                     rab-Info                        RAB-Info-Post       OPTIONAL,
                     modeSpecificInfo                CHOICE {
                         fdd                             SEQUENCE {
                             ul-DPCH-Info                    UL-DPCH-InfoPostFDD,
                             dl-CommonInformationPost        DL-CommonInformationPost,
                             dl-InformationPerRL-List        DL-InformationPerRL-ListPostFDD,
                             frequencyInfo                   FrequencyInfoFDD
                         },
                         tdd                             CHOICE {
                             tdd384                          SEQUENCE {
                                 ul-DPCH-Info                    UL-DPCH-InfoPostTDD,
                                 dl-InformationPerRL             DL-InformationPerRL-PostTDD,
                                 frequencyInfo                   FrequencyInfoTDD,
                                 primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
                             },
                             tdd128                          SEQUENCE {
                                 ul-DPCH-Info                    UL-DPCH-InfoPostTDD-LCR-r4,
                                 dl-InformationPerRL             DL-InformationPerRL-PostTDD-LCR-r4,
                                 frequencyInfo                   FrequencyInfoTDD,
                                 primaryCCPCH-TX-Power           PrimaryCCPCH-TX-Power
                             }
                         }
                     }
                 }
             },
     -- Physical channel IEs
         maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power
}

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

HandoverToUTRANComplete ::= SEQUENCE {
     --TABULAR: Integrity protection shall not be performed on this message.
     -- User equipment IEs
     -- TABULAR: startList is conditional on history.
         startList                       STARTList                       OPTIONAL,
     -- Radio bearer IEs
         count-C-ActivationTime          ActivationTime                  OPTIONAL,
         laterNonCriticalExtensions      SEQUENCE {
             -- Container for additional R99 extensions
             handoverToUTRANComplete-r3-add-ext      BIT STRING  OPTIONAL,
             -- Extension mechanism for non- release99 information
             nonCriticalExtensions           SEQUENCE {}     OPTIONAL
         } 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,
         laterNonCriticalExtensions      SEQUENCE {
             -- Container for additional R99 extensions
             initialDirectTransfer-r3-add-ext        BIT STRING  OPTIONAL,
             -- Extension mechanism for non- release99 information
             nonCriticalExtensions           SEQUENCE {}     OPTIONAL
         } 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,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            handoverFromUTRANCommand-GSM-r3-add-ext     BIT STRING  OPTIONAL,
            -- 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
        }   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,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            handoverFromUTRANFailure-r3-add-ext     BIT STRING  OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        } 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,
                laterNonCriticalExtensions       SEQUENCE {
                    -- Container for additional R99 extensions
                    interRATHandoverInfo-r3-add-ext        BIT STRING  OPTIONAL,
                    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-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,
                laterNonCriticalExtensions          SEQUENCE {
                    -- Container for additional R99 extensions
                    measurementControl-r3-add-ext       BIT STRING  OPTIONAL,
                    v4xyNonCriticalExtensions                   SEQUENCE{
                        measurementControl-v4xyext          MeasurementControl-v4xyext-IEs,
                        nonCriticalExtensions                   SEQUENCE {}                         OPTIONAL
                    }                                   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,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            measurementControlFailure-r3-add-ext        BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

MeasurementReport ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        measuredResults                 MeasuredResults                     OPTIONAL,
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
        additionalMeasuredResults       MeasuredResultsList                 OPTIONAL,
        eventResults                    EventResults                        OPTIONAL,
    -- Non-critical extensions
        v390nonCriticalExtensions       SEQUENCE {
            measurementReport-v390ext   MeasurementReport-v390ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                measurementReport-r3-add-ext        BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    measurementReport-v4xyext       MeasurementReport-v4xyext-IEs,
                    -- Extension mechanism for non-Rel4 information
                    nonCriticalExtensions           SEQUENCE {}                 OPTIONAL
                }                   OPTIONAL
            }                   OPTIONAL
        }                   OPTIONAL
}

MeasurementReport-v390ext ::= SEQUENCE {
        measuredResults-v390ext         MeasuredResults-v390ext             OPTIONAL
}

MeasurementReport-v4xyext-IEs ::= SEQUENCE {
    interFreqEventResults-LCR       InterFreqEventResults-LCR-r4-ext        OPTIONAL,
    additionalMeasuredResults-LCR   MeasuredResultsList-LCR-r4-ext          OPTIONAL
}

 -- **************************************************
--
-- PAGING TYPE 1
--
-- **************************************************

PagingType1 ::= SEQUENCE {
    -- User equipment IEs
        pagingRecordList                PagingRecordList                    OPTIONAL,
    -- Other IEs
        bcch-ModificationInfo           BCCH-ModificationInfo               OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            pagingType1-r3-add-ext          BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}
```

```
-- **************************************************
--
-- PAGING TYPE 2
--
-- **************************************************

PagingType2 ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        pagingCause                     PagingCause,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        pagingRecordTypeID              PagingRecordTypeID,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            pagingType2-r3-add-ext      BIT STRING      OPTIONAL,
    -- Extension mechanism for non- release99 information
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

PhysicalChannelReconfiguration ::= CHOICE {
    r3                                  SEQUENCE {
        physicalChannelReconfiguration-r3
                                        PhysicalChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            physicalChannelReconfiguration-v3a0ext    PhysicalChannelReconfiguration-v3a0ext,
            laterNonCriticalExtensions  SEQUENCE {
                -- Container for additional R99 extensions
                physicalChannelReconfiguration-r3-add-ext       BIT STRING      OPTIONAL,
                v4xyNonCriticalExtenstions              SEQUENCE {
                    physicalChannelReconfiguration-v4xyext
                                        PhysicalChannelReconfiguration-v4xyext-IEs,
                    nonCriticalExtensions               SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
        r4                              SEQUENCE {
            physicalChannelReconfiguration-r4
                                        PhysicalChannelReconfiguration-r4-IEs,
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        },
        criticalExtensions              CHOICE {
            r5                              SEQUENCE {
                physicalChannelReconfiguration-r5
                                        PhysicalChannelReconfiguration-r5-IEs,
                nonCriticalExtensions       SEQUENCE {}     OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

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

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

PhysicalChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                   DSCH-RNTI                               OPTIONAL
}

PhysicalChannelReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

PhysicalChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                           OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo       OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
        -- between UL DPCH info, CPCH SET info and CPCH set ID.
        ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID-r4  OPTIONAL,
        modeSpecificInfo                CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation-r4             OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4         OPTIONAL
}

PhysicalChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                           OPTIONAL,
        new-H-RNTI                      H-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
```

```
                ura-Identity                    URA-Identity                    OPTIONAL,
            -- Radio bearer IEs
                dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5   OPTIONAL,
            -- Physical channel IEs
                frequencyInfo                   FrequencyInfo                   OPTIONAL,
                maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
                -- TABULAR: UL-ChannelRequirementWithCPCH-SetID-r4 contains the choice
                -- between UL DPCH info, CPCH SET info and CPCH set ID.
                ul-ChannelRequirement           UL-ChannelRequirementWithCPCH-SetID-r5  OPTIONAL,
                modeSpecificInfo                CHOICE {
                    fdd                             SEQUENCE {
                        dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
                    },
                    tdd                             NULL
                },
                dl-HSPDSCH-Information           DL-HSPDSCH-Information           OPTIONAL,
                dl-CommonInformation            DL-CommonInformation-r4         OPTIONAL,
                dl-InformationPerRL-List        DL-InformationPerRL-List-r5     OPTIONAL
}


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

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo        OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                   OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                     OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList          OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo      OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            physicalChannelReconfigurationComplete-r3-add-ext     BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}


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

PhysicalChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier          OPTIONAL,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            physicalChannelReconfigurationFailure-r3-add-ext     BIT STRING     OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}


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

PhysicalSharedChannelAllocation ::= CHOICE {
    r3                              SEQUENCE {
        physicalSharedChannelAllocation-r3
                                        PhysicalSharedChannelAllocation-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            physicalSharedChannelAllocation-r3-add-ext     BIT STRING     OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
```

```
        later-than-r3               SEQUENCE {
            dsch-RNTI                   DSCH-RNTI                           OPTIONAL,
            rrc-TransactionIdentifier   RRC-TransactionIdentifier,
            criticalExtensions          CHOICE {
                r4                          SEQUENCE {
                    physicalSharedChannelAllocation-r4
                                                PhysicalSharedChannelAllocation-r4-IEs,
                    nonCriticalExtensions       SEQUENCE {}    OPTIONAL
                },
                criticalExtensions          SEQUENCE {}
            }
        }
}

PhysicalSharedChannelAllocation-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        dsch-RNTI                   DSCH-RNTI                           OPTIONAL,
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
    -- Physical channel IEs
        ul-TimingAdvance            UL-TimingAdvanceControl             OPTIONAL,
        pusch-CapacityAllocationInfo    PUSCH-CapacityAllocationInfo    OPTIONAL,
        pdsch-CapacityAllocationInfo    PDSCH-CapacityAllocationInfo    OPTIONAL,
        -- TABULAR: If the above value is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
        confirmRequest              ENUMERATED {
                                        confirmPDSCH, confirmPUSCH }    OPTIONAL,
        trafficVolumeReportRequest  INTEGER (0..255)                   OPTIONAL,
        iscpTimeslotList            TimeslotList                       OPTIONAL,
        requestPCCPCHRSCP           BOOLEAN
}

PhysicalSharedChannelAllocation-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- Physical channel IEs
        ul-TimingAdvance            UL-TimingAdvanceControl-r4          OPTIONAL,
        pusch-CapacityAllocationInfo    PUSCH-CapacityAllocationInfo-r4    OPTIONAL,
        pdsch-CapacityAllocationInfo    PDSCH-CapacityAllocationInfo-r4    OPTIONAL,
        -- TABULAR: If confirmRequest is not present, the default value "No Confirm"
        -- shall be used as specified in 10.2.25.
        confirmRequest              ENUMERATED {
                                        confirmPDSCH, confirmPUSCH }    OPTIONAL,
        iscpTimeslotList            TimeslotList-r4                     OPTIONAL,
        requestPCCPCHRSCP           BOOLEAN
}

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

PUSCHCapacityRequest ::= SEQUENCE {
    -- User equipment IEs
        dsch-RNTI                   DSCH-RNTI                           OPTIONAL,
    -- Measurement IEs
        trafficVolume               TrafficVolumeMeasuredResultsList,
        timeslotListWithISCP        TimeslotListWithISCP               OPTIONAL,
        primaryCCPCH-RSCP           PrimaryCCPCH-RSCP                  OPTIONAL,
        allocationConfirmation      CHOICE {
            pdschConfirmation           PDSCH-Identity,
            puschConfirmation           PUSCH-Identity
        }                                                              OPTIONAL,
        protocolErrorIndicator      ProtocolErrorIndicatorWithMoreInfo,
        laterNonCriticalExtensions  SEQUENCE {
            -- Container for additional R99 extensions
            puschCapacityRequest-r3-add-ext    BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }   OPTIONAL
}

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

```
RadioBearerReconfiguration ::= CHOICE {
    r3                                  SEQUENCE {
        radioBearerReconfiguration-r3   RadioBearerReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            radioBearerReconfiguration-v3a0ext  RadioBearerReconfiguration-v3a0ext,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerReconfiguration-r3-add-ext    BIT STRING    OPTIONAL,
                v4xyNonCriticalExtensions       SEQUENCE {
                    radioBearerReconfiguration-v4xyext
                                                        RadioBearerReconfiguration-v4xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                radioBearerReconfiguration-r4   RadioBearerReconfiguration-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}    OPTIONAL
            },
            criticalExtensions              CHOICE {
                r5                              SEQUENCE {
                    radioBearerReconfiguration-r5   RadioBearerReconfiguration-r5-IEs,
                    nonCriticalExtensions           SEQUENCE {}    OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}

RadioBearerReconfiguration-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
    activationTime                  ActivationTime                      OPTIONAL,
    new-U-RNTI                      U-RNTI                              OPTIONAL,
    new-C-RNTI                      C-RNTI                              OPTIONAL,
    rrc-StateIndicator              RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
    cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
    rab-InformationReconfigList     RAB-InformationReconfigList         OPTIONAL,
    -- NOTE: IE rb-InformationReconfigList should be optional in later versions
    -- of this message
    rb-InformationReconfigList      RB-InformationReconfigList,
    rb-InformationAffectedList      RB-InformationAffectedList          OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
    ul-deletedTransChInfoList       UL-DeletedTransChInfoList           OPTIONAL,
    ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList         OPTIONAL,
    modeSpecificTransChInfo         CHOICE {
        fdd                             SEQUENCE {
            cpch-SetID                      CPCH-SetID                  OPTIONAL,
            addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
        },
        tdd                             NULL
    }                                                                   OPTIONAL,
    dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
    dl-DeletedTransChInfoList       DL-DeletedTransChInfoList           OPTIONAL,
    dl-AddReconfTransChInfoList     DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
    frequencyInfo                   FrequencyInfo                       OPTIONAL,
    maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
    ul-ChannelRequirement           UL-ChannelRequirement               OPTIONAL,
    modeSpecificPhysChInfo          CHOICE {
        fdd                             SEQUENCE {
            dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
        },
        tdd                             NULL
    },
```

```
        dl-CommonInformation              DL-CommonInformation                OPTIONAL,
        -- NOTE: IE dl-InformationPerRL-List should be optional in later versions
        -- of this message
        dl-InformationPerRL-List          DL-InformationPerRL-List
}


RadioBearerReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                         DSCH-RNTI                           OPTIONAL
}


RadioBearerReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}


RadioBearerReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo       IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo                 CipheringModeInfo                   OPTIONAL,
        activationTime                    ActivationTime                      OPTIONAL,
        new-U-RNTI                        U-RNTI                              OPTIONAL,
        new-C-RNTI                        C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                     DSCH-RNTI                           OPTIONAL,
        rrc-StateIndicator                RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
        cn-InformationInfo                CN-InformationInfo                  OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                      URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList       RAB-InformationReconfigList         OPTIONAL,
        rb-InformationReconfigList        RB-InformationReconfigList-r4       OPTIONAL,
        rb-InformationAffectedList        RB-InformationAffectedList          OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo              UL-CommonTransChInfo-r4             OPTIONAL,
        ul-deletedTransChInfoList         UL-DeletedTransChInfoList           OPTIONAL,
        ul-AddReconfTransChInfoList       UL-AddReconfTransChInfoList          OPTIONAL,
        modeSpecificTransChInfo           CHOICE {
            fdd                               SEQUENCE {
                cpch-SetID                        CPCH-SetID                  OPTIONAL,
                addReconfTransChDRAC-Info         DRAC-StaticInformationList  OPTIONAL
            },
            tdd                               NULL
        }                                                                     OPTIONAL,
        dl-CommonTransChInfo              DL-CommonTransChInfo-r4             OPTIONAL,
        dl-DeletedTransChInfoList         DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList       DL-AddReconfTransChInfo2List        OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                     FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power             MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement             UL-ChannelRequirement-r4            OPTIONAL,
        modeSpecificPhysChInfo            CHOICE {
            fdd                               SEQUENCE {
                dl-PDSCH-Information               DL-PDSCH-Information         OPTIONAL
            },
            tdd                               NULL
        },
        dl-CommonInformation              DL-CommonInformation-r4             OPTIONAL,
        dl-InformationPerRL-List          DL-InformationPerRL-List-r4         OPTIONAL
}


RadioBearerReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo       IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo                 CipheringModeInfo                   OPTIONAL,
        activationTime                    ActivationTime                      OPTIONAL,
        new-U-RNTI                        U-RNTI                              OPTIONAL,
        new-C-RNTI                        C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                     DSCH-RNTI                           OPTIONAL,
        new-H-RNTI                        H-RNTI                              OPTIONAL,
        rrc-StateIndicator                RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff        UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- Core network IEs
```

```
        cn-InformationInfo              CN-InformationInfo              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                   OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList     OPTIONAL,
        rb-InformationReconfigList      RB-InformationReconfigList-r5   OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList-r5   OPTIONAL,
        rb-PDCPContextRelocationList    RB-PDCPContextRelocationList    OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4         OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList       OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList     OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID              OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                               OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4         OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList-r5        OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList-r5  OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                   OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power           OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r5        OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information     OPTIONAL
            },
            tdd                             NULL
        },
        dl-HSPDSCH-Information          DL-HSPDSCH-Information           OPTIONAL,
        dl-CommonInformation           DL-CommonInformation-r4         OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r5     OPTIONAL
}

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

RadioBearerReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                  OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList       OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo   OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReconfigurationComplete-r3-add-ext       BIT STRING      OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}

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

RadioBearerReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                 OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReconfigurationFailure-r3-add-ext        BIT STRING      OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
```

```
            }    OPTIONAL
}

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

RadioBearerRelease ::= CHOICE {
    r3                              SEQUENCE {
        radioBearerRelease-r3       RadioBearerRelease-r3-IEs,
        v3a0NonCriticalExtensions   SEQUENCE {
            radioBearerRelease-v3a0ext   RadioBearerRelease-v3a0ext,
        laterNonCriticalExtensions   SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerRelease-r3-add-ext      BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions      SEQUENCE {
                    radioBearerRelease-v4xyext      RadioBearerRelease-v4xyext-IEs,
                    nonCriticalExtensions          SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
        criticalExtensions          CHOICE {
            r4                          SEQUENCE {
                radioBearerRelease-r4       RadioBearerRelease-r4-IEs,
                nonCriticalExtensions       SEQUENCE {}    OPTIONAL
            },
            criticalExtensions          CHOICE {
                r5                          SEQUENCE {
                    radioBearerRelease-r5       RadioBearerRelease-r5-IEs,
                    nonCriticalExtensions       SEQUENCE {}    OPTIONAL
                },
                criticalExtensions          SEQUENCE {}
            }
        }
    }
}

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

```
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement             OPTIONAL,
        modeSpecificPhysChInfo         CHOICE {
            fdd                            SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information       OPTIONAL
            },
            tdd                        NULL
        },
        dl-CommonInformation           DL-CommonInformation              OPTIONAL,
        dl-InformationPerRL-List       DL-InformationPerRL-List          OPTIONAL
}

RadioBearerRelease-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                  DSCH-RNTI                             OPTIONAL
}

RadioBearerRelease-v4xyext-IEs ::= SEQUENCE {
    -- Physical channel IEs
        -- IE 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
}

RadioBearerRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo    IntegrityProtectionModeInfo       OPTIONAL,
        cipheringModeInfo              CipheringModeInfo                 OPTIONAL,
        activationTime                 ActivationTime                    OPTIONAL,
        new-U-RNTI                     U-RNTI                            OPTIONAL,
        new-C-RNTI                     C-RNTI                            OPTIONAL,
        new-DSCH-RNTI                  DSCH-RNTI                         OPTIONAL,
        rrc-StateIndicator             RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
    -- Core network IEs
        cn-InformationInfo             CN-InformationInfo                OPTIONAL,
        signallingConnectionRelIndication  CN-DomainIdentity             OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                   URA-Identity                      OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList    RAB-InformationReconfigList       OPTIONAL,
        rb-InformationReleaseList      RB-InformationReleaseList,
        rb-InformationAffectedList     RB-InformationAffectedList        OPTIONAL,
        dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo     OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo           UL-CommonTransChInfo-r4           OPTIONAL,
        ul-deletedTransChInfoList      UL-DeletedTransChInfoList         OPTIONAL,
        ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList       OPTIONAL,
        modeSpecificTransChInfo        CHOICE {
            fdd                            SEQUENCE {
                cpch-SetID                     CPCH-SetID                OPTIONAL,
                addReconfTransChDRAC-Info      DRAC-StaticInformationList OPTIONAL
            },
            tdd                        NULL
        }                                                                OPTIONAL,
        dl-CommonTransChInfo           DL-CommonTransChInfo-r4           OPTIONAL,
        dl-DeletedTransChInfoList      DL-DeletedTransChInfoList         OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfo2List      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                  FrequencyInfo                     OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement-r4          OPTIONAL,
        modeSpecificPhysChInfo         CHOICE {
            fdd                            SEQUENCE {
                dl-PDSCH-Information            DL-PDSCH-Information       OPTIONAL
            },
            tdd                        NULL
        },
        dl-CommonInformation           DL-CommonInformation-r4           OPTIONAL,
        dl-InformationPerRL-List       DL-InformationPerRL-List-r4       OPTIONAL
}

RadioBearerRelease-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo    IntegrityProtectionModeInfo       OPTIONAL,
        cipheringModeInfo              CipheringModeInfo                 OPTIONAL,
```

```
            activationTime                 ActivationTime                    OPTIONAL,
            new-U-RNTI                     U-RNTI                            OPTIONAL,
            new-C-RNTI                     C-RNTI                            OPTIONAL,
            new-DSCH-RNTI                  DSCH-RNTI                         OPTIONAL,
            new-H-RNTI                     H-RNTI                            OPTIONAL,
            rrc-StateIndicator             RRC-StateIndicator,
            utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient  OPTIONAL,
        -- Core network IEs
            cn-InformationInfo             CN-InformationInfo                OPTIONAL,
            signallingConnectionRelIndication  CN-DomainIdentity             OPTIONAL,
        -- UTRAN mobility IEs
            ura-Identity                   URA-Identity                      OPTIONAL,
        -- Radio bearer IEs
            rab-InformationReconfigList    RAB-InformationReconfigList       OPTIONAL,
            rb-InformationReleaseList      RB-InformationReleaseList,
            rb-InformationAffectedList     RB-InformationAffectedList-r5     OPTIONAL,
            dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5  OPTIONAL,
        -- Transport channel IEs
            ul-CommonTransChInfo           UL-CommonTransChInfo-r4           OPTIONAL,
            ul-deletedTransChInfoList      UL-DeletedTransChInfoList         OPTIONAL,
            ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList       OPTIONAL,
            modeSpecificTransChInfo        CHOICE {
                fdd                            SEQUENCE {
                    cpch-SetID                     CPCH-SetID                OPTIONAL,
                    addReconfTransChDRAC-Info      DRAC-StaticInformationList OPTIONAL
                },
                tdd                            NULL
            }                                                                OPTIONAL,
            dl-CommonTransChInfo           DL-CommonTransChInfo-r4           OPTIONAL,
            dl-DeletedTransChInfoList      DL-DeletedTransChInfoList-r5      OPTIONAL,
            dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r5    OPTIONAL,
        -- Physical channel IEs
            frequencyInfo                  FrequencyInfo                     OPTIONAL,
            maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
            ul-ChannelRequirement          UL-ChannelRequirement-r5          OPTIONAL,
            modeSpecificPhysChInfo         CHOICE {
                fdd                            SEQUENCE {
                    dl-PDSCH-Information            DL-PDSCH-Information      OPTIONAL
                },
                tdd                            NULL
            },
            dl-HSPDSCH-Information         DL-HSPDSCH-Information            OPTIONAL,
            dl-CommonInformation          DL-CommonInformation-r4          OPTIONAL,
            dl-InformationPerRL-List      DL-InformationPerRL-List-r5      OPTIONAL
}


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

RadioBearerReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo     IntegrityProtActivationInfo       OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance               UL-TimingAdvance                  OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime         ActivationTime                    OPTIONAL,
        rb-UL-CiphActivationTimeInfo   RB-ActivationTimeInfoList         OPTIONAL,
        ul-CounterSynchronisationInfo  UL-CounterSynchronisationInfo     OPTIONAL,
        laterNonCriticalExtensions     SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReleaseComplete-r3-add-ext     BIT STRING     OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions          SEQUENCE {}      OPTIONAL
        } OPTIONAL
}

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

RadioBearerReleaseFailure ::= SEQUENCE {
```

```
        -- User equipment IEs
          rrc-TransactionIdentifier      RRC-TransactionIdentifier,
          failureCause                   FailureCauseWithProtErr,
        -- Radio bearer IEs
          potentiallySuccesfulBearerList RB-IdentityList                              OPTIONAL,
          laterNonCriticalExtensions     SEQUENCE {
              -- Container for additional R99 extensions
              radioBearerReleaseFailure-r3-add-ext      BIT STRING     OPTIONAL,
              Extension mechanism for non  release99 information
              nonCriticalExtensions               SEQUENCE {}     OPTIONAL
          }   OPTIONAL
}


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

RadioBearerSetup ::= CHOICE {
    r3                                 SEQUENCE {
        radioBearerSetup-r3                    RadioBearerSetup-r3-IEs,
        v3a0NonCriticalExtensions              SEQUENCE {
            radioBearerSetup-v3a0ext               RadioBearerSetup-v3a0ext,
            laterNonCriticalExtensions             SEQUENCE {
                -- Container for additional R99 extensions
                radioBearerSetup-r3-add-ext        BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions          SEQUENCE {
                    radioBearerSetup-v4xyext           RadioBearerSetup-v4xyext-IEs,
                    nonCriticalExtensions              SEQUENCE {} OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                      SEQUENCE {
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions             CHOICE {
            r4                                 SEQUENCE {
                radioBearerSetup-r4                RadioBearerSetup-r4-IEs,
                nonCriticalExtensions              SEQUENCE {}     OPTIONAL
            },
            criticalExtensions                 CHOICE {
                r5                                 SEQUENCE {
                    radioBearerSetup-r5                RadioBearerSetup-r5-IEs,
                    nonCriticalExtensions              SEQUENCE {}     OPTIONAL
                },
                criticalExtensions                 SEQUENCE {}
            }
        }
    }
}

RadioBearerSetup-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier      RRC-TransactionIdentifier,
    integrityProtectionModeInfo    IntegrityProtectionModeInfo          OPTIONAL,
    cipheringModeInfo              CipheringModeInfo                    OPTIONAL,
    activationTime                 ActivationTime                       OPTIONAL,
    new-U-RNTI                     U-RNTI                               OPTIONAL,
    new-C-RNTI                     C-RNTI                               OPTIONAL,
    rrc-StateIndicator             RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient     OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                   URA-Identity                         OPTIONAL,
    -- Core network IEs
    cn-InformationInfo             CN-InformationInfo                   OPTIONAL,
    -- Radio bearer IEs
    srb-InformationSetupList       SRB-InformationSetupList             OPTIONAL,
    rab-InformationSetupList       RAB-InformationSetupList             OPTIONAL,
    rb-InformationAffectedList     RB-InformationAffectedList           OPTIONAL,
    dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo        OPTIONAL,
    -- Transport channel IEs
    ul-CommonTransChInfo           UL-CommonTransChInfo                 OPTIONAL,
    ul-deletedTransChInfoList      UL-DeletedTransChInfoList            OPTIONAL,
    ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList          OPTIONAL,
    modeSpecificTransChInfo        CHOICE {
        fdd                            SEQUENCE {
            cpch-SetID                     CPCH-SetID                   OPTIONAL,
```

```
                addReconfTransChDRAC-Info        DRAC-StaticInformationList  OPTIONAL
            },
            tdd                              NULL
        }                                                                    OPTIONAL,
        dl-CommonTransChInfo             DL-CommonTransChInfo                OPTIONAL,
        dl-DeletedTransChInfoList        DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList         OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                    FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement            UL-ChannelRequirement             OPTIONAL,
        modeSpecificPhysChInfo           CHOICE {
            fdd                              SEQUENCE {
                dl-PDSCH-Information              DL-PDSCH-Information        OPTIONAL
            },
            tdd                              NULL
        },
        dl-CommonInformation             DL-CommonInformation              OPTIONAL,
        dl-InformationPerRL-List         DL-InformationPerRL-List          OPTIONAL
}

RadioBearerSetup-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                    DSCH-RNTI                          OPTIONAL
}

RadioBearerSetup-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

RadioBearerSetup-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo      IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo                CipheringModeInfo                  OPTIONAL,
        activationTime                   ActivationTime                     OPTIONAL,
        new-U-RNTI                       U-RNTI                             OPTIONAL,
        new-C-RNTI                       C-RNTI                             OPTIONAL,
        new-DSCH-RNTI                    DSCH-RNTI                          OPTIONAL,
        rrc-StateIndicator               RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                     URA-Identity                       OPTIONAL,
    -- Core network IEs
        cn-InformationInfo               CN-InformationInfo                 OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList         SRB-InformationSetupList           OPTIONAL,
        rab-InformationSetupList         RAB-InformationSetupList-r4        OPTIONAL,
        rb-InformationAffectedList       RB-InformationAffectedList         OPTIONAL,
        dl-CounterSynchronisationInfo    DL-CounterSynchronisationInfo      OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo             UL-CommonTransChInfo-r4            OPTIONAL,
        ul-deletedTransChInfoList        UL-DeletedTransChInfoList          OPTIONAL,
        ul-AddReconfTransChInfoList      UL-AddReconfTransChInfoList        OPTIONAL,
        modeSpecificTransChInfo          CHOICE {
            fdd                              SEQUENCE {
                cpch-SetID                       CPCH-SetID                 OPTIONAL,
                addReconfTransChDRAC-Info        DRAC-StaticInformationList OPTIONAL
            },
            tdd                              NULL
        }                                                                    OPTIONAL,
        dl-CommonTransChInfo             DL-CommonTransChInfo-r4            OPTIONAL,
        dl-DeletedTransChInfoList        DL-DeletedTransChInfoList           OPTIONAL,
        dl-AddReconfTransChInfoList      DL-AddReconfTransChInfoList-r4      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                    FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement            UL-ChannelRequirement-r4          OPTIONAL,
        modeSpecificPhysChInfo           CHOICE {
            fdd                              SEQUENCE {
                dl-PDSCH-Information              DL-PDSCH-Information        OPTIONAL
            },
            tdd                              NULL
        },
```

```
            dl-CommonInformation              DL-CommonInformation-r4            OPTIONAL,
            dl-InformationPerRL-List          DL-InformationPerRL-List-r4        OPTIONAL
}

RadioBearerSetup-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        activationTime                  ActivationTime                      OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                           OPTIONAL,
        new-H-RNTI                      H-RNTI                              OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient    OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                  OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList        SRB-InformationSetupList            OPTIONAL,
        rab-InformationSetupList        RAB-InformationSetupList-r4         OPTIONAL,
        rb-InformationAffectedList      RB-InformationAffectedList-r5       OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5    OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4             OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList           OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                  OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList  OPTIONAL
            },
            tdd                             NULL
        }                                                                   OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4             OPTIONAL,
        dl-DeletedTransChInfoList       DL-DeletedTransChInfoList-r5            OPTIONAL,
        dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList-r5      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                       OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power               OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r5            OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information         OPTIONAL
            },
            tdd                             NULL
        },
        dl-HSPDSCH-Information          DL-HSPDSCH-Information              OPTIONAL,
        dl-CommonInformation           DL-CommonInformation-r4            OPTIONAL,
        dl-InformationPerRL-List       DL-InformationPerRL-List-r5        OPTIONAL
}

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

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        start-Value             START-Value                                OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                     OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupComplete-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

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

RadioBearerSetupFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
    -- Radio bearer IEs
        potentiallySuccesfulBearerList  RB-IdentityList                 OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupFailure-r3-add-ext    BIT STRING     OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

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

RRCConnectionReject ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionReject-r3          RRCConnectionReject-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionReject-r3-add-ext      BIT STRING     OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

RRCConnectionRelease ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionRelease-r3         RRCConnectionRelease-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionRelease-r3-add-ext     BIT STRING     OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionRelease-r4         RRCConnectionRelease-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}    OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}
```

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

RRCConnectionRelease-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        -- n-308 is conditional on the UE state.
        n-308                           N-308                           OPTIONAL,
        releaseCause                    ReleaseCause,
        rplmn-information               Rplmn-Information-r4            OPTIONAL
}

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

RRCConnectionRelease-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionRelease-CCCH-r3    RRCConnectionRelease-CCCH-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionRelease-CCCH-r3-add-ext        BIT STRING      OPTIONAL,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionRelease-CCCH-r4    RRCConnectionRelease-CCCH-r4-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

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

RRCConnectionRelease-CCCH-r4-IEs ::= SEQUENCE {
    -- The rest of the message is identical to the one sent on DCCH.
        rrcConnectionRelease            RRCConnectionRelease-r4-IEs
}

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

RRCConnectionReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        errorIndication                 FailureCauseWithProtErr                 OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionReleaseComplete-r3-add-ext     BIT STRING      OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } 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,
        v4xyNonCriticalExtensions           SEQUENCE {
            rrcConnectionRequest-v4xyext    RRCConnectionRequest-v4xyext-IEs,
            -- Reserved for future non critical extension
            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
        }   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,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext       BIT STRING     OPTIONAL,
            v4xyNonCriticalExtensions       SEQUENCE {
                rrcConnectionSetup-v4xyext      RRCConnectionSetup-v4xyext-IEs,
                -- Extension mechanism for non- release99 information
                nonCriticalExtensions           SEQUENCE {}                OPTIONAL
            }   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,
              laterNonCriticalExtensions        SEQUENCE {
                      -- Container for additional R99 extensions
                      rrcConnectionSetupComplete-r3-add-ext      BIT STRING     OPTIONAL,
                  v4xyNonCriticalExtensions        SEQUENCE {
                      rrcConnectionSetupComplete-v4xyext  RRCConnectionSetupComplete-v4xyext-Ies,
                      nonCriticalExtensions            SEQUENCE {}     OPTIONAL
                  } 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,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                rrc-FailureInfo-r3-add-ext      BIT STRING      OPTIONAL,
                nonCriticalExtensions                   SEQUENCE {} OPTIONAL
            }   OPTIONAL
        },
        criticalExtensions                      SEQUENCE {}
    }

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

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

    RRCStatus ::= SEQUENCE {
        -- Other IEs
            -- TABULAR: Identification of received message is nested in
            -- ProtocolErrorMoreInformation
            protocolErrorInformation        ProtocolErrorMoreInformation,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                rrcStatus-r3-add-ext        BIT STRING      OPTIONAL,
                -- Extension mechanism for non- release99 information
                nonCriticalExtensions               SEQUENCE {}     OPTIONAL
            }   OPTIONAL
    }

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

    SecurityModeCommand ::= CHOICE {
        r3                              SEQUENCE {
            securityModeCommand-r3      SecurityModeCommand-r3-IEs,
            laterNonCriticalExtensions      SEQUENCE {
```

```
-- Container for additional R99 extensions
            securityModeCommand-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

SecurityModeCommand-r3-IEs ::= SEQUENCE {
-- TABULAR: Integrity protection shall always be performed on this message.
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        securityCapability              SecurityCapability,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
    -- Other IEs
        ue-SystemSpecificSecurityCap    InterRAT-UE-SecurityCapList         OPTIONAL
}

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

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

    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            securityModeComplete-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

SecurityModeFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            securityModeFailure-r3-add-ext      BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

SignallingConnectionRelease ::= CHOICE {
    r3                                  SEQUENCE {
        signallingConnectionRelease-r3  SignallingConnectionRelease-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            signallingConnectionRelease-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        } OPTIONAL
```

```
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

SignallingConnectionReleaseIndication ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity               CN-DomainIdentity,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            signallingConnectionReleaseIndication-r3-add-ext        BIT STRING      OPTIONAL,
            Extension mechanism for non- release99 information
            nonCriticalExtensions           SEQUENCE {}      OPTIONAL
        }   OPTIONAL
}

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

SystemInformation-BCH ::= SEQUENCE {
    -- Other information elements
        sfn-Prime                       SFN-Prime,
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                        LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
            spare1                          NULL
        }
}

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

```
SystemInformation-FACH ::= SEQUENCE {
    -- Other information elements
        payload                         CHOICE {
            noSegment                       NULL,
            firstSegment                    FirstSegment,
            subsequentSegment               SubsequentSegment,
            lastSegmentShort                LastSegmentShort,
            lastAndFirst                    SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                firstSegment                    FirstSegmentShort
            },
            lastAndComplete                 SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List
            },
            lastAndCompleteAndFirst         SEQUENCE {
                lastSegmentShort                LastSegmentShort,
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB-List                CompleteSIB-List,
            completeAndFirst                SEQUENCE {
                completeSIB-List                CompleteSIB-List,
                firstSegment                    FirstSegmentShort
            },
            completeSIB                     CompleteSIB,
            lastSegment                     LastSegment,
            spare5                          NULL,
            spare4                          NULL,
            spare3                          NULL,
            spare2                          NULL,
            spare1                          NULL
        }
}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SystemInformationChangeIndication ::=  SEQUENCE {
    -- Other IEs
        bcch-ModificationInfo             BCCH-ModificationInfo,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            systemInformationChangeIndication-r3-add-ext      BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions         SEQUENCE {}     OPTIONAL
        }     OPTIONAL
}

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

TransportChannelReconfiguration ::= CHOICE {
    r3                                  SEQUENCE {
        transportChannelReconfiguration-r3
                                          TransportChannelReconfiguration-r3-IEs,
        v3a0NonCriticalExtensions         SEQUENCE {
            transportChannelReconfiguration-v3a0ext
                                          TransportChannelReconfiguration-v3a0ext,
            laterNonCriticalExtensions        SEQUENCE {
                -- Container for additional R99 extensions
                transportChannelReconfiguration-r3-add-ext      BIT STRING      OPTIONAL,
                v4xyNonCriticalExtensions         SEQUENCE {
                    transportChannelReconfiguration-v4xyext
                                          TransportChannelReconfiguration-v4xyext-IEs,
```

```
                           nonCriticalExtensions          SEQUENCE {} OPTIONAL
                  }           OPTIONAL
               }           OPTIONAL
            }           OPTIONAL
      },
      later-than-r3                SEQUENCE {
          rrc-TransactionIdentifier     RRC-TransactionIdentifier,
          criticalExtensions            CHOICE {
              r4                             SEQUENCE {
                  transportChannelReconfiguration-r4
                                              TransportChannelReconfiguration-r4-IEs,
                  nonCriticalExtensions          SEQUENCE {}    OPTIONAL
              },
              criticalExtensions           CHOICE {
                  r5                             SEQUENCE {
                      transportChannelReconfiguration-r5
                                                  TransportChannelReconfiguration-r5-IEs,
                  nonCriticalExtensions          SEQUENCE {}    OPTIONAL
                  },
                  criticalExtensions           SEQUENCE {}
              }
          }
      }
}


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

TransportChannelReconfiguration-v3a0ext ::= SEQUENCE {
    new-DSCH-RNTI                     DSCH-RNTI                            OPTIONAL
}


TransportChannelReconfiguration-v4xyext-IEs ::= SEQUENCE {
    -- 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
}

TransportChannelReconfiguration-r4-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                  OPTIONAL,
        activationTime                  ActivationTime                     OPTIONAL,
        new-U-RNTI                      U-RNTI                             OPTIONAL,
        new-C-RNTI                      C-RNTI                             OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                          OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo      OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4             OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                 OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
            },
            tdd                             NULL
        }                                                                  OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4             OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r4      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r4           OPTIONAL,
        modeSpecificPhysChInfo          CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information        OPTIONAL
            },
            tdd                             NULL
        },
        dl-CommonInformation            DL-CommonInformation-r4            OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r4        OPTIONAL
}

TransportChannelReconfiguration-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                  OPTIONAL,
        activationTime                  ActivationTime                     OPTIONAL,
        new-U-RNTI                      U-RNTI                             OPTIONAL,
        new-C-RNTI                      C-RNTI                             OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                          OPTIONAL,
        new-H-RNTI                      H-RNTI                             OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4             OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList         OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                 OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
            },
            tdd                             NULL
        }                                                                  OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4             OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r5      OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                   FrequencyInfo                      OPTIONAL,
        maxAllowedUL-TX-Power           MaxAllowedUL-TX-Power              OPTIONAL,
        ul-ChannelRequirement           UL-ChannelRequirement-r5           OPTIONAL,
```

```
    modeSpecificPhysChInfo            CHOICE {
        fdd                               SEQUENCE {
            dl-PDSCH-Information               DL-PDSCH-Information        OPTIONAL
        },
        tdd                               NULL
    },
    dl-HSPDSCH-Information             DL-HSPDSCH-Information          OPTIONAL,
    dl-CommonInformation              DL-CommonInformation-r4        OPTIONAL,
    dl-InformationPerRL-List          DL-InformationPerRL-List-r5    OPTIONAL
}

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

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier         RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo        IntegrityProtActivationInfo    OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                  UL-TimingAdvance               OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime            ActivationTime                 OPTIONAL,
        rb-UL-CiphActivationTimeInfo      RB-ActivationTimeInfoList      OPTIONAL,
        ul-CounterSynchronisationInfo     UL-CounterSynchronisationInfo  OPTIONAL,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            transportChannelReconfigurationComplete-r3-add-ext      BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions             SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

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

TransportChannelReconfigurationFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier         RRC-TransactionIdentifier,
        failureCause                      FailureCauseWithProtErr,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            transportChannelReconfigurationFailure-r3-add-ext       BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions             SEQUENCE {}    OPTIONAL
        } OPTIONAL
}

-- *******************************************************
--
-- TRANSPORT FORMAT COMBINATION CONTROL in AM or UM RLC mode
--
-- *******************************************************

TransportFormatCombinationControl ::= SEQUENCE {
        -- rrc-TransactionIdentifier is always included in this message
        rrc-TransactionIdentifier         RRC-TransactionIdentifier          OPTIONAL,
        modeSpecificInfo                  CHOICE {
            fdd                               NULL,
            tdd                               SEQUENCE {
                tfcs-ID                           TFCS-Identity   OPTIONAL
            }
        },
        dpch-TFCS-InUplink                TFC-Subset,
        activationTimeForTFCSubset        ActivationTime                     OPTIONAL,
        tfc-ControlDuration               TFC-ControlDuration                OPTIONAL,
        laterNonCriticalExtensions        SEQUENCE {
            -- Container for additional R99 extensions
            transportFormatCombinationControl-r3-add-ext      BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions             SEQUENCE {}    OPTIONAL
        } OPTIONAL
}
```

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

TransportFormatCombinationControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        failureCause                     FailureCauseWithProtErr,
        laterNonCriticalExtensions            SEQUENCE {
            -- Container for additional R99 extensions
            transportFormatCombinationControlFailure-r3-add-ext    BIT STRING    OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions            SEQUENCE {}    OPTIONAL
        }    OPTIONAL
}

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

UECapabilityEnquiry ::= CHOICE {
    r3                               SEQUENCE {
        ueCapabilityEnquiry-r3        UECapabilityEnquiry-r3-IEs,
        laterNonCriticalExtensions            SEQUENCE {
            -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext        BIT STRING    OPTIONAL,
            v4xyNonCriticalExtensions            SEQUENCE {
                ueCapabilityEnquiry-v4xyext    UECapabilityEnquiry-v4xyext-IEs,
                nonCriticalExtensions            SEQUENCE {}                OPTIONAL
            }        OPTIONAL
        }    OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

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

UECapabilityEnquiry-v4xyext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext
}

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

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier          OPTIONAL,
        ue-RadioAccessCapability         UE-RadioAccessCapability           OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability         InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
        v370NonCriticalExtensions        SEQUENCE {
            ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
            v380NonCriticalExtensions            SEQUENCE {
                ueCapabilityInformation-v380ext    UECapabilityInformation-v380ext-IEs,
                v3a0NonCriticalExtensions            SEQUENCE {
                    ueCapabilityInformation-v3a0ext    UECapabilityInformation-v3a0ext,
                    laterNonCriticalExtensions            SEQUENCE {
                        -- Container for additional R99 extensions
                        ueCapabilityInformation-r3-add-ext        BIT STRING    OPTIONAL,
                        -- Reserved for future non critical extension
                        v4xyNonCriticalExtensions            SEQUENCE {
                            ueCapabilityInformation-v4xyext    UECapabilityInformation-v4xyext,
```

```
                                v5xyNonCriticalExtensions              SEQUENCE {
                                    ueCapabilityInformation-v5xyext UECapabilityInformation-v5xyext,
                                    nonCriticalExtensions             SEQUENCE {}     OPTIONAL
                                }           OPTIONAL
                            }           OPTIONAL
                        }           OPTIONAL
                }           OPTIONAL
            }           OPTIONAL
        }           OPTIONAL
}

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

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

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

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

UECapabilityInformation-v5xyext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-r5-ext       UE-RadioAccessCapability-r5-ext     OPTIONAL
}

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

UECapabilityInformationConfirm ::= CHOICE {
    r3                                SEQUENCE {
        ueCapabilityInformationConfirm-r3
                                        UECapabilityInformationConfirm-r3-IEs,
        laterNonCriticalExtensions            SEQUENCE {
            -- Container for additional R99 extensions
            ueCapabilityInformationConfirm-r3-add-ext       BIT STRING      OPTIONAL,
            nonCriticalExtensions                 SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3                     SEQUENCE {
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

UECapabilityInformationConfirm-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier     RRC-TransactionIdentifier
}

-- **************************************************
--
-- UPLINK DIRECT TRANSFER
--
-- **************************************************

UplinkDirectTransfer ::= SEQUENCE {
    -- Core network IEs
        cn-DomainIdentity             CN-DomainIdentity,
        nas-Message                   NAS-Message,
    -- Measurement IEs
        measuredResultsOnRACH         MeasuredResultsOnRACH             OPTIONAL,
```

```
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            uplinkDirectTransfer-r3-add-ext     BIT STRING      OPTIONAL,
            -- Extension mechanism for non- release99 information
            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}


-- **************************************************
--
-- UPLINK PHYSICAL CHANNEL CONTROL
--
-- **************************************************

UplinkPhysicalChannelControl ::= CHOICE {
    r3                          SEQUENCE {
        uplinkPhysicalChannelControl-r3 UplinkPhysicalChannelControl-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            uplinkPhysicalChannelControl-r3-add-ext     BIT STRING      OPTIONAL,
            v4xyNonCriticalExtensions          SEQUENCE {
                uplinkPysicalChannelControl-v4xyext    UplinkPhysicalChannelControl-v4xyext-IEs,
                -- Extension mechanism for non- release4 information
                noncriticalExtensions               SEQUENCE {}                     OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                          SEQUENCE {
                uplinkPhysicalChannelControl-r4 UplinkPhysicalChannelControl-r4-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}


UplinkPhysicalChannelControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Physical channel IEs
    ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo             OPTIONAL,
    timingAdvance                   UL-TimingAdvanceControl            OPTIONAL,
    alpha                           Alpha                             OPTIONAL,
    specialBurstScheduling          SpecialBurstScheduling            OPTIONAL,
    prach-ConstantValue             ConstantValueTdd                  OPTIONAL,
    pusch-ConstantValue             ConstantValueTdd                  OPTIONAL
}

UplinkPhysicalChannelControl-v4xyext-IEs ::= SEQUENCE {
    -- In case of TDD, openLoopPowerControl-IPDL-TDD is included instead of IE
    -- up-IPDL-Parameters in up-OTDOA-AssistanceData
    openLoopPowerControl-IPDL-TDD   OpenLoopPowerControl-IPDL-TDD-r4    OPTIONAL
}

UplinkPhysicalChannelControl-r4-IEs ::= SEQUENCE {
    -- Physical channel IEs
    ccTrCH-PowerControlInfo         CCTrCH-PowerControlInfo-r4         OPTIONAL,
    tddOption                       CHOICE {
        tdd384                      SEQUENCE {
            timingAdvance                   UL-TimingAdvanceControl-r4 OPTIONAL,
            alpha                           Alpha                     OPTIONAL,
            prach-ConstantValue             ConstantValueTdd          OPTIONAL,
            pusch-ConstantValue             ConstantValueTdd          OPTIONAL,
            openLoopPowerControl-IPDL-TDD   OpenLoopPowerControl-IPDL-TDD-r4    OPTIONAL
        },
        tdd128                      SEQUENCE {
            ul-SynchronisationParameters    UL-SynchronisationParameters-r4 OPTIONAL
        }
    }
}


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

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

URAUpdate ::= SEQUENCE {
    -- User equipment IEs
        u-RNTI                      U-RNTI,
        ura-UpdateCause             URA-UpdateCause,
        protocolErrorIndicator      ProtocolErrorIndicatorWithMoreInfo,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            uraUpdate-r3-add-ext        BIT STRING      OPTIONAL,
        -- Extension mechanism for non- release99 information
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

URAUpdateConfirm ::= CHOICE {
    r3                          SEQUENCE {
        uraUpdateConfirm-r3         URAUpdateConfirm-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            uraUpdateConfirm-r3-add-ext     BIT STRING      OPTIONAL,
            nonCriticalExtensions       SEQUENCE {}     OPTIONAL
        } OPTIONAL
    },
    later-than-r3               SEQUENCE {
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
        criticalExtensions          CHOICE {
            r5                          SEQUENCE {
                uraUpdateConfirm-r5         URAUpdateConfirm-r5-IEs,
                nonCriticalExtensions       SEQUENCE {}     OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

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

URAUpdateConfirm-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier   RRC-TransactionIdentifier,
        integrityProtectionModeInfo IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo           CipheringModeInfo                  OPTIONAL,
        new-U-RNTI                  U-RNTI                             OPTIONAL,
        new-C-RNTI                  C-RNTI                             OPTIONAL,
        rrc-StateIndicator          RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff  UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- CN information elements
        cn-InformationInfo          CN-InformationInfo                 OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo  DL-CounterSynchronisationInfo-r5   OPTIONAL
}

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

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

URAUpdateConfirm-CCCH ::= CHOICE {
    r3                              SEQUENCE {
        uraUpdateConfirm-CCCH-r3        URAUpdateConfirm-CCCH-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            uraUpdateConfirm-CCCH-r3-add-ext        BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        u-RNTI                          U-RNTI,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

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

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

UTRANMobilityInformation ::= CHOICE {
    r3                              SEQUENCE {
        utranMobilityInformation-r3     UTRANMobilityInformation-r3-IEs,
        v3a0NonCriticalExtensions       SEQUENCE {
            utranMobilityInformation-v3a0ext    UTRANMobilityInformation-v3a0ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                utranMobilityInformation-r3-add-ext     BIT STRING      OPTIONAL,
                nonCriticalExtensions                   SEQUENCE {} OPTIONAL
            }       OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r5                              SEQUENCE {
                utranMobilityInformation-r5     UTRANMobilityInformation-r5-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

UTRANMobilityInformation-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
    cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
    new-U-RNTI                      U-RNTI                              OPTIONAL,
    new-C-RNTI                      C-RNTI                              OPTIONAL,
    ue-ConnTimersAndConstants       UE-ConnTimersAndConstants           OPTIONAL,
    -- CN information elements
    cn-InformationInfo              CN-InformationInfoFull              OPTIONAL,
    -- UTRAN mobility IEs
    ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
    dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo       OPTIONAL,
    -- Extension mechanism for non- release99 information
    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}

UTRANMobilityInformation-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext       UE-ConnTimersAndConstants-v3a0ext
}
```

```
UTRANMobilityInformation-r5-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants-r5        OPTIONAL,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfoFull              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5    OPTIONAL
}

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

UTRANMobilityInformationConfirm ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        rb-UL-CiphActivationTimeInfo    RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
                utranNMobilityInformationConfirm-r3-add-ext    BIT STRING       OPTIONAL,
            -- Extension mechanism for non- release99 information
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

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

UTRANMobilityInformationFailure ::= SEQUENCE {
    -- UE information elements
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
                utranNMobilityInformationFailure-r3-add-ext    BIT STRING       OPTIONAL,
            -- Extension mechanism for non- release99 information
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        } OPTIONAL
}

END
```

CR-Form-v7

CHANGE REQUEST

⌘ **25.921** CR **042** ⌘ **rev** **-** ⌘ Current version: **3.7.0** ⌘

*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 ☐ Radio Access Network ☐ Core Network ☐

Title: ⌘	Introduction of backwards compatible correction mechanism

Source: ⌘	Nokia

Work item code:⌘	TEI	***Date:*** ⌘	04/Nov/2002

Category: ⌘	**F**	***Release:*** ⌘	R99

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

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

Reason for change: ⌘	Currently once backwards compatibility is started for Rel-4 there will be no mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change:⌘	Extension Containers principle introduced. **Impact Analysis:** No Impact There is no impact as this does not actually make any changes to the protocol specification, but introduces the mechanism so that the changes can be made.
Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.

Clauses affected: ⌘	10.4.2, 10.4.3.3

		Y	N		
Other specs	⌘	X		Other core specifications ⌘	25.331 CR 1732 Rev1.
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.

10.4   Extensions for future releases in RRC

10.4.1   Basic principles

All non-critical extensions are shown even if empty as it costs no bits.

10.4.2   Naming convention

The abstract type defining a message provides mechanisms to allow for extending the message in future releases:

- For critical extensions, this is done by defining the message as a CHOICE of two alternatives, one being the intended message structure, and the other being an empty SEQUENCE named "criticalExtensions".

- For non-critical extensions, this is done by defining an OPTIONAL element named "nonCriticalExtensions" of type "SEQUENCE {}" at the end of the message definition.

When extensions are introduced, this is done by replacing one of the empty SEQUENCEs by a new structure, that includes a new type containing the message extensions, and the same extension mechanism recursively for further extensions.

For critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the release in which the extension was made, and this should be the same as for the new message root. For this naming, "r3" is used for Release '99, "r4" for Release 4, "r5" for Release 5 and so on.

For non-critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the version of the specification where this extension will first be included, e.g. if the version of the specification being corrected is v3.7.0, then the suffix added to the name will be -v380ext (i.e. the next version).

If non-critical extensions for two different roots happen to be identical in contents, their types are still named differently, possibly with the second being declared as synonymous to the first.

An example is given below to illustrate these principles, on the message named "Test-msg".

```
-- In Release '99, the Test-msg is defined as following:
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- A later correction to Release 99 adds a non-critical extension in v3.8.0
-- of the specification
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- The Test-msg gets the following structure, if only a non-critical
-- extensions is introduced for Release 4 in v4.4.0 of the specification.
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
```

```
            -- Container for additional R99 extensions
            test-msg-r3-add-ext                  BIT STRING
                (CONTAINING Test-msg-r3-add-ext-IEs)          OPTIONAL,
            v440nonCriticalExtensions            SEQUENCE {
                test-msg-v440ext                 Test-msg-v440ext-IEs,
                nonCriticalExtensions            SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        criticalExtensions            SEQUENCE {}
    }
}

-- In Release 5, the Test msg gets the following structure when a critical
-- extension is added
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                      Test-msg-r3-IEs,
        v380nonCriticalExtensions        SEQUENCE {
            test-msg-v380ext                 Test-msg-v380ext-IEs,
            laterNonCriticalExtensions       SEQUENCE {
            -- Container for additional R99 extensions
            test-msg-r3-add-ext                  BIT STRING
                (CONTAINING Test-msg-r3-add-ext-IEs)          OPTIONAL,
            v440nonCriticalExtensions            SEQUENCE {
                test-msg-v440ext                 Test-msg-v440ext-IEs,
                nonCriticalExtensions            SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier     RRC-TransactionIdentifier,
        criticalExtensions            CHOICE {
            r5                               SEQUENCE {
                test-msg-r5                      Test-msg-r5-IEs,
                nonCriticalExtensions            SEQUENCE {} OPTIONAL
            },
            criticalExtensions               SEQUENCE {}
        }
    }
}
```

Critical extensions in Release *N* in message "Test-msg" should be included in the type "Test-msg-r*N*-IEs" (*N*=3 is used for Release '99).

If an abstract type is introduced in Release *N* when new elements are included in an extension, it should have a suffix "-r*N*". For Release '99 types, no such suffix is used.

If an abstract type is introduced in a release to extend an already existing type "TypeX", it should get the same name with a non-critical extension type suffix ("-vXYZext", e.g. "TypeX-v380ext") although in this case the final "-IEs" suffix is not added.

Using the above naming rules, when changes are done in Release *N*, only changes in types with a suffix "-r*N*" or "-vXYZext" are allowed, in order to avoid conflicts with previous releases. An exception is the Message type itself, which can be changed by replacing the empty SEQUENCEs with extensions as shown above, and elements having spare values defined, where the spare value can be replaced with a newly introduced value.

An exception to the above structure can be needed, if there are some elements to be used in a message, which need to be comprehended even in case of critical extensions (e.g. for error handling procedures). In this case, the elements can be placed before one of the criticalExtensions CHOICEs, as shown in the example below:

```
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                      Test-msg-r3-IEs,
        v380nonCriticalExtensions        SEQUENCE {
            test-msg-v380ext                 Test-msg-v380ext-IEs,
            nonCriticalExtensions            SEQUENCE {} OPTIONAL
```

```
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {
            importantElements               ImportantElements,
            rest-of-message                 CHOICE {
                r4                              SEQUENCE {
                    test-msg-r4                     Test-msg-r4-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}
```

In the above example, the elements in "importantElements" can be comprehended from a UE implementing this structure, even if a future version of the message including critical extensions is transmitted (i.e. the criticalExtension branch of the second CHOICE is used).

NOTE 1: The structure presented in this clause and the proposed naming rules are one possibility. Further possibilities are FFS.

NOTE 2: When non-critical extensions are introduced in a message that does not have yet a criticalExtension branch, they are introduced in the "Test-msg-v380ext-IEs" type as described above. It is possible, that after this change, another change introduces a critical extension for the same message, thus defining a critical extension branch. In this case, the whole message is redefined in the type "Test-msg-rN-IEs", and care is to be taken to include in this new type also all non-critical extensions that were introduced previously, in a way that best fits the new structure of the message.

- To be prepared for such cases, it could be beneficial to define in advance the "Test-msg-rN-IEs" whenever a non-critical extension is introduced, which would be an unused type mirroring the actual structure of the message, as long as no critical extensions are introduced, and would be used as the basis of the message if a critical extension is introduced. It is FFS if this concept is feasible, and if it should be introduced in the future.

10.4.3   Recommendations for extensions for further releases in RRC

10.4.3.1   General

When in RRC an information element group is to be extended, the extension cannot be done directly in that IE, but only in the top level of the message, in the extension IEs of the message structure shown in Example 1. For implementing the extension, it has therefore to be investigated, in which messages the element to be extended is included.

Depending on criticality of the extension, this will be done by using the criticalExtension CHOICE branch, or the nonCriticalExtension information element.

The following subclauses provide some recommendations on how to use these elements.

```
MessageA ::=                CHOICE {
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=                 SEQUENCE {
    -- All messageA related information elements are included here.
}
```

Example 1

10.4.3.2   Critical Extensions

When the extension is a critical one (i.e. the receiver has to reject the whole message, and handle according to the error procedures of the protocol), the criticalExtension branch of the top-level CHOICE in the message is used. In this case the message information elements can be updated similar to the tabular, providing a message structure for the new release's information elements, similar to the updated structure in the tabular description.

Example 2 shows the structure of MessageA presented above, how it would become after a critical extension in Release 4.

In this example, in the criticalExtensions branch a new information element is defined (MessageA-r4-IEs) which will contain all messageA specific elements for Release 4, including the extensions in the place they fit naturally according to the semantics.

Note that in the new structure additional nonCriticalExtensions and criticalExtensions information elements are defined to allow for further extensions in future releases.

```
MessageA ::= CHOICE {
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                messageA-r4                     MessageA-r4-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the above example. It includes all information
    -- elements used in Release '99 for messageA.
}

MessageA-r4-IEs ::=             SEQUENCE {
    -- Here, the updated information elements used for MessageA in Release 4 are included.
}
```

Example 2

10.4.3.3   Non-critical Extensions

For non-critical extensions (i.e. the receiver shall just ignore the extensions, and use the rest of the message as if the extensions were not present), the approach is to use the nonCriticalExtensions information element, which is encoded at the end of the message, allowing backward compatibility.

Before Backwards Compatibility is started for the following release (N +1), the non-critical extension information elements of the current release (N) are added at the end of the message. At the point when Backwards Compatibility is started for the following release (N + 1), optional BIT STRING container should be added before the information elements of the new release. In the case that further non-critical extension information elements need to be added to release N they shall be placed within the BIT STRING container.

For example: As long as Backwards Conpatibility is not being enforced for Rel-4, R99 extensions are added normally in the end of a message within a nonCriticalExtensions sequence. Once Backwards Compatibility is started for Rel-4, then new R99 specific extensions are introduced within an extension container. An extension container is a normal bit string field that encapsulates an extension structure. As a result

- New extensions can be added **both** in R99 and Rel-4 in a backwards compatible fashion

- Rel-4 systems are able to skip over unknown R99 extensions

The extension container can be viewed as a specific type of non-critical extension, and it is included in the same way. If the extension container is added to Release N before Backwards Compatibility has started for Release N+1, further non-critical extensions to Release N should not be included in the container, but should be placed after it using the usual mechanism. In this way the extension container is not used until necessary, and therefore the corresponding length field overhead is not incurred unnecessarily.

The structure of the message of the example above is shown in Example 3 for the Release 99 and 4 messages.

Examples for special non-critical extensions and MessageA-v440ext-IEs are given in the following subclauses.

```
-- This shows the message structure in R99 (including one non-critical extension)
-- before backwards compatibility is started for Rel-4.
MessageA ::=                  CHOICE {
    r3                                SEQUENCE {
        messageA-r3                        MessageA-r3-IEs,
        v380nonCriticalExtensions          SEQUENCE {
            messageA-v380ext                   MessageA-v380ext-IEs,
            nonCriticalExtensions          SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions            SEQUENCE {}
}

MessageA-r3-IEs ::=                   SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =             SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}


-- This shows the R99 message structure once backwards campatibility
-- has been started for Rel-4.
MessageA ::=                  CHOICE {
    r3                                SEQUENCE {
        messageA-r3                        MessageA-r3-IEs,
        v380nonCriticalExtensions          SEQUENCE {
            messageA-v380ext                   MessageA-v380ext-IEs,
            laterNonCriticalExtensions         SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext                BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)           OPTIONAL,
                nonCriticalExtensions          SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    criticalExtensions            SEQUENCE {}
}

MessageA-r3-IEs ::=                   SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =             SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}


-- This shows the structure of the Rel-4 message
-- (including one Rel-4 non-critical extension).
MessageA-r4 ::=                  CHOICE {
```

```
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        v380nonCriticalExtensions       SEQUENCE {
            messageA-v380ext                MessageA-v380ext-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext             BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)        OPTIONAL,
                v440nonCriticalExtensions       SEQUENCE {
                    messageA-v440ext                MessageA-v440ext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        }   OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the same IE in Release '99. It includes all information
    -- elements used in Release '99 for MmessageA.
}

MessageA-v380ext-IEs :: =       SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =    SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}

MessageA-v440ext-IEs ::=            SEQUENCE {
    -- Here are additional information elements needed to describe the extensions compared to
    -- the information included in MessageA r3 IEs.
    -- Here are information elements added to Rel-4 as extensions to the information
    -- contained in MessageA-r3-IEs and MessageA-v380ext-IEs.
}
```

Example 3

<div align="right">CR-Form-v7</div>

CHANGE REQUEST

| ⌘ | **25.921** CR **043** | ⌘ **rev** | **-** | ⌘ | Current version: | **4.4.0** | ⌘ |

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

Title: ⌘	Introduction of backwards compatible correction mechanism	
Source: ⌘	Nokia	
Work item code: ⌘	TEI	***Date:*** ⌘ 04/Nov/2002

Category: ⌘ **A**	***Release:*** ⌘ REL-4

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

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

Reason for change: ⌘	Currently once backwards compatibility is started for Rel-4 there will be no mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change: ⌘	Extension Containers principle introduced.
Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.

Clauses affected: ⌘	10.4.2, 10.4.3.3

	Y	N			
Other specs ⌘	X		Other core specifications ⌘	25.331 CR 1733 Rev1.
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.

10.4   Extensions for future releases in RRC

10.4.1   Basic principles

All non-critical extensions are shown even if empty as it costs no bits.

10.4.2   Naming convention

The abstract type defining a message provides mechanisms to allow for extending the message in future releases:

- For critical extensions, this is done by defining the message as a CHOICE of two alternatives, one being the intended message structure, and the other being an empty SEQUENCE named "criticalExtensions".

- For non-critical extensions, this is done by defining an OPTIONAL element named "nonCriticalExtensions" of type "SEQUENCE {}" at the end of the message definition.

When extensions are introduced, this is done by replacing one of the empty SEQUENCEs by a new structure, that includes a new type containing the message extensions, and the same extension mechanism recursively for further extensions.

For critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the release in which the extension was made, and this should be the same as for the new message root. For this naming, "r3" is used for Release '99, "r4" for Release 4, "r5" for Release 5 and so on.

For non-critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the version of the specification where this extension will first be included, e.g. if the version of the specification being corrected is v3.7.0, then the suffix added to the name will be -v380ext (i.e. the next version).

If non-critical extensions for two different roots happen to be identical in contents, their types are still named differently, possibly with the second being declared as synonymous to the first.

An example is given below to illustrate these principles, on the message named "Test-msg".

```
-- In Release '99, the Test-msg is defined as following:
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- A later correction to Release 99 adds a non-critical extension in v3.8.0
-- of the specification
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- The Test-msg gets the following structure, if only a non-critical
-- extensions is introduced for Release 4 in v4.4.0 of the specification.
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
```

```
                    -- Container for additional R99 extensions
                    test-msg-r3-add-ext                     BIT STRING
                        (CONTAINING Test-msg-r3-add-ext-IEs)         OPTIONAL,
                    v440nonCriticalExtensions            SEQUENCE {
                        test-msg-v440ext                    Test-msg-v440ext-IEs,
                        nonCriticalExtensions               SEQUENCE {} OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               SEQUENCE {}
    }
}

-- In Release 5, the Test msg gets the following structure when a critical
-- extension is added
Test-msg ::= CHOICE {
    r3                               SEQUENCE {
        test-msg-r3                         Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                test-msg-r3-add-ext                 BIT STRING
                    (CONTAINING Test-msg-r3-add-ext-IEs)         OPTIONAL,
                v440nonCriticalExtensions            SEQUENCE {
                    test-msg-v440ext                    Test-msg-v440ext-IEs,
                    nonCriticalExtensions               SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               CHOICE {
            r5                               SEQUENCE {
                test-msg-r5                         Test-msg-r5-IEs,
                nonCriticalExtensions               SEQUENCE {} OPTIONAL
            },
            criticalExtensions               SEQUENCE {}
        }
    }
}
```

Critical extensions in Release *N* in message "Test-msg" should be included in the type "Test-msg-r*N*-IEs" (*N*=3 is used for Release '99).

If an abstract type is introduced in Release *N* when new elements are included in an extension, it should have a suffix "-r*N*". For Release '99 types, no such suffix is used.

If an abstract type is introduced in a release to extend an already existing type "TypeX", it should get the same name with a non-critical extension type suffix ("-vXYZext", e.g. "TypeX-v380ext") although in this case the final "-IEs" suffix is not added.

Using the above naming rules, when changes are done in Release *N*, only changes in types with a suffix "-r*N*" or "-vXYZext" are allowed, in order to avoid conflicts with previous releases. An exception is the Message type itself, which can be changed by replacing the empty SEQUENCEs with extensions as shown above, and elements having spare values defined, where the spare value can be replaced with a newly introduced value.

An exception to the above structure can be needed, if there are some elements to be used in a message, which need to be comprehended even in case of critical extensions (e.g. for error handling procedures). In this case, the elements can be placed before one of the criticalExtensions CHOICEs, as shown in the example below:

```
Test-msg ::= CHOICE {
    r3                               SEQUENCE {
        test-msg-r3                         Test-msg-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            test-msg-v380ext                    Test-msg-v380ext-IEs,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
```

```
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {
            importantElements               ImportantElements,
            rest-of-message                 CHOICE {
                r4                              SEQUENCE {
                    test-msg-r4                     Test-msg-r4-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}
```

In the above example, the elements in "importantElements" can be comprehended from a UE implementing this structure, even if a future version of the message including critical extensions is transmitted (i.e. the criticalExtension branch of the second CHOICE is used).

NOTE 1: The structure presented in this clause and the proposed naming rules are one possibility. Further possibilities are FFS.

NOTE 2: When non-critical extensions are introduced in a message that does not have yet a criticalExtension branch, they are introduced in the "Test-msg-v380ext-IEs" type as described above. It is possible, that after this change, another change introduces a critical extension for the same message, thus defining a critical extension branch. In this case, the whole message is redefined in the type "Test-msg-rN-IEs", and care is to be taken to include in this new type also all non-critical extensions that were introduced previously, in a way that best fits the new structure of the message.

- To be prepared for such cases, it could be beneficial to define in advance the "Test-msg-rN-IEs" whenever a non-critical extension is introduced, which would be an unused type mirroring the actual structure of the message, as long as no critical extensions are introduced, and would be used as the basis of the message if a critical extension is introduced. It is FFS if this concept is feasible, and if it should be introduced in the future.

10.4.3   Recommendations for extensions for further releases in RRC

10.4.3.1   General

When in RRC an information element group is to be extended, the extension cannot be done directly in that IE, but only in the top level of the message, in the extension IEs of the message structure shown in Example 1. For implementing the extension, it has therefore to be investigated, in which messages the element to be extended is included.

Depending on criticality of the extension, this will be done by using the criticalExtension CHOICE branch, or the nonCriticalExtension information element.

The following subclauses provide some recommendations on how to use these elements.

```
MessageA ::=                 CHOICE {
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

MessageA-r3-IEs ::=              SEQUENCE {
    -- All messageA related information elements are included here.
}
```

Example 1

10.4.3.2   Critical Extensions

When the extension is a critical one (i.e. the receiver has to reject the whole message, and handle according to the error procedures of the protocol), the criticalExtension branch of the top-level CHOICE in the message is used. In this case the message information elements can be updated similar to the tabular, providing a message structure for the new release's information elements, similar to the updated structure in the tabular description.

Example 2 shows the structure of MessageA presented above, how it would become after a critical extension in Release 4.

In this example, in the criticalExtensions branch a new information element is defined (MessageA-r4-IEs) which will contain all messageA specific elements for Release 4, including the extensions in the place they fit naturally according to the semantics.

Note that in the new structure additional nonCriticalExtensions and criticalExtensions information elements are defined to allow for further extensions in future releases.

```
MessageA ::= CHOICE {
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                messageA-r4                     MessageA-r4-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the above example. It includes all information
    -- elements used in Release '99 for messageA.
}

MessageA-r4-IEs ::=             SEQUENCE {
    -- Here, the updated information elements used for MessageA in Release 4 are included.
}
```

Example 2

10.4.3.3   Non-critical Extensions

For non-critical extensions (i.e. the receiver shall just ignore the extensions, and use the rest of the message as if the extensions were not present), the approach is to use the nonCriticalExtensions information element, which is encoded at the end of the message, allowing backward compatibility.

Before Backwards Compatibility is started for the following release (N +1), the non-critical extension information elements of the current release (N) are added at the end of the message. At the point when Backwards Compatibility is started for the following release (N + 1), optional BIT STRING container should be added before the information elements of the new release. In the case that further non-critical extension information elements need to be added to release N they shall be placed within the BIT STRING container.

For example: As long as Backwards Conpatibility is not being enforced for Rel-4, R99 extensions are added normally in the end of a message within a nonCriticalExtensions sequence. Once Backwards Compatibility is started for Rel-4, then new R99 specific extensions are introduced within an extension container. An extension container is a normal bit string field that encapsulates an extension structure. As a result

- New extensions can be added **both** in R99 and Rel-4 in a backwards compatible fashion

- Rel-4 systems are able to skip over unknown R99 extensions

The extension container can be viewed as a specific type of non-critical extension, and it is included in the same way. If the extension container is added to Release N before Backwards Compatibility has started for Release N+1, further non-critical extensions to Release N should not be included in the container, but should be placed after it using the usual mechanism. In this way the extension container is not used until necessary, and therefore the corresponding length field overhead is not incurred unnecessarily.

The structure of the message of the example above is shown in Example 3 for~~ the~~ Release 99 and 4 messages.

Examples for special non-critical extensions and MessageA-v440ext-IEs are given in the following subclauses.

```
-- This shows the message structure in R99 (including one non-critical extension)
-- before backwards compatibility is started for Rel-4.
MessageA ::=                CHOICE {
    r3                          SEQUENCE {
        messageA-r3                 MessageA-r3-IEs,
        v380nonCriticalExtensions       SEQUENCE {
            messageA-v380ext                MessageA-v380ext-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}


-- This shows the R99 message structure once backwards campatibility
-- has been started for Rel-4.
MessageA ::=                CHOICE {
    r3                          SEQUENCE {
        messageA-r3                 MessageA-r3-IEs,
        v380nonCriticalExtensions       SEQUENCE {
            messageA-v380ext                MessageA-v380ext-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext             BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)        OPTIONAL,
                nonCriticalExtensions       SEQUENCE {} OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =       SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}



-- This shows the structure of the Rel-4 message
-- (including one Rel-4 non-critical extension).
MessageA-r4 ::=                CHOICE {
```

```
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            messageA-v380ext                    MessageA-v380ext-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext             BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)        OPTIONAL,
                v440nonCriticalExtensions       SEQUENCE {
                    messageA-v440ext                MessageA-v440ext-IEs,
                    nonCriticalExtensions       SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=                 SEQUENCE {
    -- This is not changed compared to the same IE in Release '99. It includes all information
    -- elements used in Release '99 for MmessageA.
}

MessageA-v380ext-IEs :: =           SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =        SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}

MessageA-v440ext-IEs ::=            SEQUENCE {
    -- Here are additional information elements needed to describe the extensions compared to
    -- the information included in MessageA r3 IEs.
    -- Here are information elements added to Rel-4 as extensions to the information
    -- contained in MessageA-r3-IEs and MessageA-v380ext-IEs.
}
```

Example 3

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.921** CR **044** | ⌘ **rev** | **-** | ⌘ | Current version: | **5.0.0** | ⌘ |

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

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

Title: ⌘	Introduction of backwards compatible correction mechanism	
Source: ⌘	Nokia	
Work item code: ⌘	TEI	***Date:*** ⌘ 04/Nov/2002

Category: ⌘ **A**	***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 <u>TR 21.900</u>.	*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: ⌘	Currently once backwards compatibility is started for Rel-4 there will be no mechanism to allow corrections to be made to R99 ASN.1 messages definitions.
Summary of change: ⌘	Extension Containers principle introduced.
Consequences if not approved: ⌘	Once Backwards Compatibility is started for Rel-4 it will be impossible to make certain corrections to ASN.1.

Clauses affected: ⌘	10.4.2, 10.4.3.3

	Y	N			
Other specs ⌘	X		Other core specifications	⌘	25.331 CR 1734 Rev1.
Affected:		X	Test specifications		
		X	O&M Specifications		

Other comments: ⌘	

How to create CRs using this form:

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

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

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

10.4   Extensions for future releases in RRC

10.4.1   Basic principles

All non-critical extensions are shown even if empty as it costs no bits.

10.4.2   Naming convention

The abstract type defining a message provides mechanisms to allow for extending the message in future releases:

- For critical extensions, this is done by defining the message as a CHOICE of two alternatives, one being the intended message structure, and the other being an empty SEQUENCE named "criticalExtensions".

- For non-critical extensions, this is done by defining an OPTIONAL element named "nonCriticalExtensions" of type "SEQUENCE {}" at the end of the message definition.

When extensions are introduced, this is done by replacing one of the empty SEQUENCEs by a new structure, that includes a new type containing the message extensions, and the same extension mechanism recursively for further extensions.

For critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the release in which the extension was made, and this should be the same as for the new message root. For this naming, "r3" is used for Release '99, "r4" for Release 4, "r5" for Release 5 and so on.

For non-critical extensions the new elements introduced to specify the extensions should be grouped together in an element with a name showing the version of the specification where this extension will first be included, e.g. if the version of the specification being corrected is v3.7.0, then the suffix added to the name will be -v380ext (i.e. the next version).

If non-critical extensions for two different roots happen to be identical in contents, their types are still named differently, possibly with the second being declared as synonymous to the first.

An example is given below to illustrate these principles, on the message named "Test-msg".

```
-- In Release '99, the Test-msg is defined as following:
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- A later correction to Release 99 adds a non-critical extension in v3.8.0
-- of the specification
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions          SEQUENCE {
            test-msg-v380ext                   Test-msg-v380ext-IEs,
            nonCriticalExtensions              SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}
-- The Test-msg gets the following structure, if only a non-critical
-- extensions is introduced for Release 4 in v4.4.0 of the specification.
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions          SEQUENCE {
            test-msg-v380ext                   Test-msg-v380ext-IEs,
            laterNonCriticalExtensions         SEQUENCE {
```

```
                    -- Container for additional R99 extensions
                    test-msg-r3-add-ext                     BIT STRING
                        (CONTAINING Test-msg-r3-add-ext-IEs)            OPTIONAL,
                    v440nonCriticalExtensions           SEQUENCE {
                        test-msg-v440ext                    Test-msg-v440ext-IEs,
                        nonCriticalExtensions               SEQUENCE {} OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

-- In Release 5, the Test msg gets the following structure when a critical
-- extension is added
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions       SEQUENCE {
            test-msg-v380ext                Test-msg-v380ext-IEs,
            laterNonCriticalExtensions      SEQUENCE {
                -- Container for additional R99 extensions
                test-msg-r3-add-ext                     BIT STRING
                    (CONTAINING Test-msg-r3-add-ext-IEs)            OPTIONAL,
                v440nonCriticalExtensions           SEQUENCE {
                    test-msg-v440ext                    Test-msg-v440ext-IEs,
                    nonCriticalExtensions               SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r5                              SEQUENCE {
                test-msg-r5                     Test-msg-r5-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}
```

Critical extensions in Release *N* in message "Test-msg" should be included in the type "Test-msg-r*N*-IEs" (*N*=3 is used for Release '99).

If an abstract type is introduced in Release *N* when new elements are included in an extension, it should have a suffix "-r*N*". For Release '99 types, no such suffix is used.

If an abstract type is introduced in a release to extend an already existing type "TypeX", it should get the same name with a non-critical extension type suffix ("-vXYZext", e.g. "TypeX-v380ext") although in this case the final "-IEs" suffix is not added.

Using the above naming rules, when changes are done in Release *N*, only changes in types with a suffix "-r*N*" or "-vXYZext" are allowed, in order to avoid conflicts with previous releases. An exception is the Message type itself, which can be changed by replacing the empty SEQUENCEs with extensions as shown above, and elements having spare values defined, where the spare value can be replaced with a newly introduced value.

An exception to the above structure can be needed, if there are some elements to be used in a message, which need to be comprehended even in case of critical extensions (e.g. for error handling procedures). In this case, the elements can be placed before one of the criticalExtensions CHOICEs, as shown in the example below:

```
Test-msg ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     Test-msg-r3-IEs,
        v380nonCriticalExtensions       SEQUENCE {
            test-msg-v380ext                Test-msg-v380ext-IEs,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
```

```
        } OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {
            importantElements               ImportantElements,
            rest-of-message                 CHOICE {
                r4                              SEQUENCE {
                    test-msg-r4                     Test-msg-r4-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}
```

In the above example, the elements in "importantElements" can be comprehended from a UE implementing this structure, even if a future version of the message including critical extensions is transmitted (i.e. the criticalExtension branch of the second CHOICE is used).

NOTE 1: The structure presented in this clause and the proposed naming rules are one possibility. Further possibilities are FFS.

NOTE 2: When non-critical extensions are introduced in a message that does not have yet a criticalExtension branch, they are introduced in the "Test-msg-v380ext-IEs" type as described above. It is possible, that after this change, another change introduces a critical extension for the same message, thus defining a critical extension branch. In this case, the whole message is redefined in the type "Test-msg-r*N*-IEs", and care is to be taken to include in this new type also all non-critical extensions that were introduced previously, in a way that best fits the new structure of the message.

- To be prepared for such cases, it could be beneficial to define in advance the "Test-msg-r*N*-IEs" whenever a non-critical extension is introduced, which would be an unused type mirroring the actual structure of the message, as long as no critical extensions are introduced, and would be used as the basis of the message if a critical extension is introduced. It is FFS if this concept is feasible, and if it should be introduced in the future.

10.4.3   Recommendations for extensions for further releases in RRC

10.4.3.1   General

When in RRC an information element group is to be extended, the extension cannot be done directly in that IE, but only in the top level of the message, in the extension IEs of the message structure shown in Example 1. For implementing the extension, it has therefore to be investigated, in which messages the element to be extended is included.

Depending on criticality of the extension, this will be done by using the criticalExtension CHOICE branch, or the nonCriticalExtension information element.

The following subclauses provide some recommendations on how to use these elements.

```
MessageA ::=                 CHOICE {
    r3                               SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions           SEQUENCE {}
}

MessageA-r3-IEs ::=                  SEQUENCE {
    -- All messageA related information elements are included here.
}
```

Example 1

10.4.3.2   Critical Extensions

When the extension is a critical one (i.e. the receiver has to reject the whole message, and handle according to the error procedures of the protocol), the criticalExtension branch of the top-level CHOICE in the message is used. In this case the message information elements can be updated similar to the tabular, providing a message structure for the new release's information elements, similar to the updated structure in the tabular description.

Example 2 shows the structure of MessageA presented above, how it would become after a critical extension in Release 4.

In this example, in the criticalExtensions branch a new information element is defined (MessageA-r4-IEs) which will contain all messageA specific elements for Release 4, including the extensions in the place they fit naturally according to the semantics.

Note that in the new structure additional nonCriticalExtensions and criticalExtensions information elements are defined to allow for further extensions in future releases.

```
MessageA ::= CHOICE {
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                messageA-r4                     MessageA-r4-IEs,
                nonCriticalExtensions           SEQUENCE {} OPTIONAL
            },
            criticalExtensions          SEQUENCE {}
        }
    }
}

MessageA-r3-IEs ::=             SEQUENCE {
    -- This is not changed compared to the above example. It includes all information
    -- elements used in Release '99 for messageA.
}

MessageA-r4-IEs ::=             SEQUENCE {
    -- Here, the updated information elements used for MessageA in Release 4 are included.
}
```

Example 2

10.4.3.3   Non-critical Extensions

For non-critical extensions (i.e. the receiver shall just ignore the extensions, and use the rest of the message as if the extensions were not present), the approach is to use the nonCriticalExtensions information element, which is encoded at the end of the message, allowing backward compatibility.

Before Backwards Compatibility is started for the following release (N +1), the non-critical extension information elements of the current release (N) are added at the end of the message. At the point when Backwards Compatibility is started for the following release (N + 1), optional BIT STRING container should be added before the information elements of the new release. In the case that further non-critical extension information elements need to be added to release N they shall be placed within the BIT STRING container.

For example: As long as Backwards Conpatibility is not being enforced for Rel-4, R99 extensions are added normally in the end of a message within a nonCriticalExtensions sequence. Once Backwards Compatibility is started for Rel-4, then new R99 specific extensions are introduced within an extension container. An extension container is a normal bit string field that encapsulates an extension structure. As a result

- New extensions can be added **both** in R99 and Rel-4 in a backwards compatible fashion

- Rel-4 systems are able to skip over unknown R99 extensions

The extension container can be viewed as a specific type of non-critical extension, and it is included in the same way. If the extension container is added to Release N before Backwards Compatibility has started for Release N+1, further non-critical extensions to Release N should not be included in the container, but should be placed after it using the usual mechanism. In this way the extension container is not used until necessary, and therefore the corresponding length field overhead is not incurred unnecessarily.

The structure of the message of the example above is shown in Example 3 for the Release 99 and 4 messages.

Examples for special non-critical extensions and MessageA-v440ext-IEs are given in the following subclauses.

```
-- This shows the message structure in R99 (including one non-critical extension)
-- before backwards compatibility is started for Rel-4.
MessageA ::=              CHOICE {
    r3                          SEQUENCE {
        messageA-r3                 MessageA-r3-IEs,
        v380nonCriticalExtensions        SEQUENCE {
            messageA-v380ext                MessageA-v380ext-IEs,
            nonCriticalExtensions         SEQUENCE {} OPTIONAL
        }   OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=              SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}


-- This shows the R99 message structure once backwards campatibility
-- has been started for Rel-4.
MessageA ::=              CHOICE {
    r3                          SEQUENCE {
        messageA-r3                 MessageA-r3-IEs,
        v380nonCriticalExtensions        SEQUENCE {
            messageA-v380ext                MessageA-v380ext-IEs,
            laterNonCriticalExtensions        SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext                BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)        OPTIONAL,
                nonCriticalExtensions         SEQUENCE {} OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=              SEQUENCE {
    -- This is not changed compared to the same IE in R99. It includes all information
    -- elements used in R99 for MessageA.
}

MessageA-v380ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =          SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}


-- This shows the structure of the Rel-4 message
-- (including one Rel-4 non-critical extension).
MessageA-r4 ::=              CHOICE {
```

```
    r3                              SEQUENCE {
        messageA-r3                     MessageA-r3-IEs,
        v380nonCriticalExtensions           SEQUENCE {
            messageA-v380ext                    MessageA-v380ext-IEs,
            laterNonCriticalExtensions          SEQUENCE {
                -- Container for additional R99 extensions
                messageA-r3-add-ext             BIT STRING
                    (CONTAINING MessageA-r3-add-ext-IEs)            OPTIONAL,
                v440nonCriticalExtensions           SEQUENCE {
                    messageA-v440ext                    MessageA-v440ext-IEs,
                    nonCriticalExtensions           SEQUENCE {} OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=                 SEQUENCE {
    -- This is not changed compared to the same IE in Release '99. It includes all information
    -- elements used in Release '99 for MessageA.
}

MessageA-v380ext-IEs :: =           SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs.
}

MessageA-r3-add-ext-IEs :: =        SEQUENCE {
    -- Here are information elements added to R99 as extensions to the information
    -- contained in MessageA-r3-IEs after backwards compatibility was started for Rel-4.
}

MessageA-v440ext-IEs ::=            SEQUENCE {
    -- Here are additional information elements needed to describe the extensions compared to
    -- the information included in MessageA r3 IEs.
    -- Here are information elements added to Rel-4 as extensions to the information
    -- contained in MessageA-r3-IEs and MessageA-v380ext-IEs.
}
```

Example 3