TSG RAN Meeting #27 **RP-050057**
Tokyo, Japan, 09 - 11 March 2005

Title **CRs (Rel-6 category B and F) on MBMS in RAN3 specifications**
Source **TSG RAN WG3**
Agenda Item **9.4**

RAN3 Tdoc	Spec	CR	Rev	Cat	curr. Vers.	new Vers.	Rel	Work item	Title
R3-050182	25.413	734		F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS Contexts
R3-050219	25.413	738		F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS Session Failure
R3-050284	25.931	25	1	B	6.0.0	6.1.0	Rel-6	MBMS-RAN	Signalling flows for MBMS
R3-050353	25.413	721	3	F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS Session Repetition Number on Session Start
R3-050354	25.423	1021	3	F	6.4.1	6.5.0	Rel-6	MBMS-RAN	Optimisation of MBMS channel type indication via Iur
R3-050362	25.413	737	3	F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS IE codings
R3-050363	25.423	1035	2	F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS Identifiers Retrieval
R3-050365	25.413	724	3	F	6.4.1	6.5.0	Rel-6	MBMS-RAN	MBMS RAB Management

3GPP TSG-RAN WG3 #46 **⌘R3-050353**
Scottsdale, Arizona, US, 14th February – 18th February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **TS25.413 CR 721** ⌘**rev 3** ⌘ Current version: **6.4.1** ⌘

*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:	⌘	MBMS Session Repetition Number on Session Start
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	02/03/2005
Category:	⌘	**F**
Release:	⌘	REL-6

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:
Ph2 (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)
Rel-7 (Release 7)

Reason for change:	⌘	- In R3-050026, RAN2 asked RAN3 to include MBMS Session Repetition Number whthin MBMS Session Start message for the counting enhancement. - Also, Session id has been clarified recently as MBMS session identity instead of MBMS session identifier in CN specifications. - The IE type of MBMS session identity needs to be changed to 1 octet according to LS R3-050024 from RAN2. - From the LS from GERAN GP-050573, GERAN and SA4 have agreed that the session identity should be considered as an optional IE.
Summary of change:	⌘	The MBMS session repetition number is included in MBMS Session Start message as an optional IE. In addition, the name 'MBMS session identifier' is changed to 'MBMS session identity' whose type is changed to 1 octet string. Also, this IE is changed to be an optional IE Impact assessment towards the previous version of the specification (same release): This CR has isolated impact towards the previous version of the specification. Hence, it is still acceptable for the REL-6 time frame.
Consequences if not approved:	⌘	Counting enhancement is delayed. Misalignment of session identity with other groups.

Clauses affected:	⌘	8.36, 9.1.58, 9.2.3, 9.3.3, 9.3.4, 9.3.6

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

How to create CRs using this form:

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

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

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

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

8.36 MBMS Session Start

8.36.1 General

The purpose of the MBMS Session Start procedure is to request the UTRAN to notify UEs about an upcoming MBMS Session of a given MBMS Bearer Service and to establish a MBMS RAB and MBMS Iu signalling connection for this MBMS Session.

The procedure uses connection oriented signalling.

8.36.2 Successful Operation

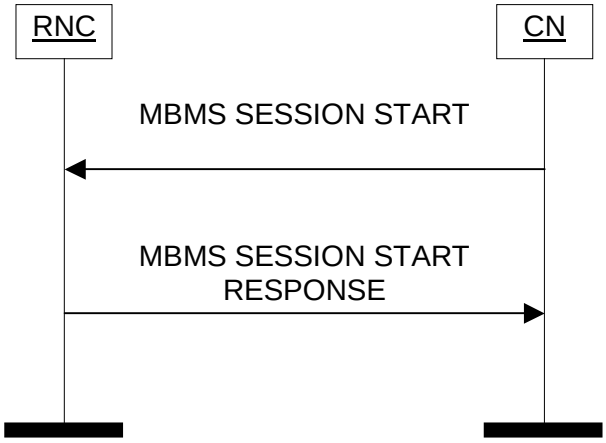

Figure 46: MBMS Session Start procedure. Successful operation.

The CN initiates the procedure by sending a MBMS SESSION START message.

The MBMS SESSION START message shall contain:

- TMGI;
- MBMS Bearer Service Type;
- MBMS Session Identity~~fier~~, if available;
- Iu Signalling Connection Identifier IE;
- RAB parameters (including e.g. Allocation/Retention Priority);
- PDP Type Information, if available;
- MBMS Session Duration, if available;
- MBMS Service Area;
- Frequency Layer Convergence Flag, if available;
- RA List of Idle Mode UEs, if available.
- Global CN-ID IE, only when the MBMS SESSION START message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node;~~.~~
- MBMS Session Repetition Number, if available.

Upon reception of the MBMS SESSION START message, the RNC shall store the *Iu Signalling Connection Identifier* IE for the duration of the MBMS Iu signalling connection. The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN. The value for the *Iu Signalling Connection Identifier* IE shall be allocated so as to uniquely identify an Iu signalling connection for the involved CN node.

The *Global CN-ID* IE contains the identity of the CN node that sent the MBMS SESSION START message, and it shall, if included, be stored together with the Iu signalling connection identifier. If the *Global CN-ID* IE is not included, the MBMS SESSION START message shall be considered as coming from the default CN node.

If the RNC controls cells contained in the indicated MBMS Service Area or serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area, the RNC shall store, if not already, and remember the *TMGI* IE, the *RAB parameters* IE and the other attributes of the session as part of the MBMS Service Context. The *TMGI* IE contains the TMGI identifier which uniquely identifies the MBMS Bearer Service.

Upon reception of the MBMS SESSION START message, the RNC shall initiate allocation of requested resources for the MBMS RAB if at least one of the following two conditions is fulfilled:

- the RNC controls at least one cell contained in the indicated MBMS Service Area and, if the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message, at least one RNC´s RA is contained in this list,

- the RNC serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area.

In case the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message but none of above conditions is fulfilled, the RNC may decide to wait for either an update of the RA List of Idle Mode UEs or a UE linking to finally establish the MBMS RAB. If the RNC decides so, it shall report it immediately to the CN in the MBMS SESSION START RESPONSE message with the cause value "Successful MBMS Session Start - No Data Bearer Necessary".

The allocation of requested resources shall be made according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators) and the resource situation as follows:

- The RNC shall consider the priority level of the requested MBMS RAB, when deciding on the resource allocation.

- The *Queuing Allowed* IE shall be ignored for MBMS RAB.

- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the MBMS RAB establishment has to be performed unconditionally and immediately. If the requested MBMS RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the MBMS SESSION START message, shall be treated as follows:

    1. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure. UTRAN shall only pre-empt RABs (other MBMS RABs or UE specific RABs) with lower priority, in ascending order of priority.

    2. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.

    3. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.

    4. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.

    5. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.

- If the *Allocation/Retention Priority* IE is not given in the MBMS SESSION START message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.

The UTRAN shall use the *PDP Type Information* IE to configure any compression algorithms.

In case of successful MBMS RAB establishment, the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the MBMS SESSION START RESPONSE message. The RNC may answer successfully even though the MBMS resources have not been established in all relevant cells.

If NNSF is active, the RNC may receive from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message. In this case, if the RNC decides to establish the requested MBMS RAB, it shall only

establish one MBMS Iu bearer and shall inform the selected CN node accordingly i.e. with MBMS SESSION START RESPONSE message including the *Transport Layer Address* IE and the *Iu Transport Association* IE.

If the RNC receives from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message and all the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall, if supported, maintain an MBMS Iu signalling connection toward all the CN nodes and inform them accordingly i.e. with MBMS SESSION START RESPONSE message and cause value "Successful MBMS Session Start - No Data Bearer Necessary" to all the CN nodes except the one, if any, towards which the RNC confirmed the successful MBMS RAB establishment.

~~*MBMS Session Identity* is used by the UE to recognise retransmissions of a particular session of a MBMS Bearer Service with identical contents and can be used for counting purpose.~~

The *MBMS Session Repetition Number* IE may be included in the MBMS SESSION START message in case the *MBMS Session Identity* IE is included in the same message. The *MBMS Session Repetition Number* IE may be used by RNC to recognise retransmissions of a particular session of a MBMS Bearer Service with identical contents. This IE may be used for counting purpose.

Transmission and reception of a MBMS SESSION START RESPONSE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.3 Unsuccessful Operation

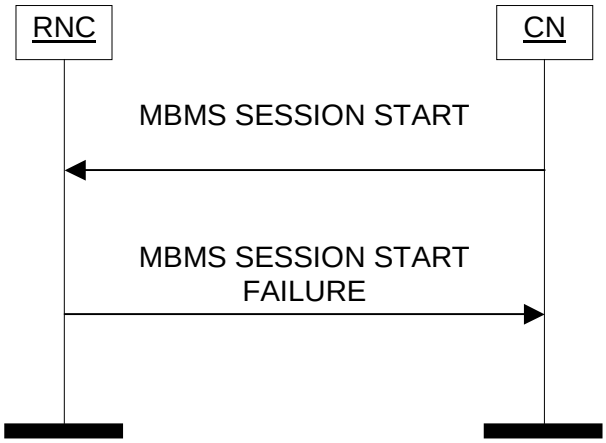

Figure 47: MBMS Session Start procedure. Unsuccessful operation.

If the RNC is not capable of correctly processing the request (e.g. the MBMS resources could not be established at all in any cell), the CN shall be informed by the MBMS SESSION START FAILURE message.

If NNSF is active and the RNC received from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message, but not all of the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall inform the respective CN nodes accordingly i.e. with MBMS SESSION START FAILURE message and cause value "MBMS - Superseded Due To NNSF" to all the CN nodes except the one towards which the RNC confirmed the successful MBMS RAB establishment with MBMS SESSION START RESPONSE message.

When UTRAN reports failure of the MBMS Session Start procedure, the cause value should be precise enough to enable the core network to know the reason for unsuccessful establishment/modification. Typical cause values are: "MBMS - Superseded Due To NNSF", "Requested Traffic Class not Available", "Invalid RAB Parameters Value", "Requested Maximum Bit Rate not Available", "Requested Guaranteed Bit Rate not Available", "Requested Transfer Delay not Achievable", "Invalid RAB Parameters Combination", "Condition Violation for Guaranteed Bit Rate", "Iu Transport Connection Failed to Establish", "No Resource Available".

Transmission and reception of a MBMS SESSION START FAILURE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.4 Abnormal Conditions

If, for a MBMS RAB requested to be set up, the *PDP Type Information* IE is not present, the RNC shall continue with the procedure.

9.1.58 MBMS SESSION START

This message is sent by the CN to establish a MBMS Iu signalling connection and if needed a MBMS RAB.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
TMGI	M		9.2.3.37		YES	reject
MBMS Session Identity~~fier~~	O~~M~~		9.2.3.38		YES	ignore~~reject~~
MBMS Bearer Service Type	M		9.2.3.39		YES	reject
Iu Signalling Connection Identifier	M		9.2.1.38		YES	reject
RAB parameters	M		9.2.1.3		YES	reject
PDP Type Information	O		9.2.1.40		YES	ignore
MBMS Session Duration	O		9.2.3.40		YES	ignore
MBMS Service Area	M		9.2.3.41		YES	reject
Frequency Layer Convergence Flag	O		9.2.1.76		YES	ignore
RA List of Idle Mode UEs	O		9.2.3.42		YES	ignore
Global CN-ID IE	O		9.2.1.46		YES	reject
MBMS Session Repetition Number	O~~M~~		9.2.3.X		YES	ignore~~reject~~

9.2.3.38 MBMS Session Identityfier

The MBMS Session Identity identifies the session of a MBMS Bearer Service in UTRAN and is used by the UE to recognise repetitions of a session.

This IE is transparent to RAN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Session Identityfier	M		OCTET STRING (SIZE (12))	

********** Unchanged part omitted **********

9.2.3.47 Requested Multicast Service List

Informs the RNC about the requested Multicast Service list for a particular UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Requested Multicast Service List				
>TMGI	M	1 to <maxnoofMulticastServicesJoinedPerUE>	9.2.3.37	The same TMGI must only be present once.

Range bound	Explanation
maxnoofMulticastServicesJoinedPerUE	Maximum no. of Multicast Services that a UE can join respectively. Value is 128.

9.2.3.X MBMS Session Repetition Number

Informs the RNC about the repetitions of a particular session of a MBMS Bearer Service.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Session Repetition Number	M		INTEGER (0..255)	0 indicates first transmission of a session 1 to 255 represents the retransmission sequence number of a session

9.3 Message and Information Element Abstract Syntax (with ASN.1)

9.3.0 General

RANAP ASN.1 definition conforms with [14] and [15].

The ASN.1 definition specifies the structure and content of RANAP messages. RANAP messages can contain any IEs specified in the object set definitions for that message without the order or number of occurrence being restricted by ASN.1. However, for this version of the standard, a sending entity shall construct a RANAP message according to the PDU definitions module and with the following additional rules (Note that in the following IE means an IE in the object set with an explicit id. If one IE needed to appear more than once in one object set, then the different occurrences have different IE ids):

- IEs shall be ordered (in an IE container) in the order they appear in object set definitions..
- Object set definitions specify how many times IEs may appear. An IE shall appear exactly once if the presence field in an object has value "mandatory". An IE may appear at most once if the presence field in an object has value "optional" or "conditional". If in a tabular format there is multiplicity specified for an IE (i.e. an IE list) then in the corresponding ASN.1 definition the list definition is separated into two parts. The first part defines an IE container list where the list elements reside. The second part defines list elements. The IE container list appears as an IE of its own. For this version of the standard an IE container list may contain only one kind of list elements.

If a RANAP message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in subclause 10.3.6.

Subclause 9.3 presents the Abstract Syntax of RANAP protocol with ASN.1. In case there is contradiction between the ASN.1 definition in this subclause and the tabular format in subclause 9.1 and 9.2, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, where the tabular format shall take precedence.

9.3.1 Usage of private message mechanism for non-standard use

The private message mechanism for non-standard use may be used:

- for special operator- (and/or vendor) specific features considered not to be part of the basic functionality, i.e. the functionality required for a complete and high-quality specification in order to guarantee multivendor interoperability;
- by vendors for research purposes, e.g. to implement and evaluate new algorithms/features before such features are proposed for standardisation.

The private message mechanism shall not be used for basic functionality. Such functionality shall be standardised.

9.3.2 Elementary Procedure Definitions

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

```
--
-- Elementary Procedure definitions
--
-- **************************************************************

RANAP-PDU-Descriptions  {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    Criticality,
    ProcedureCode
FROM RANAP-CommonDataTypes

    Iu-ReleaseCommand,
    Iu-ReleaseComplete,
    RelocationCommand,
    RelocationPreparationFailure,
    RelocationRequired,
    RelocationRequest,
    RelocationRequestAcknowledge,
    RelocationFailure,
    RelocationCancel,
    RelocationCancelAcknowledge,
    SRNS-ContextRequest,
    SRNS-ContextResponse,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeReject,
    DataVolumeReportRequest,
    DataVolumeReport,
    Reset,
    ResetAcknowledge,
    RAB-ReleaseRequest,
    Iu-ReleaseRequest,
    RelocationDetect,
    RelocationComplete,
    Paging,
    CommonID,
    CN-InvokeTrace,
    CN-DeactivateTrace,
```

```
    LocationReportingControl,
    LocationReport,
    InitialUE-Message,
    DirectTransfer,
    Overload,
    ErrorIndication,
    SRNS-DataForwardCommand,
    ForwardSRNS-Context,
    RAB-AssignmentRequest,
    RAB-AssignmentResponse,
    RAB-ModifyRequest,
    PrivateMessage,
    ResetResource,
    ResetResourceAcknowledge,
    RANAP-RelocationInformation,
    LocationRelatedDataRequest,
    LocationRelatedDataResponse,
    LocationRelatedDataFailure,
    InformationTransferIndication,
    InformationTransferConfirmation,
    InformationTransferFailure,
    UESpecificInformationIndication,
    DirectInformationTransfer,
    UplinkInformationExchangeRequest,
    UplinkInformationExchangeResponse,
    UplinkInformationExchangeFailure,
    MBMSSessionStart,
    MBMSSessionStartResponse,
    MBMSSessionStartFailure,
    MBMSSessionUpdate,
    MBMSSessionUpdateResponse,
    MBMSSessionUpdateFailure,
    MBMSSessionStop,
    MBMSSessionStopResponse,
    MBMSUELinkingRequest,
    MBMSUELinkingResponse,
    MBMSRegistrationRequest,
    MBMSRegistrationResponse,
    MBMSRegistrationFailure,
    MBMSCNDe-RegistrationRequest,
    MBMSCNDe-RegistrationResponse,
    MBMSRABEstablishmentIndication
FROM RANAP-PDU-Contents

    id-LocationRelatedData,
    id-CN-DeactivateTrace,
    id-CN-InvokeTrace,
    id-CommonID,
    id-DataVolumeReport,
    id-DirectTransfer,
    id-ErrorIndication,
```

```
    id-ForwardSRNS-Context,
    id-InformationTransfer,
    id-InitialUE-Message,
    id-Iu-Release,
    id-Iu-ReleaseRequest,
    id-LocationReport,
    id-LocationReportingControl,
    id-OverloadControl,
    id-Paging,
    id-privateMessage,
    id-RAB-Assignment,
    id-RAB-ReleaseRequest,
    id-RAB-ModifyRequest,
    id-RANAP-Relocation,
    id-RelocationCancel,
    id-RelocationComplete,
    id-RelocationDetect,
    id-RelocationPreparation,
    id-RelocationResourceAllocation,
    id-Reset,
    id-SRNS-ContextTransfer,
    id-SRNS-DataForward,
    id-SecurityModeControl,
    id-ResetResource,
    id-UESpecificInformation,
    id-DirectInformationTransfer,
    id-UplinkInformationExchange,
    id-MBMSSessionStart,
    id-MBMSSessionUpdate,
    id-MBMSSessionStop,
    id-MBMSUELinking,
    id-MBMSRegistration,
    id-MBMSCNDe-Registration-Procedure,
    id-MBMSRABEstablishmentIndication

FROM RANAP-Constants;

-- **************************************************************
--
-- Interface Elementary Procedure Class
--
-- **************************************************************

RANAP-ELEMENTARY-PROCEDURE ::= CLASS {
    &InitiatingMessage              ,
    &SuccessfulOutcome              OPTIONAL,
    &UnsuccessfulOutcome                OPTIONAL,
    &Outcome                    OPTIONAL,
    &procedureCode          ProcedureCode   UNIQUE,
    &criticality            Criticality     DEFAULT ignore
}
```

```
WITH SYNTAX {
    INITIATING MESSAGE      &InitiatingMessage
    [SUCCESSFUL OUTCOME     &SuccessfulOutcome]
    [UNSUCCESSFUL OUTCOME       &UnsuccessfulOutcome]
    [OUTCOME            &Outcome]
    PROCEDURE CODE              &procedureCode
    [CRITICALITY            &criticality]
}

-- **************************************************************
--
-- Interface PDU Definition
--
-- **************************************************************

RANAP-PDU ::= CHOICE {
    initiatingMessage   InitiatingMessage,
    successfulOutcome   SuccessfulOutcome,
    unsuccessfulOutcome UnsuccessfulOutcome,
    outcome         Outcome,
    ...
}

InitiatingMessage ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&InitiatingMessage   ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

SuccessfulOutcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome   ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

UnsuccessfulOutcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

Outcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&Outcome     ({RANAP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

-- **************************************************************
--
-- Interface Elementary Procedure List
--
```

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

RANAP-ELEMENTARY-PROCEDURES RANAP-ELEMENTARY-PROCEDURE ::= {
    RANAP-ELEMENTARY-PROCEDURES-CLASS-1 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-2 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-3 ,
    ...
}


RANAP-ELEMENTARY-PROCEDURES-CLASS-1 RANAP-ELEMENTARY-PROCEDURE ::= {
    iu-Release          |
    relocationPreparation       |
    relocationResourceAllocation    |
    relocationCancel        |
    sRNS-ContextTransfer        |
    securityModeControl     |
    dataVolumeReport        |
    reset       |
    resetResource               ,
    ...,
    locationRelatedData     |
    informationTransfer     |
    uplinkInformationExchange   |
    mBMSSessionStart            |
    mBMSSessionUpdate           |
    mBMSSessionStop             |
    mBMSUELinking               |
    mBMSRegistration            |
    mBMSCNDe-Registration
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-2 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-ReleaseRequest      |
    iu-ReleaseRequest       |
    relocationDetect        |
    relocationComplete      |
    paging                  |
    commonID                |
    cN-InvokeTrace          |
    cN-DeactivateTrace      |
    locationReportingControl    |
    locationReport          |
    initialUE-Message       |
    directTransfer          |
    overloadControl         |
    errorIndication         |
    sRNS-DataForward        |
    forwardSRNS-Context     |
    privateMessage          |
    rANAP-Relocation        ,
```

```
    ...,
    rAB-ModifyRequest       |
    uESpecificInformation   |
    directInformationTransfer   |
    mBMSRABEstablishmentIndication
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-3 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-Assignment          ,
    ...
}

-- **************************************************************
--
-- Interface Elementary Procedures
--
-- **************************************************************

iu-Release RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Iu-ReleaseCommand
    SUCCESSFUL OUTCOME  Iu-ReleaseComplete
    PROCEDURE CODE      id-Iu-Release
    CRITICALITY     reject
}

relocationPreparation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationRequired
    SUCCESSFUL OUTCOME  RelocationCommand
    UNSUCCESSFUL OUTCOME    RelocationPreparationFailure
    PROCEDURE CODE          id-RelocationPreparation
    CRITICALITY     reject
}

relocationResourceAllocation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationRequest
    SUCCESSFUL OUTCOME  RelocationRequestAcknowledge
    UNSUCCESSFUL OUTCOME    RelocationFailure
    PROCEDURE CODE          id-RelocationResourceAllocation
    CRITICALITY     reject
}

relocationCancel RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationCancel
    SUCCESSFUL OUTCOME  RelocationCancelAcknowledge
    PROCEDURE CODE      id-RelocationCancel
    CRITICALITY     reject
}

sRNS-ContextTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  SRNS-ContextRequest
    SUCCESSFUL OUTCOME  SRNS-ContextResponse
```

```
    PROCEDURE CODE      id-SRNS-ContextTransfer
    CRITICALITY     reject
}

securityModeControl RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  SecurityModeCommand
    SUCCESSFUL OUTCOME  SecurityModeComplete
    UNSUCCESSFUL OUTCOME    SecurityModeReject
    PROCEDURE CODE      id-SecurityModeControl
    CRITICALITY     reject
}

dataVolumeReport RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  DataVolumeReportRequest
    SUCCESSFUL OUTCOME  DataVolumeReport
    PROCEDURE CODE      id-DataVolumeReport
    CRITICALITY     reject
}


reset RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Reset
    SUCCESSFUL OUTCOME  ResetAcknowledge
    PROCEDURE CODE      id-Reset
    CRITICALITY     reject
}

rAB-ReleaseRequest RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RAB-ReleaseRequest
    PROCEDURE CODE      id-RAB-ReleaseRequest
    CRITICALITY     ignore
}

iu-ReleaseRequest RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Iu-ReleaseRequest
    PROCEDURE CODE      id-Iu-ReleaseRequest
    CRITICALITY     ignore
}

relocationDetect RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationDetect
    PROCEDURE CODE      id-RelocationDetect
    CRITICALITY     ignore
}

relocationComplete RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RelocationComplete
    PROCEDURE CODE      id-RelocationComplete
    CRITICALITY     ignore
}
```

```
paging RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Paging
    PROCEDURE CODE      id-Paging
    CRITICALITY     ignore
}

commonID RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  CommonID
    PROCEDURE CODE      id-CommonID
    CRITICALITY     ignore
}

cN-InvokeTrace RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  CN-InvokeTrace
    PROCEDURE CODE      id-CN-InvokeTrace
    CRITICALITY     ignore
}

cN-DeactivateTrace RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  CN-DeactivateTrace
    PROCEDURE CODE          id-CN-DeactivateTrace
    CRITICALITY     ignore
}

locationReportingControl RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  LocationReportingControl
    PROCEDURE CODE      id-LocationReportingControl
    CRITICALITY     ignore
}

locationReport RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  LocationReport
    PROCEDURE CODE      id-LocationReport
    CRITICALITY     ignore
}

initialUE-Message RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  InitialUE-Message
    PROCEDURE CODE      id-InitialUE-Message
    CRITICALITY     ignore
}

directTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  DirectTransfer
    PROCEDURE CODE      id-DirectTransfer
    CRITICALITY     ignore
}

overloadControl RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  Overload
    PROCEDURE CODE      id-OverloadControl
```

```
    CRITICALITY     ignore
}

errorIndication RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ErrorIndication
    PROCEDURE CODE      id-ErrorIndication
    CRITICALITY     ignore
}

sRNS-DataForward RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  SRNS-DataForwardCommand
    PROCEDURE CODE      id-SRNS-DataForward
    CRITICALITY     ignore
}

forwardSRNS-Context RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ForwardSRNS-Context
    PROCEDURE CODE      id-ForwardSRNS-Context
    CRITICALITY     ignore
}

rAB-Assignment RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RAB-AssignmentRequest
    OUTCOME         RAB-AssignmentResponse
    PROCEDURE CODE      id-RAB-Assignment
    CRITICALITY     reject
}

privateMessage RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  PrivateMessage

    PROCEDURE CODE  id-privateMessage
    CRITICALITY     ignore
}

resetResource RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  ResetResource
    SUCCESSFUL OUTCOME  ResetResourceAcknowledge
    PROCEDURE CODE          id-ResetResource
    CRITICALITY     reject
}

rANAP-Relocation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RANAP-RelocationInformation
    PROCEDURE CODE          id-RANAP-Relocation
    CRITICALITY     ignore
}

rAB-ModifyRequest RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RAB-ModifyRequest
    PROCEDURE CODE      id-RAB-ModifyRequest
```

```
    CRITICALITY     ignore
}

locationRelatedData RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      LocationRelatedDataRequest
    SUCCESSFUL OUTCOME      LocationRelatedDataResponse
    UNSUCCESSFUL OUTCOME    LocationRelatedDataFailure
    PROCEDURE CODE          id-LocationRelatedData
    CRITICALITY             reject
}

informationTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      InformationTransferIndication
    SUCCESSFUL OUTCOME      InformationTransferConfirmation
    UNSUCCESSFUL OUTCOME    InformationTransferFailure
    PROCEDURE CODE          id-InformationTransfer
    CRITICALITY             reject
}

uESpecificInformation RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  UESpecificInformationIndication
    PROCEDURE CODE      id-UESpecificInformation
    CRITICALITY     ignore
}

directInformationTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      DirectInformationTransfer
    PROCEDURE CODE          id-DirectInformationTransfer
    CRITICALITY             ignore
}

uplinkInformationExchange RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UplinkInformationExchangeRequest
    SUCCESSFUL OUTCOME      UplinkInformationExchangeResponse
    UNSUCCESSFUL OUTCOME    UplinkInformationExchangeFailure
    PROCEDURE CODE          id-UplinkInformationExchange
    CRITICALITY             reject
}

mBMSSessionStart RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSSessionStart
    SUCCESSFUL OUTCOME      MBMSSessionStartResponse
    UNSUCCESSFUL OUTCOME    MBMSSessionStartFailure
    PROCEDURE CODE          id-MBMSSessionStart
    CRITICALITY             reject
}

mBMSSessionUpdate RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSSessionUpdate
    SUCCESSFUL OUTCOME      MBMSSessionUpdateResponse
    UNSUCCESSFUL OUTCOME    MBMSSessionUpdateFailure
```

```
    PROCEDURE CODE          id-MBMSSessionUpdate
    CRITICALITY             reject
}

mBMSSessionStop RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSSessionStop
    SUCCESSFUL OUTCOME      MBMSSessionStopResponse
    PROCEDURE CODE          id-MBMSSessionStop
    CRITICALITY             reject
}

mBMSUELinking RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSUELinkingRequest
    OUTCOME                 MBMSUELinkingResponse
    PROCEDURE CODE          id-MBMSUELinking
    CRITICALITY             reject
}

mBMSRegistration RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSRegistrationRequest
    SUCCESSFUL OUTCOME      MBMSRegistrationResponse
    UNSUCCESSFUL OUTCOME    MBMSRegistrationFailure
    PROCEDURE CODE          id-MBMSRegistration
    CRITICALITY             reject
}

mBMSCNDe-Registration RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MBMSCNDe-RegistrationRequest
    SUCCESSFUL OUTCOME      MBMSCNDe-RegistrationResponse
    PROCEDURE CODE          id-MBMSCNDe-Registration-Procedure
    CRITICALITY             reject
}

mBMSRABEstablishmentIndication RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  MBMSRABEstablishmentIndication
    PROCEDURE CODE      id-MBMSRABEstablishmentIndication
    CRITICALITY     ignore
}

END
```

9.3.3 PDU Definitions

```
-- **************************************************************
--
-- PDU definitions for RANAP.
--
-- **************************************************************

RANAP-PDU-Contents {
```

```
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    AccuracyFulfilmentIndicator,
    APN,
    BroadcastAssistanceDataDecipheringKeys,
    LocationRelatedDataRequestType,
    LocationRelatedDataRequestTypeSpecificToGERANIuMode,
    DataVolumeReference,
    CellLoadInformation,
    AreaIdentity,
    CN-DomainIndicator,
    Cause,
    ClientType,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DeltaRAListofIdleModeUEs,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    FrequenceLayerConvergenceFlag,
    GERAN-BSC-Container,
    GERAN-Classmark,
    GlobalCN-ID,
    GlobalRNC-ID,
    InformationExchangeID,
    InformationExchangeType,
    InformationRequested,
    InformationRequestType,
    InformationTransferID,
    InformationTransferType,
    InterSystemInformationTransferType,
    IntegrityProtectionInformation,
    InterSystemInformation-TransparentContainer,
    IPMulticastAddress,
```

```
    IuSignallingConnectionIdentifier,
    IuTransportAssociation,
    KeyStatus,
    L3-Information,
    LAI,
    LastKnownServiceArea,
    MBMS-PTP-RAB-ID,
    MBMSBearerServiceType,
    MBMSCNDe-Registration,
    MBMSRegistrationRequestType,
    MBMSServiceArea,
    MBMSSessionDuration,
    MBMSSessionIdentityfier,
    MBMSSessionRepetitionNumber,
    NAS-PDU,
    NAS-SequenceNumber,
    NAS-SynchronisationIndicator,
    NewBSS-To-OldBSS-Information,
    NonSearchingIndication,
    NumberOfSteps,
    OMC-ID,
    OldBSS-ToNewBSS-Information,
    PagingAreaID,
    PagingCause,
    PDP-TypeInformation,
    PermanentNAS-UE-ID,
    PLMNidentity,
    PositionData,
    PositionDataSpecificToGERANIuMode,
    PositioningPriority,
    ProvidedData,
    RAB-ID,
    RAB-Parameters,
    RAC,
    RAListofIdleModeUEs,
    RedirectionCompleted,
    RejectCauseValue,
    RelocationType,
    RequestType,
    Requested-RAB-Parameter-Values,
    ResponseTime,
    RRC-Container,
    SAI,
    SAPI,
    Service-Handover,
    SessionUpdateID,
    SNA-Access-Information,
    SourceID,
    SourceRNC-ToTargetRNC-TransparentContainer,
    TargetID,
    TargetRNC-ToSourceRNC-TransparentContainer,
```

```
    TemporaryUE-ID,
    TMGI,
    TracePropagationParameters,
    TraceReference,
    TraceType,
    UnsuccessfullyTransmittedDataVolume,
    TransportLayerAddress,
    TriggerID,
    UE-ID,
    UESBI-Iu,
    UL-GTP-PDU-SequenceNumber,
    UL-N-PDU-SequenceNumber,
    UP-ModeVersions,
    UserPlaneMode,
    VerticalAccuracyCode,
    Alt-RAB-Parameters,
    Ass-RAB-Parameters
FROM RANAP-IEs


    PrivateIE-Container{},
    ProtocolExtensionContainer{},
    ProtocolIE-ContainerList{},
    ProtocolIE-ContainerPair{},
    ProtocolIE-ContainerPairList{},
    ProtocolIE-Container{},
    RANAP-PRIVATE-IES,
    RANAP-PROTOCOL-EXTENSION,
    RANAP-PROTOCOL-IES,
    RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers

    maxNrOfDTs,
    maxNrOfErrors,
    maxNrOfIuSigConIds,
    maxNrOfRABs,
    maxNrOfVol,
    maxnoofMulticastServicesPerUE,

    id-AccuracyFulfilmentIndicator,
    id-APN,
    id-AreaIdentity,
    id-Alt-RAB-Parameters,
    id-Ass-RAB-Parameters,
    id-BroadcastAssistanceDataDecipheringKeys,
    id-LocationRelatedDataRequestType,
    id-CN-DomainIndicator,
    id-Cause,
    id-ChosenEncryptionAlgorithm,
    id-ChosenIntegrityProtectionAlgorithm,
    id-ClassmarkInformation2,
```

```
    id-ClassmarkInformation3,
    id-ClientType,
    id-CNMBMSLinkingInformation,
    id-CriticalityDiagnostics,
    id-DeltaRAListofIdleModeUEs,
    id-DRX-CycleLengthCoefficient,
    id-DirectTransferInformationItem-RANAP-RelocInf,
    id-DirectTransferInformationList-RANAP-RelocInf,
    id-DL-GTP-PDU-SequenceNumber,
    id-EncryptionInformation,
    id-FrequenceLayerConvergenceFlag,
    id-GERAN-BSC-Container,
    id-GERAN-Classmark,
    id-GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item,
    id-GERAN-Iumode-RAB-FailedList-RABAssgntResponse,
    id-GlobalCN-ID,
    id-GlobalRNC-ID,
    id-InformationExchangeID,
    id-InformationExchangeType,
    id-InformationRequested,
    id-InformationRequestType,
    id-InformationTransferID,
    id-InformationTransferType,
    id-IntegrityProtectionInformation,
    id-InterSystemInformationTransferType,
    id-InterSystemInformation-TransparentContainer,
    id-IPMulticastAddress,
    id-IuSigConId,
    id-IuSigConIdItem,
    id-IuSigConIdList,
    id-IuTransportAssociation,
    id-JoinedMBMSBearerServicesList,
    id-KeyStatus,
    id-L3-Information,
    id-LAI,
    id-LastKnownServiceArea,
    id-LeftMBMSBearerServicesList,
    id-LocationRelatedDataRequestTypeSpecificToGERANIuMode,
    id-MBMSBearerServiceType,
    id-MBMSCNDe-Registration,
    id-MBMSRegistrationRequestType,
    id-MBMSServiceArea,
    id-MBMSSessionDuration,
    id-MBMSSessionIdentityfier,
    id-MBMSSessionRepetitionNumber,
    id-NAS-PDU,
    id-NAS-SequenceNumber,
    id-NewBSS-To-OldBSS-Information,
    id-NonSearchingIndication,
    id-NumberOfSteps,
    id-OMC-ID,
```

```
    id-OldBSS-ToNewBSS-Information,
    id-PagingAreaID,
    id-PagingCause,
    id-PDP-TypeInformation,
    id-PermanentNAS-UE-ID,
    id-PositionData,
    id-PositionDataSpecificToGERANIuMode,
    id-PositioningPriority,
    id-ProvidedData,
    id-RAB-ContextItem,
    id-RAB-ContextList,
    id-RAB-ContextFailedtoTransferItem,
    id-RAB-ContextFailedtoTransferList,
    id-RAB-ContextItem-RANAP-RelocInf,
    id-RAB-ContextList-RANAP-RelocInf,
    id-RAB-DataForwardingItem,
    id-RAB-DataForwardingItem-SRNS-CtxReq,
    id-RAB-DataForwardingList,
    id-RAB-DataForwardingList-SRNS-CtxReq,
    id-RAB-DataVolumeReportItem,
    id-RAB-DataVolumeReportList,
    id-RAB-DataVolumeReportRequestItem,
    id-RAB-DataVolumeReportRequestList,
    id-RAB-FailedItem,
    id-RAB-FailedList,
    id-RAB-FailedtoReportItem,
    id-RAB-FailedtoReportList,
    id-RAB-ID,
    id-RAB-ModifyList,
    id-RAB-ModifyItem,
    id-RAB-Parameters,
    id-RAB-QueuedItem,
    id-RAB-QueuedList,
    id-RAB-ReleaseFailedList,
    id-RAB-ReleaseItem,
    id-RAB-ReleasedItem-IuRelComp,
    id-RAB-ReleaseList,
    id-RAB-ReleasedItem,
    id-RAB-ReleasedList,
    id-RAB-ReleasedList-IuRelComp,
    id-RAB-RelocationReleaseItem,
    id-RAB-RelocationReleaseList,
    id-RAB-SetupItem-RelocReq,
    id-RAB-SetupItem-RelocReqAck,
    id-RAB-SetupList-RelocReq,
    id-RAB-SetupList-RelocReqAck,
    id-RAB-SetupOrModifiedItem,
    id-RAB-SetupOrModifiedList,
    id-RAB-SetupOrModifyItem,
    id-RAB-SetupOrModifyList,
    id-RAC,
```

```
    id-RAListofIdleModeUEs,
    id-RedirectionCompleted,
    id-RedirectionIndication,
    id-RejectCauseValue,
    id-RelocationType,
    id-RequestType,
    id-ResponseTime,
    id-SAI,
    id-SAPI,
    id-SelectedPLMN-ID,
    id-SessionUpdateID,
    id-SNA-Access-Information,
    id-SourceID,
    id-SourceRNC-ToTargetRNC-TransparentContainer,
    id-SourceRNC-PDCP-context-info,
    id-TargetID,
    id-TargetRNC-ToSourceRNC-TransparentContainer,
    id-TemporaryUE-ID,
    id-TMGI,
    id-TracePropagationParameters,
    id-TraceReference,
    id-TraceType,
    id-TransportLayerAddress,
    id-TransportLayerInformation,
    id-TriggerID,
    id-UE-ID,
    id-UESBI-Iu,
    id-UL-GTP-PDU-SequenceNumber,
    id-UnsuccessfulLinkingList,
    id-VerticalAccuracyCode
FROM RANAP-Constants;

-- **************************************************************
--
-- Common Container Lists
--
-- **************************************************************

RAB-IE-ContainerList                { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfRABs,   {IEsSetParam} }
RAB-IE-ContainerPairList            { RANAP-PROTOCOL-IES-PAIR : IEsSetParam } ::= ProtocolIE-ContainerPairList { 1, maxNrOfRABs,   {IEsSetParam} }
ProtocolError-IE-ContainerList      { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfRABs,   {IEsSetParam} }
IuSigConId-IE-ContainerList         { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfIuSigConIds,
{IEsSetParam} }
DirectTransfer-IE-ContainerList   { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfDTs,    {IEsSetParam} }

-- **************************************************************
--
-- Iu RELEASE ELEMENTARY PROCEDURE
--
-- **************************************************************
```

```
-- **************************************************************
--
-- Iu Release Command
--
-- **************************************************************

Iu-ReleaseCommand ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {Iu-ReleaseCommandIEs} },
    protocolExtensions      ProtocolExtensionContainer { {Iu-ReleaseCommandExtensions} }            OPTIONAL,
    ...
}

Iu-ReleaseCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  },
    ...
}

Iu-ReleaseCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Iu Release Complete
--
-- **************************************************************

Iu-ReleaseComplete ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {Iu-ReleaseCompleteIEs} },
    protocolExtensions      ProtocolExtensionContainer { {Iu-ReleaseCompleteExtensions} }           OPTIONAL,
    ...
}

Iu-ReleaseCompleteIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportList        CRITICALITY ignore  TYPE RAB-DataVolumeReportList       PRESENCE optional } |
    { ID id-RAB-ReleasedList-IuRelComp      CRITICALITY ignore  TYPE RAB-ReleasedList-IuRelComp     PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional   },
    ...
}

RAB-DataVolumeReportList                ::= RAB-IE-ContainerList { {RAB-DataVolumeReportItemIEs} }

RAB-DataVolumeReportItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportItem        CRITICALITY ignore  TYPE RAB-DataVolumeReportItem       PRESENCE mandatory  },
    ...
}

RAB-DataVolumeReportItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    dl-UnsuccessfullyTransmittedDataVolume      DataVolumeList      OPTIONAL
    -- This IE shall always be present although its presence is optional --,
```

```
    iE-Extensions                   ProtocolExtensionContainer { {RAB-DataVolumeReportItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-DataVolumeReportItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleasedList-IuRelComp              ::= RAB-IE-ContainerList { {RAB-ReleasedItem-IuRelComp-IEs} }

RAB-ReleasedItem-IuRelComp-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem-IuRelComp          CRITICALITY ignore  TYPE RAB-ReleasedItem-IuRelComp          PRESENCE mandatory   },
    ...
}

RAB-ReleasedItem-IuRelComp  ::= SEQUENCE {
        rAB-ID                      RAB-ID,
        dL-GTP-PDU-SequenceNumber   DL-GTP-PDU-SequenceNumber   OPTIONAL,
        uL-GTP-PDU-SequenceNumber   UL-GTP-PDU-SequenceNumber   OPTIONAL,
        iE-Extensions               ProtocolExtensionContainer { {RAB-ReleasedItem-IuRelComp-ExtIEs} }       OPTIONAL,
    ...
}

RAB-ReleasedItem-IuRelComp-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}


Iu-ReleaseCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- RELOCATION PREPARATION ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Relocation Required
--
-- **************************************************************

RelocationRequired ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationRequiredIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationRequiredExtensions} }           OPTIONAL,
        ...
}

RelocationRequiredIEs RANAP-PROTOCOL-IES ::= {
```

```
    { ID id-RelocationType              CRITICALITY reject  TYPE RelocationType                PRESENCE mandatory } |
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                   PRESENCE mandatory  } |
    { ID id-SourceID                CRITICALITY ignore  TYPE SourceID                    PRESENCE mandatory} |
    { ID id-TargetID                CRITICALITY reject  TYPE TargetID                    PRESENCE mandatory} |
    { ID id-ClassmarkInformation2           CRITICALITY reject  TYPE ClassmarkInformation2       PRESENCE conditional
    -- This IE shall be present if the Target ID IE contains a CGI IE --                           } |
    { ID id-ClassmarkInformation3           CRITICALITY ignore  TYPE ClassmarkInformation3       PRESENCE conditional
    -- This IE shall be present if the Target ID IE contains a CGI IE --                           } |
    { ID id-SourceRNC-ToTargetRNC-TransparentContainer
                            CRITICALITY reject  TYPE SourceRNC-ToTargetRNC-TransparentContainer PRESENCE conditional
    -- This IE shall be present if the Target ID IE contains a RNC-ID IE  --                                  } |
    { ID id-OldBSS-ToNewBSS-Information     CRITICALITY ignore  TYPE OldBSS-ToNewBSS-Information     PRESENCE optional    } ,
    ...
}

RelocationRequiredExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-Classmark                 CRITICALITY ignore  EXTENSION GERAN-Classmark        PRESENCE optional } ,
    ...
}

-- **************************************************************
--
-- Relocation Command
--
-- **************************************************************

RelocationCommand ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationCommandIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationCommandExtensions} }            OPTIONAL,
    ...
}

RelocationCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TargetRNC-ToSourceRNC-TransparentContainer
                            CRITICALITY reject  TYPE TargetRNC-ToSourceRNC-TransparentContainer PRESENCE optional  } |
    { ID id-L3-Information              CRITICALITY ignore  TYPE L3-Information             PRESENCE optional} |
    { ID id-RAB-RelocationReleaseList       CRITICALITY ignore  TYPE RAB-RelocationReleaseList       PRESENCE optional } |
    { ID id-RAB-DataForwardingList          CRITICALITY ignore  TYPE RAB-DataForwardingList      PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics          PRESENCE optional },
    ...
}

RAB-RelocationReleaseList               ::= RAB-IE-ContainerList { {RAB-RelocationReleaseItemIEs} }

RAB-RelocationReleaseItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-RelocationReleaseItem       CRITICALITY ignore  TYPE RAB-RelocationReleaseItem       PRESENCE mandatory   },
    ...
}

RAB-RelocationReleaseItem ::= SEQUENCE {
```

```
    rAB-ID                      RAB-ID,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-RelocationReleaseItem-ExtIEs} }        OPTIONAL,
    ...
}

RAB-RelocationReleaseItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-DataForwardingList                  ::= RAB-IE-ContainerList { {RAB-DataForwardingItemIEs} }

RAB-DataForwardingItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingItem          CRITICALITY ignore  TYPE RAB-DataForwardingItem      PRESENCE mandatory   },
    ...
}

RAB-DataForwardingItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    transportLayerAddress               TransportLayerAddress,
    iuTransportAssociation              IuTransportAssociation,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-DataForwardingItem-ExtIEs} }        OPTIONAL,
    ...
}

RAB-DataForwardingItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to allow transfer of a second pair of TLA and association --
        {ID id-TransportLayerAddress    CRITICALITY ignore  EXTENSION TransportLayerAddress PRESENCE optional} |
        {ID id-IuTransportAssociation   CRITICALITY ignore  EXTENSION IuTransportAssociation    PRESENCE optional},
    ...
}

RelocationCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable Inter RAN Load Information Exchange over Iu --
    { ID id-InterSystemInformation-TransparentContainer     CRITICALITY ignore  EXTENSION InterSystemInformation-TransparentContainer
    PRESENCE optional   },
    ...
}

-- **************************************************************
--
-- Relocation Preparation Failure
--
-- **************************************************************

RelocationPreparationFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationPreparationFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationPreparationFailureExtensions} }       OPTIONAL,
        ...
}

RelocationPreparationFailureIEs RANAP-PROTOCOL-IES ::= {
```

```
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional },
    ...
}

RelocationPreparationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable Inter RAN Load Information Exchange over Iu --
    { ID id-InterSystemInformation-TransparentContainer     CRITICALITY ignore  EXTENSION InterSystemInformation-TransparentContainer         PRESENCE
optional    },
    ...
}

-- **************************************************************
--
-- RELOCATION RESOURCE ALLOCATION ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Relocation Request
--
-- **************************************************************

RelocationRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationRequestExtensions} }            OPTIONAL,
    ...
}

RelocationRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-PermanentNAS-UE-ID          CRITICALITY ignore  TYPE PermanentNAS-UE-ID             PRESENCE optional  } |
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator             PRESENCE mandatory  } |
    { ID id-SourceRNC-ToTargetRNC-TransparentContainer
                        CRITICALITY reject  TYPE SourceRNC-ToTargetRNC-TransparentContainer PRESENCE mandatory  } |
    { ID id-RAB-SetupList-RelocReq          CRITICALITY reject  TYPE RAB-SetupList-RelocReq      PRESENCE optional } |
    { ID id-IntegrityProtectionInformation      CRITICALITY ignore  TYPE IntegrityProtectionInformation      PRESENCE optional } |
    { ID id-EncryptionInformation           CRITICALITY ignore  TYPE EncryptionInformation       PRESENCE optional } |
    { ID id-IuSigConId  CRITICALITY ignore TYPE IuSignallingConnectionIdentifier  PRESENCE mandatory },
    ...
}

RAB-SetupList-RelocReq                  ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReq-IEs} }

RAB-SetupItem-RelocReq-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupItem-RelocReq          CRITICALITY reject  TYPE RAB-SetupItem-RelocReq      PRESENCE mandatory   },
    ...
}

RAB-SetupItem-RelocReq ::= SEQUENCE {
```

```
    rAB-ID                      RAB-ID,
    nAS-SynchronisationIndicator    NAS-SynchronisationIndicator    OPTIONAL,
    rAB-Parameters                  RAB-Parameters,
    dataVolumeReportingIndication           DataVolumeReportingIndication   OPTIONAL
    -- This IE shall be present if the CN domain indicator IE is set to "PS domain" --,
    pDP-TypeInformation             PDP-TypeInformation     OPTIONAL
    -- This IE shall be present if the CN domain indicator IE is set to "PS domain" --,
    userPlaneInformation                UserPlaneInformation,
    transportLayerAddress               TransportLayerAddress,
    iuTransportAssociation              IuTransportAssociation,
    service-Handover                Service-Handover        OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupItem-RelocReq-ExtIEs} }        OPTIONAL,
    ...
}

RAB-SetupItem-RelocReq-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable RAB Quality of Service negotiation over Iu --
    {ID id-Alt-RAB-Parameters   CRITICALITY ignore      EXTENSION Alt-RAB-Parameters        PRESENCE optional} |
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-BSC-Container                 CRITICALITY ignore  EXTENSION GERAN-BSC-Container       PRESENCE optional },
    ...
}

UserPlaneInformation ::= SEQUENCE {
    userPlaneMode                   UserPlaneMode,
    uP-ModeVersions                 UP-ModeVersions,
    iE-Extensions                   ProtocolExtensionContainer { {UserPlaneInformation-ExtIEs} }       OPTIONAL,
    ...
}

UserPlaneInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RelocationRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
    { ID id-GlobalCN-ID             CRITICALITY reject      EXTENSION GlobalCN-ID               PRESENCE optional} |
-- Extension for Release 5 to enable shared networks in connected mode --
    { ID id-SNA-Access-Information  CRITICALITY ignore      EXTENSION SNA-Access-Information    PRESENCE optional} |
-- Extension for Release 5 to enable specific behaviour by the RNC in relation with early UE handling --
    { ID id-UESBI-Iu    CRITICALITY ignore      EXTENSION UESBI-Iu  PRESENCE optional}|
-- Extension for Release 6 to convey the selected PLMN id in network sharing mobility scenarios --
    { ID id-SelectedPLMN-ID     CRITICALITY ignore  EXTENSION PLMNidentity      PRESENCE optional    }|
-- Extension for Release 6 to enable MBMS UE linking at relocation --
    { ID id-CNMBMSLinkingInformation    CRITICALITY ignore      EXTENSION CNMBMSLinkingInformation   PRESENCE optional},
    ...
}

CNMBMSLinkingInformation ::= SEQUENCE {
    joinedMBMSBearerService-IEs     JoinedMBMSBearerService-IEs,
    iE-Extensions                   ProtocolExtensionContainer { {CNMBMSLinkingInformation-ExtIEs} }    OPTIONAL,
```

```
    ...
}

CNMBMSLinkingInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

JoinedMBMSBearerService-IEs ::= SEQUENCE (SIZE (1.. maxnoofMulticastServicesPerUE)) OF
    SEQUENCE {
        tMGI                TMGI,
        mBMS-PTP-RAB-ID     MBMS-PTP-RAB-ID,
        iE-Extensions       ProtocolExtensionContainer { {JoinedMBMSBearerService-ExtIEs} } OPTIONAL,
        ...
    }

JoinedMBMSBearerService-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Relocation Request Acknowledge
--
-- **************************************************************

RelocationRequestAcknowledge ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationRequestAcknowledgeIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationRequestAcknowledgeExtensions} }       OPTIONAL,
    ...
}

RelocationRequestAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TargetRNC-ToSourceRNC-TransparentContainer
                            CRITICALITY ignore  TYPE TargetRNC-ToSourceRNC-TransparentContainer PRESENCE optional  } |
    { ID id-RAB-SetupList-RelocReqAck       CRITICALITY ignore  TYPE RAB-SetupList-RelocReqAck      PRESENCE optional} |
    { ID id-RAB-FailedList              CRITICALITY ignore  TYPE RAB-FailedList             PRESENCE optional }|
    { ID id-ChosenIntegrityProtectionAlgorithm  CRITICALITY ignore  TYPE ChosenIntegrityProtectionAlgorithm     PRESENCE optional } |
    { ID id-ChosenEncryptionAlgorithm       CRITICALITY ignore  TYPE ChosenEncryptionAlgorithm      PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional },
    ...
}

RAB-SetupList-RelocReqAck               ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReqAck-IEs} }

RAB-SetupItem-RelocReqAck-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupItem-RelocReqAck       CRITICALITY reject  TYPE RAB-SetupItem-RelocReqAck      PRESENCE mandatory   },
    ...
}

RAB-SetupItem-RelocReqAck ::= SEQUENCE {
    rAB-ID                      RAB-ID,
```

```
    transportLayerAddress              TransportLayerAddress   OPTIONAL,
    iuTransportAssociation             IuTransportAssociation  OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { {RAB-SetupItem-RelocReqAck-ExtIEs} }        OPTIONAL,
    ...
}

RAB-SetupItem-RelocReqAck-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable RAB Quality of Service negotiation over Iu --
    {ID id-Ass-RAB-Parameters   CRITICALITY ignore      EXTENSION Ass-RAB-Parameters        PRESENCE optional} |
-- Extension for Release 5 to allow transfer of a second pair of TLA and association --
    {ID id-TransportLayerAddress    CRITICALITY ignore  EXTENSION TransportLayerAddress PRESENCE optional} |
    {ID id-IuTransportAssociation   CRITICALITY ignore  EXTENSION IuTransportAssociation    PRESENCE optional},
    ...
}

RAB-FailedList                     ::= RAB-IE-ContainerList { {RAB-FailedItemIEs} }

RAB-FailedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-FailedItem             CRITICALITY ignore  TYPE RAB-FailedItem             PRESENCE mandatory   },
    ...
}

RAB-FailedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    cause                       Cause,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-FailedItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-FailedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RelocationRequestAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable Inter RAN Load Information Exchange over Iu --
    {ID id-NewBSS-To-OldBSS-Information     CRITICALITY ignore  EXTENSION NewBSS-To-OldBSS-Information    PRESENCE optional    },
    ...
}

-- **************************************************************
--
-- Relocation Failure
--
-- **************************************************************

RelocationFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationFailureExtensions} }            OPTIONAL,
    ...
}
```

```
RelocationFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional },
    ...
}

RelocationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable Inter RAN Load Information Exchange over Iu --
    { ID id-NewBSS-To-OldBSS-Information        CRITICALITY ignore  EXTENSION NewBSS-To-OldBSS-Information   PRESENCE optional } |
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-Classmark                 CRITICALITY ignore  EXTENSION GERAN-Classmark        PRESENCE optional },
    ...
}

-- **************************************************************
--
-- RELOCATION CANCEL ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Relocation Cancel
--
-- **************************************************************

RelocationCancel ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationCancelIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationCancelExtensions} }          OPTIONAL,
    ...
}

RelocationCancelIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  },
    ...
}

RelocationCancelExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Relocation Cancel Acknowledge
--
-- **************************************************************

RelocationCancelAcknowledge ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationCancelAcknowledgeIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationCancelAcknowledgeExtensions} }        OPTIONAL,
    ...
```

```
}

RelocationCancelAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

RelocationCancelAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- SRNS CONTEXT TRANSFER OPEARATION
--
-- **************************************************************

-- **************************************************************
--
-- SRNS Context Request
--
-- **************************************************************

SRNS-ContextRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SRNS-ContextRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SRNS-ContextRequestExtensions} }          OPTIONAL,
    ...
}

SRNS-ContextRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingList-SRNS-CtxReq  CRITICALITY ignore  TYPE RAB-DataForwardingList-SRNS-CtxReq     PRESENCE mandatory   },
    ...
}

RAB-DataForwardingList-SRNS-CtxReq          ::= RAB-IE-ContainerList { {RAB-DataForwardingItem-SRNS-CtxReq-IEs} }

RAB-DataForwardingItem-SRNS-CtxReq-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingItem-SRNS-CtxReq  CRITICALITY reject  TYPE RAB-DataForwardingItem-SRNS-CtxReq     PRESENCE mandatory   },
    ...
}

RAB-DataForwardingItem-SRNS-CtxReq ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-DataForwardingItem-SRNS-CtxReq-ExtIEs} }        OPTIONAL,
    ...
}

RAB-DataForwardingItem-SRNS-CtxReq-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
SRNS-ContextRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- SRNS Context Response
--
-- **************************************************************

SRNS-ContextResponse ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SRNS-ContextResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SRNS-ContextResponseExtensions} }         OPTIONAL,
    ...
}

SRNS-ContextResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextList             CRITICALITY ignore  TYPE RAB-ContextList                PRESENCE optional  } |
    { ID id-RAB-ContextFailedtoTransferList     CRITICALITY ignore  TYPE RAB-ContextFailedtoTransferList     PRESENCE optional }|
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional },
    ...
}

RAB-ContextList                     ::= RAB-IE-ContainerList { {RAB-ContextItemIEs} }

RAB-ContextItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextItem             CRITICALITY ignore  TYPE RAB-ContextItem                PRESENCE mandatory },
    ...
}

RAB-ContextItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    dl-GTP-PDU-SequenceNumber           DL-GTP-PDU-SequenceNumber   OPTIONAL,
    ul-GTP-PDU-SequenceNumber           UL-GTP-PDU-SequenceNumber   OPTIONAL,
    dl-N-PDU-SequenceNumber             DL-N-PDU-SequenceNumber     OPTIONAL,
    ul-N-PDU-SequenceNumber             UL-N-PDU-SequenceNumber     OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs} }      OPTIONAL,
    ...
}

RAB-ContextItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ContextFailedtoTransferList                 ::= RAB-IE-ContainerList { {RABs-ContextFailedtoTransferItemIEs} }

RABs-ContextFailedtoTransferItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextFailedtoTransferItem     CRITICALITY ignore  TYPE RABs-ContextFailedtoTransferItem       PRESENCE mandatory   },
    ...
}
```

```
RABs-ContextFailedtoTransferItem::= SEQUENCE {
    rAB-ID                      RAB-ID,
    cause                       Cause,
    iE-Extensions                   ProtocolExtensionContainer { { RABs-ContextFailedtoTransferItem-ExtIEs} }      OPTIONAL,
    ...
}


RABs-ContextFailedtoTransferItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SRNS-ContextResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- SECURITY MODE CONTROL ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Security Mode Command
--
-- **************************************************************

SecurityModeCommand ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SecurityModeCommandIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SecurityModeCommandExtensions} }          OPTIONAL,
    ...
}

SecurityModeCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-IntegrityProtectionInformation      CRITICALITY reject  TYPE IntegrityProtectionInformation    PRESENCE mandatory   } |
    { ID id-EncryptionInformation           CRITICALITY ignore  TYPE EncryptionInformation       PRESENCE optional } |
    { ID id-KeyStatus                       CRITICALITY reject  TYPE KeyStatus                   PRESENCE mandatory},
    ...
}

SecurityModeCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Security Mode Complete
--
-- **************************************************************
```

```
SecurityModeComplete ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SecurityModeCompleteIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SecurityModeCompleteExtensions} }         OPTIONAL,
    ...
}

SecurityModeCompleteIEs RANAP-PROTOCOL-IES ::= {
    { ID id-ChosenIntegrityProtectionAlgorithm  CRITICALITY reject  TYPE ChosenIntegrityProtectionAlgorithm   PRESENCE mandatory   } |
    { ID id-ChosenEncryptionAlgorithm       CRITICALITY ignore  TYPE ChosenEncryptionAlgorithm       PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

SecurityModeCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Security Mode Reject
--
-- **************************************************************

SecurityModeReject ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SecurityModeRejectIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SecurityModeRejectExtensions} }           OPTIONAL,
    ...
}

SecurityModeRejectIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional },
    ...
}

SecurityModeRejectExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- DATA VOLUME REPORT ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Data Volume Report Request
--
-- **************************************************************
```

```
DataVolumeReportRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {DataVolumeReportRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {DataVolumeReportRequestExtensions} }      OPTIONAL,
    ...
}

DataVolumeReportRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportRequestList     CRITICALITY ignore  TYPE RAB-DataVolumeReportRequestList     PRESENCE mandatory   },
    ...
}

RAB-DataVolumeReportRequestList            ::= RAB-IE-ContainerList { {RAB-DataVolumeReportRequestItemIEs} }

RAB-DataVolumeReportRequestItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportRequestItem     CRITICALITY reject  TYPE RAB-DataVolumeReportRequestItem     PRESENCE mandatory   },
    ...
}

RAB-DataVolumeReportRequestItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-DataVolumeReportRequestItem-ExtIEs} }        OPTIONAL,
    ...
}

RAB-DataVolumeReportRequestItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DataVolumeReportRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Data Volume Report
--
-- **************************************************************

DataVolumeReport ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {DataVolumeReportIEs} },
    protocolExtensions      ProtocolExtensionContainer { {DataVolumeReportExtensions} }          OPTIONAL,
    ...
}

DataVolumeReportIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataVolumeReportList        CRITICALITY ignore  TYPE RAB-DataVolumeReportList       PRESENCE optional } |
    { ID id-RAB-FailedtoReportList          CRITICALITY ignore  TYPE RAB-FailedtoReportList      PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}
```

```
DataVolumeReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-FailedtoReportList              ::= RAB-IE-ContainerList { {RABs-failed-to-reportItemIEs} }

RABs-failed-to-reportItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-FailedtoReportItem      CRITICALITY ignore  TYPE RABs-failed-to-reportItem       PRESENCE mandatory   },
    ...
}

RABs-failed-to-reportItem::= SEQUENCE {
    rAB-ID                      RAB-ID,
    cause                       Cause,
    iE-Extensions                   ProtocolExtensionContainer { { RABs-failed-to-reportItem-ExtIEs} }       OPTIONAL,
    ...
}


RABs-failed-to-reportItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}


-- **************************************************************
--
-- RESET ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Reset
--
-- **************************************************************

Reset ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ResetIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ResetExtensions} }                    OPTIONAL,
    ...
}

ResetIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator             PRESENCE mandatory  } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE optional },
    ...
}

ResetExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
```

```
    { ID id-GlobalCN-ID             CRITICALITY ignore      EXTENSION GlobalCN-ID               PRESENCE optional},
    ...
}

-- **************************************************************
--
-- Reset Acknowledge
--
-- **************************************************************

ResetAcknowledge ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ResetAcknowledgeIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ResetAcknowledgeExtensions} }          OPTIONAL,
    ...
}

ResetAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator             PRESENCE mandatory } |
     { ID id-CriticalityDiagnostics         CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE optional },
    ...
}

ResetAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
    { ID id-GlobalCN-ID             CRITICALITY ignore      EXTENSION GlobalCN-ID               PRESENCE optional},
    ...
}
-- **************************************************************
--
-- RESET RESOURCE ELEMENTARY PROCEDURE
--
-- **************************************************************


-- **************************************************************
--
-- Reset Resource
--
-- **************************************************************

ResetResource ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ResetResourceIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ResetResourceExtensions} }               OPTIONAL,
    ...
}

ResetResourceIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator             PRESENCE mandatory } |
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory } |
    { ID id-IuSigConIdList              CRITICALITY ignore  TYPE ResetResourceList              PRESENCE mandatory } |
```

```
    { ID id-GlobalRNC-ID               CRITICALITY ignore  TYPE GlobalRNC-ID              PRESENCE optional },
    ...
}

ResetResourceList   ::= IuSigConId-IE-ContainerList{ {ResetResourceItemIEs} }

ResetResourceItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-IuSigConIdItem             CRITICALITY reject  TYPE    ResetResourceItem          PRESENCE mandatory  },
    ...
}

ResetResourceItem ::= SEQUENCE {
    iuSigConId                 IuSignallingConnectionIdentifier,
    iE-Extensions              ProtocolExtensionContainer { { ResetResourceItem-ExtIEs} }       OPTIONAL,
    ...
}

ResetResourceItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ResetResourceExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
    { ID id-GlobalCN-ID            CRITICALITY ignore      EXTENSION GlobalCN-ID              PRESENCE optional},
    ...
}

-- **************************************************************
--
-- Reset Resource Acknowledge
--
-- **************************************************************

ResetResourceAcknowledge ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ResetResourceAcknowledgeIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ResetResourceAcknowledgeExtensions} }        OPTIONAL,
    ...
}

ResetResourceAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator         CRITICALITY reject  TYPE CN-DomainIndicator            PRESENCE mandatory  } |
    { ID id-IuSigConIdList             CRITICALITY ignore  TYPE ResetResourceAckList          PRESENCE mandatory  } |
    { ID id-GlobalRNC-ID               CRITICALITY ignore  TYPE GlobalRNC-ID              PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional },
    ...
}
ResetResourceAckList    ::= IuSigConId-IE-ContainerList{ {ResetResourceAckItemIEs} }

ResetResourceAckItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-IuSigConIdItem             CRITICALITY reject  TYPE    ResetResourceAckItem         PRESENCE mandatory   },
    ...
```

```
}

ResetResourceAckItem ::= SEQUENCE {
    iuSigConId                  IuSignallingConnectionIdentifier,
    iE-Extensions               ProtocolExtensionContainer { { ResetResourceAckItem-ExtIEs} }       OPTIONAL,
    ...
}

ResetResourceAckItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ResetResourceAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
    { ID id-GlobalCN-ID             CRITICALITY ignore      EXTENSION GlobalCN-ID               PRESENCE optional},
    ...
}

-- **************************************************************
--
-- RAB RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- RAB Release Request
--
-- **************************************************************

RAB-ReleaseRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RAB-ReleaseRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-ReleaseRequestExtensions} }           OPTIONAL,
    ...
}

RAB-ReleaseRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleaseList             CRITICALITY ignore  TYPE RAB-ReleaseList                PRESENCE mandatory },
    ...
}

RAB-ReleaseList                     ::= RAB-IE-ContainerList { {RAB-ReleaseItemIEs} }

RAB-ReleaseItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleaseItem             CRITICALITY ignore  TYPE RAB-ReleaseItem                PRESENCE mandatory },
    ...
}

RAB-ReleaseItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    cause                       Cause,
```

```
    iE-Extensions                   ProtocolExtensionContainer { {RAB-ReleaseItem-ExtIEs} }      OPTIONAL,
    ...
}

RAB-ReleaseItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleaseRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Iu RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Iu Release Request
--
-- **************************************************************

Iu-ReleaseRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {Iu-ReleaseRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {Iu-ReleaseRequestExtensions} }            OPTIONAL,
    ...
}

Iu-ReleaseRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory  },
    ...
}

Iu-ReleaseRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- RELOCATION DETECT ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Relocation Detect
--
-- **************************************************************
```

```
RelocationDetect ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationDetectIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationDetectExtensions} }          OPTIONAL,
    ...
}

RelocationDetectIEs RANAP-PROTOCOL-IES ::= {
    ...
}

RelocationDetectExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- RELOCATION COMPLETE ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Relocation Complete
--
-- **************************************************************

RelocationComplete ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationCompleteIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationCompleteExtensions} }           OPTIONAL,
    ...
}

RelocationCompleteIEs RANAP-PROTOCOL-IES ::= {
    ...
}

RelocationCompleteExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- PAGING ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Paging
--
-- **************************************************************
```

```
Paging ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {PagingIEs} },
    protocolExtensions      ProtocolExtensionContainer { {PagingExtensions} }                  OPTIONAL,
    ...
}

PagingIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator             PRESENCE mandatory } |
    { ID id-PermanentNAS-UE-ID          CRITICALITY ignore  TYPE PermanentNAS-UE-ID             PRESENCE mandatory } |
    { ID id-TemporaryUE-ID              CRITICALITY ignore  TYPE TemporaryUE-ID            PRESENCE optional } |
    { ID id-PagingAreaID                CRITICALITY ignore  TYPE PagingAreaID              PRESENCE optional } |
    { ID id-PagingCause             CRITICALITY ignore  TYPE PagingCause               PRESENCE optional } |
    { ID id-NonSearchingIndication          CRITICALITY ignore  TYPE NonSearchingIndication      PRESENCE optional } |
    { ID id-DRX-CycleLengthCoefficient              CRITICALITY ignore  TYPE DRX-CycleLengthCoefficient         PRESENCE optional } ,
    ...
}

PagingExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable NNSF --
    { ID id-GlobalCN-ID             CRITICALITY ignore  EXTENSION GlobalCN-ID               PRESENCE optional } ,
    ...
}

-- **************************************************************
--
-- COMMON ID ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Common ID
--
-- **************************************************************

CommonID ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {CommonID-IEs} },
    protocolExtensions      ProtocolExtensionContainer { {CommonIDExtensions} }                OPTIONAL,
    ...
}

CommonID-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-PermanentNAS-UE-ID          CRITICALITY ignore  TYPE PermanentNAS-UE-ID             PRESENCE mandatory },
    ...
}

CommonIDExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable shared networks in connected mode --
    { ID id-SNA-Access-Information      CRITICALITY ignore  EXTENSION   SNA-Access-Information      PRESENCE optional    } |
-- Extension for Release 5 to enable specific behaviour by the RNC in relation with early UE handling --
```

```
    { ID id-UESBI-Iu    CRITICALITY ignore      EXTENSION UESBI-Iu  PRESENCE optional}|
-- Extension for Release 6 to indicate the selected plmn in GWCN configuration for network sharing non-supporting UEs --
    { ID id-SelectedPLMN-ID     CRITICALITY ignore  EXTENSION PLMNidentity      PRESENCE optional    },
    ...
}

-- **************************************************************
--
-- CN INVOKE TRACE ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- CN Invoke Trace
--
-- **************************************************************

CN-InvokeTrace ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {CN-InvokeTraceIEs} },
    protocolExtensions      ProtocolExtensionContainer { {CN-InvokeTraceExtensions} }            OPTIONAL,
    ...
}

CN-InvokeTraceIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TraceType               CRITICALITY ignore  TYPE TraceType                  PRESENCE optional } |
    -- This information is mandatory for GERAN Iu Mode, not applicable to UTRAN --
    { ID id-TraceReference              CRITICALITY ignore  TYPE TraceReference             PRESENCE mandatory  } |
    { ID id-TriggerID               CRITICALITY ignore  TYPE TriggerID                  PRESENCE optional } |
    -- This information is mandatory for GERAN Iu Mode, not applicable to UTRAN --
    { ID id-UE-ID                   CRITICALITY ignore  TYPE UE-ID                  PRESENCE optional  } |
    -- This information is mandatory for UTRAN, optional for GERAN Iu mode --
    { ID id-OMC-ID                  CRITICALITY ignore  TYPE OMC-ID                 PRESENCE optional  },
    -- This information is mandatory for GERAN Iu Mode, not applicable to UTRAN --
    ...
}

CN-InvokeTraceExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 6 to enable signalling based activation for Subscriber and Equipment Trace over Iu interface --
    { ID id-TracePropagationParameters      CRITICALITY ignore  EXTENSION TracePropagationParameters      PRESENCE optional } ,
    ...
}

-- **************************************************************
--
-- CN DEACTIVATE TRACE ELEMENTARY PROCEDURE
--
-- **************************************************************

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

```
-- CN Deactivate Trace
--
-- **************************************************************

CN-DeactivateTrace ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {CN-DeactivateTraceIEs} },
    protocolExtensions      ProtocolExtensionContainer { {CN-DeactivateTraceExtensions} }           OPTIONAL,
    ...
}

CN-DeactivateTraceIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TraceReference              CRITICALITY ignore  TYPE TraceReference             PRESENCE mandatory } |
    { ID id-TriggerID               CRITICALITY ignore  TYPE TriggerID                  PRESENCE optional },
    -- This information is optional for GERAN Iu Mode, not applicable to UTRAN --
    ...
}

CN-DeactivateTraceExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- LOCATION REPORTING CONTROL ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Location Reporting Control
--
-- **************************************************************

LocationReportingControl ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {LocationReportingControlIEs} },
    protocolExtensions      ProtocolExtensionContainer { {LocationReportingControlExtensions} }     OPTIONAL,
    ...
}

LocationReportingControlIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RequestType                 CRITICALITY ignore  TYPE RequestType                PRESENCE mandatory  },
    ...
}

LocationReportingControlExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enhance the location request over Iu --
    { ID id-VerticalAccuracyCode                CRITICALITY ignore  EXTENSION VerticalAccuracyCode          PRESENCE optional } |
-- Extension for Release 4 to enhance the location request over Iu --
    { ID id-ResponseTime                CRITICALITY ignore  EXTENSION ResponseTime              PRESENCE optional  } |
-- Extension for Release 4 to enhance the location request over Iu --
    { ID id-PositioningPriority                 CRITICALITY ignore  EXTENSION PositioningPriority           PRESENCE optional } |
```

```
-- Extension for Release 4 to enhance the location request over Iu --
    { ID id-ClientType              CRITICALITY ignore  EXTENSION ClientType               PRESENCE optional },
    ...
}

-- **************************************************************
--
-- LOCATION REPORT ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Location Report
--
-- **************************************************************

LocationReport ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {LocationReportIEs} },
    protocolExtensions      ProtocolExtensionContainer { {LocationReportExtensions} }            OPTIONAL,
    ...
}

LocationReportIEs RANAP-PROTOCOL-IES ::= {
    { ID id-AreaIdentity               CRITICALITY ignore  TYPE AreaIdentity              PRESENCE optional } |
    { ID id-Cause                  CRITICALITY ignore  TYPE Cause                  PRESENCE optional   } |
    { ID id-RequestType                CRITICALITY ignore  TYPE RequestType               PRESENCE optional }  ,
    ...
}

LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable report of Last Known Service Area with its Age over Iu --
    { ID id-LastKnownServiceArea    CRITICALITY ignore  EXTENSION LastKnownServiceArea  PRESENCE optional} |
-- Extension for Release 5 to pass the positioning methods that have been used --
    { ID id-PositionData    CRITICALITY ignore      EXTENSION PositionData  PRESENCE optional}|
-- Extension for Release 5 to pass the positioning methods that have been used for GERAN Iu mode --
    { ID id-PositionDataSpecificToGERANIuMode       CRITICALITY ignore  EXTENSION PositionDataSpecificToGERANIuMode   PRESENCE optional }|
    -- This extension is optional for GERAN Iu mode only, not applicable for UTRAN --
-- Extension for Release 6 to indicate whether the returned position estimate satisfies the requested accuracy or not --
    { ID id-AccuracyFulfilmentIndicator CRITICALITY ignore  EXTENSION AccuracyFulfilmentIndicator PRESENCE optional},
    ...
}

-- **************************************************************
--
-- INITIAL UE MESSAGE ELEMENTARY PROCEDURE
--
-- **************************************************************

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

```
-- Initial UE Message
--
-- **************************************************************

InitialUE-Message ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {InitialUE-MessageIEs} },
    protocolExtensions      ProtocolExtensionContainer { {InitialUE-MessageExtensions} }            OPTIONAL,
    ...
}

InitialUE-MessageIEs RANAP-PROTOCOL-IES ::= {
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator             PRESENCE mandatory } |
    { ID id-LAI                 CRITICALITY ignore  TYPE LAI                    PRESENCE mandatory   } |
    { ID id-RAC                 CRITICALITY ignore  TYPE RAC                    PRESENCE conditional
    -- This IE shall be present if the CN Domain Indicator IE is set to "PS domain"  --                                 } |
    { ID id-SAI                 CRITICALITY ignore  TYPE SAI                    PRESENCE mandatory   } |
    { ID id-NAS-PDU                 CRITICALITY ignore  TYPE NAS-PDU                    PRESENCE mandatory } |
    { ID id-IuSigConId              CRITICALITY ignore  TYPE IuSignallingConnectionIdentifier     PRESENCE mandatory   } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE mandatory   },

    ...
}

InitialUE-MessageExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-Classmark                 CRITICALITY ignore  EXTENSION GERAN-Classmark         PRESENCE optional } |
-- Extension for Release 6 to convey the selected PLMN id in shared networks --
    { ID id-SelectedPLMN-ID                 CRITICALITY ignore  EXTENSION PLMNidentity            PRESENCE optional    } |
-- Extension for Release 6 to enable rerouting in MOCN configuration for network sharing non-supporting UEs --
    { ID id-PermanentNAS-UE-ID              CRITICALITY ignore  EXTENSION PermanentNAS-UE-ID      PRESENCE optional } |
-- Extension for Release 6 to enable rerouting in MOCN configuration for network sharing non-supporting UEs --
    { ID id-NAS-SequenceNumber              CRITICALITY ignore  EXTENSION NAS-SequenceNumber      PRESENCE optional } ,
    ...
}

-- **************************************************************
--
-- DIRECT TRANSFER ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Direct Transfer
--
-- **************************************************************

DirectTransfer ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {DirectTransferIEs} },
    protocolExtensions      ProtocolExtensionContainer { {DirectTransferExtensions} }            OPTIONAL,
    ...
```

```
}

DirectTransferIEs RANAP-PROTOCOL-IES ::= {
    { ID id-NAS-PDU                CRITICALITY ignore  TYPE NAS-PDU                PRESENCE mandatory } |
    { ID id-LAI                CRITICALITY ignore  TYPE LAI                    PRESENCE optional } |
    { ID id-RAC                CRITICALITY ignore  TYPE RAC                    PRESENCE optional } |
    { ID id-SAI                CRITICALITY ignore  TYPE SAI                    PRESENCE optional } |
    { ID id-SAPI                   CRITICALITY ignore  TYPE SAPI                   PRESENCE optional   },
    ...
}

DirectTransferExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 6 to enable rerouting in MOCN configuration for network sharing non-supporting UEs --
    { ID id-RedirectionIndication          CRITICALITY ignore  EXTENSION RedirectionIndication           PRESENCE optional }|
-- Extension for Release 6 to indicate the MOCN rerouting is completed --
    { ID id-RedirectionCompleted           CRITICALITY ignore  EXTENSION RedirectionCompleted            PRESENCE optional },
    ...
}

RedirectionIndication ::= ProtocolIE-Container { {RedirectionIndication-IEs} }

RedirectionIndication-IEs RANAP-PROTOCOL-IES ::= {
    {   ID id-NAS-PDU              CRITICALITY ignore TYPE NAS-PDU             PRESENCE mandatory }|
    {   ID id-RejectCauseValue     CRITICALITY ignore TYPE RejectCauseValue    PRESENCE mandatory}|
    {   ID id-NAS-SequenceNumber   CRITICALITY ignore TYPE NAS-SequenceNumber  PRESENCE optional}|
    {   ID id-PermanentNAS-UE-ID   CRITICALITY ignore TYPE PermanentNAS-UE-ID  PRESENCE optional},
    ...
}

-- **************************************************************
--
-- OVERLOAD CONTROL ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Overload
--
-- **************************************************************

Overload ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {OverloadIEs} },
    protocolExtensions      ProtocolExtensionContainer { {OverloadExtensions} }                OPTIONAL,
    ...
}

OverloadIEs RANAP-PROTOCOL-IES ::= {
    { ID id-NumberOfSteps              CRITICALITY ignore  TYPE NumberOfSteps             PRESENCE optional } |
    { ID id-GlobalRNC-ID               CRITICALITY ignore  TYPE GlobalRNC-ID              PRESENCE optional },
    ...
```

```
}

OverloadExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable the indication to the RNC which CN domain is suffering the signalling traffic overload --
    { ID id-CN-DomainIndicator          CRITICALITY ignore  EXTENSION CN-DomainIndicator    PRESENCE optional } |
-- Extension for Release 5 to enable NNSF --
    { ID id-GlobalCN-ID                 CRITICALITY ignore  EXTENSION GlobalCN-ID          PRESENCE optional } ,
    ...
}

-- **************************************************************
--
-- ERROR INDICATION ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Error Indication
--
-- **************************************************************

ErrorIndication ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ErrorIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ErrorIndicationExtensions} }           OPTIONAL,
    ...
}

ErrorIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE optional   } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional } |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator             PRESENCE optional  } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE optional },
    ...
}

ErrorIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 --
    { ID id-GlobalCN-ID             CRITICALITY ignore      EXTENSION GlobalCN-ID               PRESENCE optional},
    ...
}

-- **************************************************************
--
-- SRNS DATA FORWARD ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- SRNS Data Forward Command
```

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

SRNS-DataForwardCommand ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {SRNS-DataForwardCommandIEs} },
    protocolExtensions      ProtocolExtensionContainer { {SRNS-DataForwardCommandExtensions} }      OPTIONAL,
    ...
}

SRNS-DataForwardCommandIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-DataForwardingList          CRITICALITY ignore  TYPE RAB-DataForwardingList      PRESENCE optional },
    ...
}

SRNS-DataForwardCommandExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- FORWARD SRNS CONTEXT ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Forward SRNS Context
--
-- **************************************************************

ForwardSRNS-Context ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ForwardSRNS-ContextIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ForwardSRNS-ContextExtensions} }          OPTIONAL,
    ...
}

ForwardSRNS-ContextIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextList             CRITICALITY ignore  TYPE RAB-ContextList               PRESENCE mandatory },
    ...
}

ForwardSRNS-ContextExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable relocation of Source RNC PDCP context info --
    { ID id-SourceRNC-PDCP-context-info     CRITICALITY ignore  EXTENSION RRC-Container PRESENCE optional},
    ...
}

-- **************************************************************
--
-- RAB ASSIGNMENT ELEMENTARY PROCEDURE
--
```

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

-- **************************************************************
--
-- RAB Assignment Request
--
-- **************************************************************

RAB-AssignmentRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RAB-AssignmentRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-AssignmentRequestExtensions} }        OPTIONAL,
    ...
}

RAB-AssignmentRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifyList           CRITICALITY ignore  TYPE RAB-SetupOrModifyList       PRESENCE optional } |
    { ID id-RAB-ReleaseList             CRITICALITY ignore  TYPE RAB-ReleaseList               PRESENCE optional  },
    ...
}

RAB-SetupOrModifyList                   ::= RAB-IE-ContainerPairList { {RAB-SetupOrModifyItem-IEs} }

RAB-SetupOrModifyItem-IEs RANAP-PROTOCOL-IES-PAIR ::= {
    { ID id-RAB-SetupOrModifyItem           FIRST CRITICALITY  reject   FIRST TYPE  RAB-SetupOrModifyItemFirst
                            SECOND CRITICALITY ignore   SECOND TYPE RAB-SetupOrModifyItemSecond
                                                            PRESENCE mandatory  },
    ...
}

RAB-SetupOrModifyItemFirst ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    nAS-SynchronisationIndicator    NAS-SynchronisationIndicator    OPTIONAL,
    rAB-Parameters                  RAB-Parameters      OPTIONAL,
    userPlaneInformation                UserPlaneInformation        OPTIONAL,
    transportLayerInformation               TransportLayerInformation      OPTIONAL,
    service-Handover                    Service-Handover            OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupOrModifyItemFirst-ExtIEs} }       OPTIONAL,
    ...
}

TransportLayerInformation ::= SEQUENCE {
    transportLayerAddress           TransportLayerAddress,
    iuTransportAssociation          IuTransportAssociation,
    iE-Extensions                   ProtocolExtensionContainer { {TransportLayerInformation-ExtIEs} }        OPTIONAL,
    ...
}

TransportLayerInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
RAB-SetupOrModifyItemFirst-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SetupOrModifyItemSecond ::= SEQUENCE {
    pDP-TypeInformation             PDP-TypeInformation             OPTIONAL,
    dataVolumeReportingIndication           DataVolumeReportingIndication   OPTIONAL,
    dl-GTP-PDU-SequenceNumber           DL-GTP-PDU-SequenceNumber   OPTIONAL,
    ul-GTP-PDU-SequenceNumber           UL-GTP-PDU-SequenceNumber   OPTIONAL,
    dl-N-PDU-SequenceNumber             DL-N-PDU-SequenceNumber     OPTIONAL,
    ul-N-PDU-SequenceNumber             UL-N-PDU-SequenceNumber     OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupOrModifyItemSecond-ExtIEs} }      OPTIONAL,
    ...
}

RAB-SetupOrModifyItemSecond-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable RAB Quality of Service negotiation over Iu --
    {   ID id-Alt-RAB-Parameters    CRITICALITY ignore      EXTENSION Alt-RAB-Parameters        PRESENCE optional  } |
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-BSC-Container                 CRITICALITY ignore  EXTENSION GERAN-BSC-Container       PRESENCE optional } ,
    ...
}

RAB-AssignmentRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- RAB Assignment Response
--
-- **************************************************************

RAB-AssignmentResponse ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {RAB-AssignmentResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-AssignmentResponseExtensions} }       OPTIONAL,
    ...
}

RAB-AssignmentResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedList         CRITICALITY ignore  TYPE RAB-SetupOrModifiedList        PRESENCE optional } |
    { ID id-RAB-ReleasedList            CRITICALITY ignore  TYPE RAB-ReleasedList               PRESENCE optional  } |

    { ID id-RAB-QueuedList              CRITICALITY ignore  TYPE RAB-QueuedList             PRESENCE optional } |
    { ID id-RAB-FailedList              CRITICALITY ignore  TYPE RAB-FailedList             PRESENCE optional } |
    { ID id-RAB-ReleaseFailedList           CRITICALITY ignore  TYPE RAB-ReleaseFailedList       PRESENCE optional } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional },
    ...
}

RAB-SetupOrModifiedList                 ::= RAB-IE-ContainerList { {RAB-SetupOrModifiedItemIEs} }
```

```
RAB-SetupOrModifiedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedItem         CRITICALITY ignore  TYPE RAB-SetupOrModifiedItem        PRESENCE mandatory   },
    ...
}

RAB-SetupOrModifiedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    transportLayerAddress               TransportLayerAddress   OPTIONAL,
    iuTransportAssociation              IuTransportAssociation  OPTIONAL,
    dl-dataVolumes                  DataVolumeList      OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupOrModifiedItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-SetupOrModifiedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable RAB Quality of Service negotiation over Iu --
    {   ID id-Ass-RAB-Parameters    CRITICALITY ignore      EXTENSION Ass-RAB-Parameters        PRESENCE optional  },
    ...
}

RAB-ReleasedList                    ::= RAB-IE-ContainerList { {RAB-ReleasedItemIEs} }

RAB-ReleasedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem            CRITICALITY ignore  TYPE RAB-ReleasedItem              PRESENCE mandatory },
    ...
}

RAB-ReleasedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    dl-dataVolumes                  DataVolumeList      OPTIONAL,
    dL-GTP-PDU-SequenceNumber       DL-GTP-PDU-SequenceNumber           OPTIONAL,
    uL-GTP-PDU-SequenceNumber       UL-GTP-PDU-SequenceNumber           OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-ReleasedItem-ExtIEs} }        OPTIONAL,
    ...
}

RAB-ReleasedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DataVolumeList ::= SEQUENCE (SIZE (1..maxNrOfVol)) OF
    SEQUENCE {
        dl-UnsuccessfullyTransmittedDataVolume      UnsuccessfullyTransmittedDataVolume,
        dataVolumeReference             DataVolumeReference OPTIONAL,
        iE-Extensions                   ProtocolExtensionContainer { {DataVolumeList-ExtIEs} }      OPTIONAL,
        ...
    }

DataVolumeList-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

RAB-QueuedList                      ::= RAB-IE-ContainerList { {RAB-QueuedItemIEs} }

RAB-QueuedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-QueuedItem              CRITICALITY ignore  TYPE RAB-QueuedItem             PRESENCE mandatory  },
    ...
}

RAB-QueuedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-QueuedItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-QueuedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleaseFailedList ::= RAB-FailedList

RAB-AssignmentResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable GERAN support over Iu-cs --
    { ID id-GERAN-Iumode-RAB-FailedList-RABAssgntResponse       CRITICALITY ignore  EXTENSION GERAN-Iumode-RAB-FailedList-RABAssgntResponse
    PRESENCE optional} ,
    ...
}

GERAN-Iumode-RAB-FailedList-RABAssgntResponse       ::= RAB-IE-ContainerList { {GERAN-Iumode-RAB-Failed-RABAssgntResponse-ItemIEs} }

GERAN-Iumode-RAB-Failed-RABAssgntResponse-ItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item      CRITICALITY ignore  TYPE GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item       PRESENCE
mandatory   },
    ...
}

GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    cause                       Cause,
    gERAN-Classmark             GERAN-Classmark     OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { {GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item-ExtIEs} }      OPTIONAL,
    ...
}

GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- PRIVATE MESSAGE
```

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

PrivateMessage ::= SEQUENCE {
    privateIEs      PrivateIE-Container  { {PrivateMessage-IEs } },
    ...
}

PrivateMessage-IEs RANAP-PRIVATE-IES ::= {
    ...
}

-- **************************************************************
--
-- RANAP RELOCATION INFORMATION ELEMENTARY PROCEDURE
--
-- **************************************************************

RANAP-RelocationInformation ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RANAP-RelocationInformationIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RANAP-RelocationInformationExtensions} }        OPTIONAL,
    ...
}

RANAP-RelocationInformationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-DirectTransferInformationList-RANAP-RelocInf
                            CRITICALITY ignore  TYPE DirectTransferInformationList-RANAP-RelocInf
                                                     PRESENCE optional   } |
    { ID id-RAB-ContextList-RANAP-RelocInf      CRITICALITY ignore  TYPE RAB-ContextList-RANAP-RelocInf    PRESENCE optional },
    ...
}

DirectTransferInformationList-RANAP-RelocInf        ::= DirectTransfer-IE-ContainerList { {DirectTransferInformationItemIEs-RANAP-RelocInf} }

DirectTransferInformationItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
    { ID id-DirectTransferInformationItem-RANAP-RelocInf
                            CRITICALITY ignore  TYPE DirectTransferInformationItem-RANAP-RelocInf
                                                     PRESENCE mandatory  },
    ...
}

DirectTransferInformationItem-RANAP-RelocInf ::= SEQUENCE {
    nAS-PDU                     NAS-PDU,
    sAPI                        SAPI,
    cN-DomainIndicator          CN-DomainIndicator,
    iE-Extensions                   ProtocolExtensionContainer { {RANAP-DirectTransferInformationItem-ExtIEs-RANAP-RelocInf} }       OPTIONAL,
    ...
}

RANAP-DirectTransferInformationItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

RAB-ContextList-RANAP-RelocInf             ::= RAB-IE-ContainerList { {RAB-ContextItemIEs-RANAP-RelocInf} }

RAB-ContextItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextItem-RANAP-RelocInf      CRITICALITY ignore  TYPE RAB-ContextItem-RANAP-RelocInf      PRESENCE mandatory   },
    ...
}

RAB-ContextItem-RANAP-RelocInf ::= SEQUENCE {
    rAB-ID              RAB-ID,
    dl-GTP-PDU-SequenceNumber           DL-GTP-PDU-SequenceNumber   OPTIONAL,
    ul-GTP-PDU-SequenceNumber           UL-GTP-PDU-SequenceNumber   OPTIONAL,
    dl-N-PDU-SequenceNumber             DL-N-PDU-SequenceNumber     OPTIONAL,
    ul-N-PDU-SequenceNumber             UL-N-PDU-SequenceNumber     OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs-RANAP-RelocInf} }      OPTIONAL,
    ...
}

RAB-ContextItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RANAP-RelocationInformationExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable relocation of Source RNC PDCP context info --
    { ID id-SourceRNC-PDCP-context-info     CRITICALITY ignore  EXTENSION RRC-Container PRESENCE optional},
    ...
}

-- **************************************************************
--
-- RAB MODIFICATION REQUEST ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- RAB Modify Request
--
-- **************************************************************

RAB-ModifyRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RAB-ModifyRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-ModifyRequestExtensions} }            OPTIONAL,
    ...
}

RAB-ModifyRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ModifyList          CRITICALITY ignore  TYPE RAB-ModifyList         PRESENCE mandatory},
    ...
}
```

```
RAB-ModifyList          ::= RAB-IE-ContainerList { {RAB-ModifyItemIEs} }

RAB-ModifyItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ModifyItem      CRITICALITY ignore  TYPE RAB-ModifyItem     PRESENCE mandatory  },
    ...
}

RAB-ModifyItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    requested-RAB-Parameter-Values  Requested-RAB-Parameter-Values,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-ModifyItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-ModifyItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ModifyRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- LOCATION RELATED DATA ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Location Related Data Request
--
-- **************************************************************

LocationRelatedDataRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {LocationRelatedDataRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {LocationRelatedDataRequestExtensions} }         OPTIONAL,
    ...
}

LocationRelatedDataRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-LocationRelatedDataRequestType      CRITICALITY reject  TYPE LocationRelatedDataRequestType    PRESENCE optional },
    -- This IE is mandatory for UTRAN, optional for GERAN Iu Mode --
    ...
}

LocationRelatedDataRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable LCS support for GERAN Iu mode --
    { ID id-LocationRelatedDataRequestTypeSpecificToGERANIuMode     CRITICALITY reject  EXTENSION LocationRelatedDataRequestTypeSpecificToGERANIuMode
    PRESENCE optional   },
```

```
    -- This extension is optional for GERAN Iu Mode only, not applicable for UTRAN --
    ...
}

-- **************************************************************
--
-- Location Related Data Response
--
-- **************************************************************

LocationRelatedDataResponse ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { LocationRelatedDataResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer { { LocationRelatedDataResponseExtensions} }          OPTIONAL,
    ...
}

LocationRelatedDataResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-BroadcastAssistanceDataDecipheringKeys      CRITICALITY ignore  TYPE BroadcastAssistanceDataDecipheringKeys     PRESENCE optional },
    ...
}

LocationRelatedDataResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for error handling
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  EXTENSION CriticalityDiagnostics       PRESENCE optional },
    ...
}

-- **************************************************************
--
-- Location Related Data Failure
--
-- **************************************************************

LocationRelatedDataFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { LocationRelatedDataFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { { LocationRelatedDataFailureExtensions} }           OPTIONAL,
    ...
}

LocationRelatedDataFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause               CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory   },
    ...
}

LocationRelatedDataFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for error handling
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  EXTENSION CriticalityDiagnostics     PRESENCE optional },
    ...
}

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

```
--
-- INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Information Transfer Indication
--
-- **************************************************************

InformationTransferIndication ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { InformationTransferIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer { { InformationTransferIndicationExtensions} }           OPTIONAL,
    ...
}

InformationTransferIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationTransferID       CRITICALITY reject  TYPE InformationTransferID      PRESENCE mandatory  } |
    { ID id-ProvidedData                CRITICALITY reject  TYPE ProvidedData               PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-GlobalCN-ID                 CRITICALITY ignore  TYPE GlobalCN-ID                PRESENCE optional},
    ...
}

InformationTransferIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Information Transfer Confirmation
--
-- **************************************************************

InformationTransferConfirmation ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { InformationTransferConfirmationIEs} },
    protocolExtensions      ProtocolExtensionContainer { { InformationTransferConfirmationExtensions} }         OPTIONAL,
    ...
}

InformationTransferConfirmationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationTransferID       CRITICALITY ignore  TYPE InformationTransferID      PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional   } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE mandatory  },
    ...
}

InformationTransferConfirmationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

-- **************************************************************
--
-- Information Transfer Failure
--
-- **************************************************************

InformationTransferFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { InformationTransferFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { { InformationTransferFailureExtensions} }           OPTIONAL,
    ...
}

InformationTransferFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationTransferID       CRITICALITY ignore  TYPE InformationTransferID      PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-Cause                       CRITICALITY ignore  TYPE Cause                      PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional   } |
    { ID id-GlobalRNC-ID                CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE mandatory  },
    ...
}

InformationTransferFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- UE SPECIFIC INFORMATION ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- UE Specific Information Indication
--
-- **************************************************************

UESpecificInformationIndication ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {UESpecificInformationIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer { {UESpecificInformationIndicationExtensions} }             OPTIONAL,
    ...
}

UESpecificInformationIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-UESBI-Iu                CRITICALITY ignore  TYPE UESBI-Iu               PRESENCE optional   },
    ...
}

UESpecificInformationIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
```

```
    ...
}

-- **************************************************************
--
-- DIRECT INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Direct Information Transfer
--
-- **************************************************************

DirectInformationTransfer ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { DirectInformationTransferIEs} },
    protocolExtensions      ProtocolExtensionContainer { { DirectInformationTransferExtensions} }         OPTIONAL,
    ...
}

DirectInformationTransferIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InterSystemInformationTransferType      CRITICALITY ignore  TYPE InterSystemInformationTransferType    PRESENCE optional }  |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator             PRESENCE mandatory } |
    { ID id-GlobalRNC-ID            CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE optional } |
    { ID id-GlobalCN-ID             CRITICALITY ignore  TYPE GlobalCN-ID                PRESENCE optional },
    ...
}

DirectInformationTransferExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- UPLINK INFORMATION EXCHANGE ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Uplink Information Exchange Request
--
-- **************************************************************

UplinkInformationExchangeRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { UplinkInformationExchangeRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { UplinkInformationExchangeRequestExtensions} }       OPTIONAL,
    ...
}
```

```
UplinkInformationExchangeRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationExchangeID       CRITICALITY reject  TYPE InformationExchangeID      PRESENCE mandatory  } |
    { ID id-InformationExchangeType     CRITICALITY reject  TYPE InformationExchangeType    PRESENCE mandatory  } |
    { ID id-InformationTransferType     CRITICALITY reject  TYPE InformationTransferType    PRESENCE conditional
    -- This IE shall be present if the Information Exchange Type IE is set to "transfer"  --                              } |
    { ID id-InformationRequestType      CRITICALITY reject  TYPE InformationRequestType PRESENCE conditional
    -- This IE shall be present if the Information Exchange Type IE is set to "request"  --                            } |
    { ID id-CN-DomainIndicator          CRITICALITY reject  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-GlobalRNC-ID                CRITICALITY reject  TYPE GlobalRNC-ID               PRESENCE mandatory  },
    ...
}

UplinkInformationExchangeRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Uplink Information Exchange Response
--
-- **************************************************************

UplinkInformationExchangeResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { UplinkInformationExchangeResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { UplinkInformationExchangeResponseExtensions} }   OPTIONAL,
    ...
}

UplinkInformationExchangeResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationExchangeID       CRITICALITY ignore  TYPE InformationExchangeID      PRESENCE mandatory  } |
    { ID id-InformationRequested        CRITICALITY ignore  TYPE InformationRequested       PRESENCE optional   } |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-GlobalCN-ID                 CRITICALITY ignore  TYPE GlobalCN-ID                PRESENCE optional   } |
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional   } ,
    ...
}

UplinkInformationExchangeResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- Uplink Information Exchange Failure
--
-- **************************************************************

UplinkInformationExchangeFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { { UplinkInformationExchangeFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { { UplinkInformationExchangeFailureExtensions} }          OPTIONAL,
    ...
```

```
}

UplinkInformationExchangeFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationExchangeID       CRITICALITY ignore  TYPE InformationExchangeID      PRESENCE mandatory  } |
    { ID id-CN-DomainIndicator          CRITICALITY ignore  TYPE CN-DomainIndicator         PRESENCE mandatory  } |
    { ID id-GlobalCN-ID                 CRITICALITY ignore  TYPE GlobalCN-ID                PRESENCE optional   } |
    { ID id-Cause                       CRITICALITY ignore  TYPE Cause                      PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional   } ,
    ...
}

UplinkInformationExchangeFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS SESSION START PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS Session Start
--
-- **************************************************************

MBMSSessionStart ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionStartIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionStartExtensions} }        OPTIONAL,
    ...
}

MBMSSessionStartIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TMGI                        CRITICALITY reject  TYPE TMGI                               PRESENCE mandatory   } |
    { ID id-MBMSSessionIdentityfier     CRITICALITY ignorereject    TYPE MBMSSessionIdentityfier            PRESENCE mandatoryoptional } |
    { ID id-MBMSBearerServiceType       CRITICALITY reject  TYPE MBMSBearerServiceType              PRESENCE mandatory   } |
    { ID id-IuSigConId                  CRITICALITY reject  TYPE IuSignallingConnectionIdentifier   PRESENCE mandatory   }|
    { ID id-RAB-Parameters              CRITICALITY reject  TYPE RAB-Parameters                     PRESENCE mandatory   } |
    { ID id-PDP-TypeInformation         CRITICALITY ignore  TYPE PDP-TypeInformation                PRESENCE optional    } |
    { ID id-MBMSSessionDuration         CRITICALITY ignore  TYPE MBMSSessionDuration                PRESENCE optional    } |
    { ID id-MBMSServiceArea             CRITICALITY reject  TYPE MBMSServiceArea                    PRESENCE mandatory   } |
    { ID id-FrequenceLayerConvergenceFlag   CRITICALITY ignore  TYPE FrequenceLayerConvergenceFlag  PRESENCE optional    } |
    { ID id-RAListofIdleModeUEs         CRITICALITY ignore  TYPE RAListofIdleModeUEs                PRESENCE optional    } |
    { ID id-GlobalCN-ID                 CRITICALITY reject  TYPE GlobalCN-ID                        PRESENCE optional    } |
    { ID id-MBMSSessionRepetitionNumber CRITICALITY ignorereject    TYPE MBMSSessionRepetitionNumber       PRESENCE optionalmandatory },
    ...
}

MBMSSessionStartExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

-- **************************************************************
--
-- MBMS Session Start Response
--
-- **************************************************************

MBMSSessionStartResponse::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { {MBMSSessionStartResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { {MBMSSessionStartResponseExtensions} }    OPTIONAL,
    ...
}

MBMSSessionStartResponse IEs RANAP-PROTOCOL-IES ::= {
    { ID id-TransportLayerInformation       CRITICALITY ignore  TYPE TransportLayerInformation    PRESENCE optional    } |
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                        PRESENCE optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional    } ,
    ...
}

MBMSSessionStartResponse Extensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Session Start Failure
--
-- **************************************************************

MBMSSessionStartFailure ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionStartFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionStartFailureExtensions} }    OPTIONAL,
    ...
}

MBMSSessionStartFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                        PRESENCE mandatory   } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional    } ,
    ...
}

MBMSSessionStartFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS SESSION UPDATE PROCEDURE
--
```

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

-- **************************************************************
--
-- MBMS Session Update
--
-- **************************************************************

MBMSSessionUpdate ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionUpdateIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionUpdateExtensions} }       OPTIONAL,
    ...
}

MBMSSessionUpdateIEs RANAP-PROTOCOL-IES ::= {
    { ID id-SessionUpdateID             CRITICALITY reject  TYPE SessionUpdateID                    PRESENCE mandatory   } |
    { ID id-DeltaRAListofIdleModeUEs    CRITICALITY reject  TYPE DeltaRAListofIdleModeUEs           PRESENCE mandatory   },
    ...
}

MBMSSessionUpdateExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Session Update Response
--
-- **************************************************************

MBMSSessionUpdateResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionUpdateResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionUpdateResponseExtensions} }     OPTIONAL,
    ...
}

MBMSSessionUpdateResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-SessionUpdateID                 CRITICALITY ignore  TYPE SessionUpdateID             PRESENCE mandatory   } |
    { ID id-TransportLayerInformation       CRITICALITY ignore  TYPE TransportLayerInformation   PRESENCE optional    } |
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                       PRESENCE optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional    } ,
    ...
}

MBMSSessionUpdateResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Session Update Failure
```

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

MBMSSessionUpdateFailure ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionUpdateFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionUpdateFailureExtensions} }    OPTIONAL,
    ...
}

MBMSSessionUpdateFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-SessionUpdateID                 CRITICALITY ignore  TYPE SessionUpdateID             PRESENCE mandatory   } |
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                       PRESENCE mandatory   } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional    } ,
    ...
}

MBMSSessionUpdateFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS SESSION STOP PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS Session Stop
--
-- **************************************************************

MBMSSessionStop ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionStopIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionStopExtensions} }         OPTIONAL,
    ...
}

MBMSSessionStopIEs RANAP-PROTOCOL-IES ::= {
    { ID id-MBMSCNDe-Registration   CRITICALITY reject  TYPE MBMSCNDe-Registration              PRESENCE mandatory },
    ...
}

MBMSSessionStopExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Session Stop Response
--
```

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

MBMSSessionStopResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSSessionStopResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSSessionStopResponseExtensions} }    OPTIONAL,
    ...
}

MBMSSessionStopResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                      PRESENCE optional   } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional   } ,
    ...
}

MBMSSessionStopResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS UE LINKING PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS UE Linking Request
--
-- **************************************************************

MBMSUELinkingRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSUELinkingRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSUELinkingRequestExtensions} }       OPTIONAL,
    ...
}

MBMSUELinkingRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-JoinedMBMSBearerServicesList    CRITICALITY reject  TYPE JoinedMBMSBearerService-IEs    PRESENCE optional } |
    { ID id-LeftMBMSBearerServicesList      CRITICALITY reject  TYPE LeftMBMSBearerService-IEs      PRESENCE optional },
    ...
}

LeftMBMSBearerService-IEs ::= SEQUENCE (SIZE (1.. maxnoofMulticastServicesPerUE)) OF
    SEQUENCE {
        tMGI                TMGI,
        iE-Extensions       ProtocolExtensionContainer { {LeftMBMSBearerService-ExtIEs} } OPTIONAL,
        ...
    }

LeftMBMSBearerService-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

MBMSUELinkingRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS UE Linking Response
--
-- **************************************************************

MBMSUELinkingResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSUELinkingResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSUELinkingResponseExtensions} }    OPTIONAL,
    ...
}

MBMSUELinkingResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-UnsuccessfulLinkingList         CRITICALITY ignore  TYPE UnsuccessfulLinking-IEs      PRESENCE optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics       PRESENCE optional    } ,
    ...
}

UnsuccessfulLinking-IEs ::= SEQUENCE (SIZE (1.. maxnoofMulticastServicesPerUE)) OF
    SEQUENCE {
        tMGI                TMGI,
        cause               Cause,
        iE-Extensions       ProtocolExtensionContainer { {UnsuccessfulLinking-ExtIEs} } OPTIONAL,
        ...
    }

UnsuccessfulLinking-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMSUELinkingResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS REGISTRATION PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS Registration Request
--
-- **************************************************************
```

```
MBMSRegistrationRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSRegistrationRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSRegistrationRequestExtensions} }       OPTIONAL,
    ...
}

MBMSRegistrationRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-MBMSRegistrationRequestType     CRITICALITY reject  TYPE MBMSRegistrationRequestType          PRESENCE mandatory   } |
    { ID id-TMGI                        CRITICALITY reject  TYPE TMGI                                  PRESENCE mandatory   } |
    { ID id-IPMulticastAddress          CRITICALITY reject  TYPE IPMulticastAddress                    PRESENCE conditional
    -- This IE shall be present if the MBMS Registration Request Type IE is set to "register"  --                              } |
    { ID id-APN                         CRITICALITY reject  TYPE APN                                   PRESENCE conditional
    -- This IE shall be present if the MBMS Registration Request Type IE is set to "register"  --                              } |
    { ID id-GlobalRNC-ID                CRITICALITY reject  TYPE GlobalRNC-ID                          PRESENCE optional    },
    ...
}

MBMSRegistrationRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Registration Response
--
-- **************************************************************

MBMSRegistrationResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSRegistrationResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSRegistrationResponseExtensions} }    OPTIONAL,
    ...
}

MBMSRegistrationResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TMGI                            CRITICALITY ignore  TYPE TMGI                          PRESENCE optional    } |
    { ID id-GlobalCN-ID                     CRITICALITY ignore  TYPE GlobalCN-ID                   PRESENCE optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics        PRESENCE optional    } ,
    ...
}

MBMSRegistrationResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS Registration Failure
--
-- **************************************************************
```

```
MBMSRegistrationFailure ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSRegistrationFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSRegistrationFailureExtensions} }    OPTIONAL,
    ...
}

MBMSRegistrationFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TMGI                          CRITICALITY ignore  TYPE TMGI                       PRESENCE optional    } |
    { ID id-GlobalCN-ID                   CRITICALITY ignore  TYPE GlobalCN-ID                PRESENCE optional    } |
    { ID id-Cause                         CRITICALITY ignore  TYPE Cause                      PRESENCE mandatory   } |
    { ID id-CriticalityDiagnostics        CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional    } ,
    ...
}

MBMSRegistrationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS CN DE-REGISTRATION PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS CN De-Registration Request
--
-- **************************************************************

MBMSCNDe-RegistrationRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSCNDe-RegistrationRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSCNDe-RegistrationRequestExtensions} }        OPTIONAL,
    ...
}

MBMSCNDe-RegistrationRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TMGI                        CRITICALITY reject  TYPE TMGI                           PRESENCE mandatory   } |
    { ID id-GlobalCN-ID                 CRITICALITY reject  TYPE GlobalCN-ID                    PRESENCE optional    },
    ...
}

MBMSCNDe-RegistrationRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS CN De-Registration Response
--
-- **************************************************************
```

```
MBMSCNDe-RegistrationResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSCNDe-RegistrationResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSCNDe-RegistrationResponseExtensions} }     OPTIONAL,
    ...
}

MBMSCNDe-RegistrationResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TMGI                            CRITICALITY ignore  TYPE TMGI                       PRESENCE mandatory   } |
    { ID id-GlobalRNC-ID                    CRITICALITY ignore  TYPE GlobalRNC-ID               PRESENCE mandatory   } |
    { ID id-Cause                           CRITICALITY ignore  TYPE Cause                      PRESENCE optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional    } ,
    ...
}

MBMSCNDe-RegistrationResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS RAB ESTABLISHMENT INDICATION PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS RAB Establishment Indication
--
-- **************************************************************

MBMSRABEstablishmentIndication ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSRABEstablishmentIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer  { { MBMSRABEstablishmentIndicationExtensions} }      OPTIONAL,
    ...
}

MBMSRABEstablishmentIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TransportLayerInformation       CRITICALITY ignore  TYPE TransportLayerInformation    PRESENCE mandatory   } ,
    ...
}

MBMSRABEstablishmentIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}


END
```

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSRBs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination,
    maxNrOfLevels,
    maxNrOfAltValues,
    maxNrOfSNAs,
    maxNrOfLAs,
    maxNrOfPLMNsSN,
    maxSet,
    maxNrOfUEsToBeTraced,
    maxNrOfInterfaces,
    maxnoofMulticastServicesPerRNC,
    maxMBMSSA,
    maxMBMSRA,
    maxnoofMulticastServicesPerUE,

    id-CN-DomainIndicator,
    id-MessageStructure,
    id-SRB-TrCH-Mapping,
    id-TypeOfError,

    id-hS-DSCH-MAC-d-Flow-ID,
    id-SignallingIndication,
    id-CellLoadInformationGroup,
    id-TraceRecordingSessionInformation,
    id-MBMSLinkingInformation
FROM RANAP-Constants
```

```
    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;

-- A

AccuracyFulfilmentIndicator ::= ENUMERATED{
    requested-Accuracy-Fulfilled,
    requested-Accuracy-Not-Fulfilled,
    ...
}

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel           PriorityLevel,
    pre-emptionCapability       Pre-emptionCapability,
    pre-emptionVulnerability    Pre-emptionVulnerability,
    queuingAllowed          QueuingAllowed,
    iE-Extensions           ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

AllocationOrRetentionPriority-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

Alt-RAB-Parameters ::= SEQUENCE {
    altMaxBitrateInf            Alt-RAB-Parameter-MaxBitrateInf                         OPTIONAL,
    altGuaranteedBitRateInf     Alt-RAB-Parameter-GuaranteedBitrateInf                  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {Alt-RAB-Parameters-ExtIEs} }  OPTIONAL,
    ...
}

Alt-RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

Alt-RAB-Parameter-GuaranteedBitrateInf ::= SEQUENCE {
    altGuaranteedBitrateType            Alt-RAB-Parameter-GuaranteedBitrateType,
    altGuaranteedBitrates               Alt-RAB-Parameter-GuaranteedBitrates           OPTIONAL
    -- This IE shall be present if  the Type of Guaranteed Bit Rates Information IE is set to "Value range" or "Discrete values" --,
    ...
}

Alt-RAB-Parameter-GuaranteedBitrateType ::= ENUMERATED{
    unspecified,
```

```
    value-range,
    discrete-values,
    ...
}

Alt-RAB-Parameter-GuaranteedBitrates ::= SEQUENCE (SIZE (1..maxNrOfAltValues)) OF
    Alt-RAB-Parameter-GuaranteedBitrateList


Alt-RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate


Alt-RAB-Parameter-MaxBitrateInf ::= SEQUENCE {
    altMaxBitrateType           Alt-RAB-Parameter-MaxBitrateType,
    altMaxBitrates              Alt-RAB-Parameter-MaxBitrates          OPTIONAL
    -- This IE shall be present if  the Type of Alternative Maximun Bit Rates Information IE is set to "Value range" or "Discrete values" --,
    ...
}

Alt-RAB-Parameter-MaxBitrateType ::= ENUMERATED{
    unspecified,
    value-range,
    discrete-values,
    ...
}

Alt-RAB-Parameter-MaxBitrates ::= SEQUENCE (SIZE (1..maxNrOfAltValues)) OF
    Alt-RAB-Parameter-MaxBitrateList


Alt-RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

APN ::= OCTET STRING
-- Reference: 23.003

AreaIdentity ::= CHOICE {
    sAI             SAI,
    geographicalArea        GeographicalArea,
    ...
}

Ass-RAB-Parameters ::= SEQUENCE {
    assMaxBitrateInf            Ass-RAB-Parameter-MaxBitrateList                        OPTIONAL,
    assGuaranteedBitRateInf     Ass-RAB-Parameter-GuaranteedBitrateList                 OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {Ass-RAB-Parameters-ExtIEs} }  OPTIONAL,
    ...
}

Ass-RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Ass-RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate


Ass-RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

AuthorisedPLMNs ::= SEQUENCE (SIZE (1..maxNrOfPLMNsSN)) OF
    SEQUENCE {
        pLMNidentity            PLMNidentity,
        authorisedSNAsList      AuthorisedSNAs      OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {AuthorisedPLMNs-ExtIEs} } OPTIONAL,
        ...
    }

AuthorisedPLMNs-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

AuthorisedSNAs  ::= SEQUENCE (SIZE (1..maxNrOfSNAs)) OF  SNAC


-- B

BindingID               ::= OCTET STRING (SIZE (4))

BroadcastAssistanceDataDecipheringKeys  ::= SEQUENCE {
    cipheringKeyFlag        BIT STRING (SIZE (1)),
    currentDecipheringKey   BIT STRING (SIZE (56)),
    nextDecipheringKey      BIT STRING (SIZE (56)),
    ...
}

-- C


Cause ::= CHOICE {
    radioNetwork            CauseRadioNetwork,
    transmissionNetwork     CauseTransmissionNetwork,
    nAS             CauseNAS,
    protocol            CauseProtocol,
    misc                CauseMisc,
    non-Standard            CauseNon-Standard,
    ...,
    radioNetworkExtension   CauseRadioNetworkExtension
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
```

```
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)

} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    conflict-with-already-existing-integrity-protection-and-or-ciphering-information (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
```

```
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bit-rate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-request-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40),
    resource-optimisation-relocation (41),
    requested-information-not-available (42),
    relocation-desirable-for-radio-reasons (43),
    relocation-not-supported-in-target-RNC-or-target-system (44),
    directed-retry (45),
    radio-connection-with-UE-Lost (46),
    rNC-unable-to-establish-all-RFCs  (47),
    deciphering-keys-not-available(48),
    dedicated-assistance-data-not-available(49),
    relocation-target-not-allowed (50),
    location-reporting-congestion (51),
    reduce-load-in-serving-cell (52),
    no-radio-resources-available-in-target-cell (53),
    gERAN-Iumode-failure (54),
    access-restricted-due-to-shared-networks (55),
    incoming-relocation-not-supported-due-to-PUESBINE-feature (56),
    traffic-load-in-the-target-cell-higher-than-in-the-source-cell (57),
    mBMS-no-multicast-service-for-this-UE(58),
    mBMS-unknown-UE-ID(59),
    successful-MBMS-session-start-no-data-bearer-necessary(60),
    mBMS-superseded-due-to-NNSF(61),
    mBMS-UE-linking-already-done(62),
    mBMS-UE-de-linking-failure-no-existing-UE-linking(63),
    tMGI-unknown(64)
} (1..64)

CauseRadioNetworkExtension ::= INTEGER {
    iP-multicast-address-and-APN-not-valid(257),
    mBMS-de-registration-rejected-due-to-implicit-registration(258),
    mBMS-request-superseded(259),
    mBMS-de-registration-during-session-not-allowed(260)
} (257..512)

CauseNon-Standard ::= INTEGER (129..256)
-- Cause value 256 shall not be used --

CauseTransmissionNetwork ::= INTEGER {
    signalling-transport-resource-failure (65),
    iu-transport-connection-failed-to-establish (66)
} (65..80)

Cell-Capacity-Class-Value ::= INTEGER (1..100,...)
```

```
CellLoadInformation ::= SEQUENCE {
    cell-Capacity-Class-Value   Cell-Capacity-Class-Value,
    loadValue                   LoadValue,
    rTLoadValue                 RTLoadValue                     OPTIONAL,
    nRTLoadInformationValue     NRTLoadInformationValue         OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { CellLoadInformation-ExtIEs } }    OPTIONAL,
    ...
}

CellLoadInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CellLoadInformationGroup ::= SEQUENCE {
    sourceCellID                    SourceCellID,
    uplinkCellLoadInformation       CellLoadInformation     OPTIONAL,
    downlinkCellLoadInformation     CellLoadInformation     OPTIONAL,
    iE-Extensions   ProtocolExtensionContainer { { CellLoadInformationGroup-ExtIEs } }  OPTIONAL,
    ...
}

CellLoadInformationGroup-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ClientType ::= ENUMERATED {
    emergency-Services,
    value-Added-Services,
    pLMN-Operator-Services,
    lawful-Intercept-Services,
    pLMN-Operator-Broadcast-Services,
    pLMN-Operator-O-et-M,
    pLMN-Operator-Anonymous-Statistics,
    pLMN-Operator-Target-MS-Service-Support,
    ...
}

CriticalityDiagnostics ::= SEQUENCE {
    procedureCode           ProcedureCode           OPTIONAL,
    triggeringMessage       TriggeringMessage       OPTIONAL,
    procedureCriticality        Criticality         OPTIONAL,
    iEsCriticalityDiagnostics       CriticalityDiagnostics-IE-List  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-ExtIEs} } OPTIONAL,
    ...
}

CriticalityDiagnostics-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1..maxNrOfErrors)) OF
    SEQUENCE {
        iECriticality       Criticality,
        iE-ID               ProtocolIE-ID,
        repetitionNumber        RepetitionNumber0       OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-IE-List-ExtIEs} } OPTIONAL,
        ...
    }

CriticalityDiagnostics-IE-List-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable reporting the message structure down to the erroneous IE --
    {   ID id-MessageStructure  CRITICALITY ignore      EXTENSION MessageStructure  PRESENCE optional   } |
-- Extension for Release 99 to enable reporting if a reported error is due to a not understood or a missing IE --
    {   ID id-TypeOfError       CRITICALITY ignore      EXTENSION TypeOfError       PRESENCE mandatory  },
    ...
}

MessageStructure ::= SEQUENCE (SIZE (1..maxNrOfLevels)) OF
    SEQUENCE {
        iE-ID                   ProtocolIE-ID,
        repetitionNumber        RepetitionNumber1       OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {MessageStructure-ExtIEs} } OPTIONAL,
        ...
    }


MessageStructure-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CGI ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    lAC             LAC,
    cI              CI,
    iE-Extensions           ProtocolExtensionContainer { {CGI-ExtIEs} } OPTIONAL
}

CGI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ChosenEncryptionAlgorithm       ::= EncryptionAlgorithm

ChosenIntegrityProtectionAlgorithm  ::= IntegrityProtectionAlgorithm

CI                  ::= OCTET STRING (SIZE (2))

ClassmarkInformation2           ::= OCTET STRING

ClassmarkInformation3           ::= OCTET STRING
```

```
CN-DomainIndicator ::= ENUMERATED {
    cs-domain,
    ps-domain
}

CN-ID               ::= INTEGER (0..4095)


-- D

DataVolumeReference         ::= INTEGER (0..255)

DataVolumeReportingIndication ::= ENUMERATED {
    do-report,
    do-not-report
}

DCH-ID ::= INTEGER (0..255)

DeliveryOfErroneousSDU ::= ENUMERATED {
    yes,
    no,
    no-error-detection-consideration
}

DeliveryOrder::= ENUMERATED {
    delivery-order-requested,
    delivery-order-not-requested
}

DeltaRAListofIdleModeUEs ::= SEQUENCE {
    newRAListofIdleModeUEs                  NewRAListofIdleModeUEs  OPTIONAL,
    rAListwithNoIdleModeUEsAnyMore          RAListwithNoIdleModeUEsAnyMore  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {DeltaRAListofIdleModeUEs-ExtIEs} } OPTIONAL
}

NewRAListofIdleModeUEs ::= SEQUENCE (SIZE (1..maxMBMSRA)) OF
    RAC

RAListwithNoIdleModeUEsAnyMore ::= SEQUENCE (SIZE (1..maxMBMSRA)) OF
    RAC

DeltaRAListofIdleModeUEs-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DL-GTP-PDU-SequenceNumber       ::= INTEGER (0..65535)

DL-N-PDU-SequenceNumber         ::= INTEGER (0..65535)

D-RNTI                  ::= INTEGER (0..1048575)
```

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

DSCH-ID ::= INTEGER (0..255)

-- E

EncryptionAlgorithm             ::= INTEGER { no-encryption (0), standard-UMTS-encryption-algorith-UEA1 (1) } (0..15)

EncryptionInformation ::= SEQUENCE {
    permittedAlgorithms     PermittedEncryptionAlgorithms,
    key             EncryptionKey,
    iE-Extensions           ProtocolExtensionContainer { {EncryptionInformation-ExtIEs} } OPTIONAL
}

EncryptionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

EncryptionKey               ::= BIT STRING (SIZE (128))
-- Reference: 33.102

EquipmentsToBeTraced ::= CHOICE {
    iMEIlist                IMEIList,
    iMEISVlist              IMEISVList,
    iMEIgroup               IMEIGroup,
    iMEISVgroup             IMEISVGroup,
    ...
}

Event ::= ENUMERATED {
    stop-change-of-service-area,
    direct,
    change-of-servicearea,
    ...,
    stop-direct
}

-- F

FrequenceLayerConvergenceFlag ::= ENUMERATED {
    no-FLC-flag,
    ...
}

-- G

GeographicalArea ::= CHOICE {
    point               GA-Point,
    pointWithUnCertainty        GA-PointWithUnCertainty,
    polygon             GA-Polygon,
```

```
    ...,
    pointWithUncertaintyEllipse     GA-PointWithUnCertaintyEllipse,
    pointWithAltitude       GA-PointWithAltitude,
    pointWithAltitudeAndUncertaintyEllipsoid        GA-PointWithAltitudeAndUncertaintyEllipsoid,
    ellipsoidArc        GA-EllipsoidArc
}

GeographicalCoordinates ::= SEQUENCE {
    latitudeSign            ENUMERATED { north, south },
    latitude            INTEGER (0..8388607),
    longitude           INTEGER (-8388608..8388607),
    iE-Extensions           ProtocolExtensionContainer { {GeographicalCoordinates-ExtIEs} } OPTIONAL,
    ...
}

GeographicalCoordinates-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-AltitudeAndDirection ::= SEQUENCE {
    directionOfAltitude     ENUMERATED {height, depth},
    altitude        INTEGER (0..32767),
    ...
}

GA-EllipsoidArc ::= SEQUENCE {
    geographicalCoordinates     GeographicalCoordinates,
    innerRadius                 INTEGER (0..65535),
    uncertaintyRadius           INTEGER (0..127),
    offsetAngle                 INTEGER (0..179),
    includedAngle               INTEGER (0..179),
    confidence                  INTEGER (0..127),
    iE-Extensions               ProtocolExtensionContainer { { GA-EllipsoidArc-ExtIEs} } OPTIONAL,
    ...
}

GA-EllipsoidArc-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-Point ::= SEQUENCE {
    geographicalCoordinates     GeographicalCoordinates,
    iE-Extensions           ProtocolExtensionContainer { {GA-Point-ExtIEs} } OPTIONAL,
    ...
}

GA-Point-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithAltitude ::= SEQUENCE {
```

```
    geographicalCoordinates     GeographicalCoordinates,
    altitudeAndDirection        GA-AltitudeAndDirection,
    iE-Extensions               ProtocolExtensionContainer { { GA-PointWithAltitude-ExtIEs} } OPTIONAL,
    ...
}

GA-PointWithAltitude-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithAltitudeAndUncertaintyEllipsoid ::= SEQUENCE {
    geographicalCoordinates     GeographicalCoordinates,
    altitudeAndDirection        GA-AltitudeAndDirection,
    uncertaintyEllipse          GA-UncertaintyEllipse,
    uncertaintyAltitude         INTEGER (0..127),
    confidence                  INTEGER (0..127),
    iE-Extensions               ProtocolExtensionContainer { { GA-PointWithAltitudeAndUncertaintyEllipsoid-ExtIEs} } OPTIONAL,
    ...
}

GA-PointWithAltitudeAndUncertaintyEllipsoid-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithUnCertainty ::=SEQUENCE {
    geographicalCoordinates     GeographicalCoordinates,
    iE-Extensions           ProtocolExtensionContainer { {GA-PointWithUnCertainty-ExtIEs} } OPTIONAL,
    uncertaintyCode         INTEGER (0..127)
}

GA-PointWithUnCertainty-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithUnCertaintyEllipse ::= SEQUENCE {
    geographicalCoordinates     GeographicalCoordinates,
    uncertaintyEllipse          GA-UncertaintyEllipse,
    confidence                  INTEGER (0..127),
    iE-Extensions               ProtocolExtensionContainer { { GA-PointWithUnCertaintyEllipse-ExtIEs} } OPTIONAL,
    ...
}

GA-PointWithUnCertaintyEllipse-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-Polygon ::= SEQUENCE (SIZE (1..maxNrOfPoints)) OF
    SEQUENCE {
        geographicalCoordinates     GeographicalCoordinates,
        iE-Extensions           ProtocolExtensionContainer { {GA-Polygon-ExtIEs} } OPTIONAL,
        ...
```

```
    }

GA-Polygon-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-UncertaintyEllipse ::= SEQUENCE {
    uncertaintySemi-major       INTEGER (0..127),
    uncertaintySemi-minor       INTEGER (0..127),
    orientationOfMajorAxis      INTEGER (0..179),   -- The values 90..179 shall not be used.
    ...
}

GERAN-BSC-Container             ::= OCTET STRING
        -- GERAN BSC Container as defined in [11] --


GERAN-Cell-ID ::= SEQUENCE {
    lAI             LAI,
    rAC             RAC,
    cI              CI,
    iE-Extensions           ProtocolExtensionContainer { {GERAN-Cell-ID-ExtIEs} } OPTIONAL
}

GERAN-Cell-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GERAN-Classmark                 ::= OCTET STRING
        -- GERAN Classmark as defined in [11] --

GlobalCN-ID ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    cN-ID               CN-ID
}


GlobalRNC-ID ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    rNC-ID              RNC-ID
}

GTP-TEI                 ::= OCTET STRING (SIZE (4))

GuaranteedBitrate           ::= INTEGER (0..16000000)
-- Unit is bits per sec

-- H

HS-DSCH-MAC-d-Flow-ID       ::= INTEGER (0..7)
```

```
-- I


IMEI                    ::= OCTET STRING (SIZE (8))
-- Reference: 23.003

IMEIGroup   ::= SEQUENCE {
    iMEI                IMEI,
    iMEIMask            BIT STRING (SIZE (7)),
    iE-Extensions       ProtocolExtensionContainer { { IMEIGroup-ExtIEs} } OPTIONAL
}

IMEIGroup-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

IMEIList    ::= SEQUENCE (SIZE (1..maxNrOfUEsToBeTraced)) OF IMEI

IMEISV                  ::= OCTET STRING (SIZE (8))
-- Reference: 23.003

IMEISVGroup ::= SEQUENCE {
    iMEISV              IMEISV,
    iMEISVMask          BIT STRING (SIZE (7)),
    iE-Extensions       ProtocolExtensionContainer { { IMEISVGroup-ExtIEs} } OPTIONAL
}

IMEISVGroup-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

IMEISVList  ::= SEQUENCE (SIZE (1..maxNrOfUEsToBeTraced)) OF IMEISV

IMSI                    ::= TBCD-STRING (SIZE (3..8))
-- Reference: 23.003

InformationExchangeID ::= INTEGER (0.. 1048575)

InformationExchangeType ::= ENUMERATED {
    transfer,
    request,
    ...
}

InformationRequested ::= CHOICE {
    requestedMBMSIPMulticastAddressandAPNRequest        RequestedMBMSIPMulticastAddressandAPNRequest,
    requestedMulticastServiceList                       RequestedMulticastServiceList,
    ...
}
```

```
InformationRequestType ::= CHOICE {
    mBMSIPMulticastAddressandAPNRequest     MBMSIPMulticastAddressandAPNRequest,
    permanentNAS-UE-ID                      PermanentNAS-UE-ID,
    ...
}

InformationTransferID  ::= INTEGER (0.. 1048575)

InformationTransferType ::= CHOICE {
    rNCTraceInformation         RNCTraceInformation,
    ...
}

IntegrityProtectionAlgorithm        ::= INTEGER {
    standard-UMTS-integrity-algorithm-UIA1 (0),
    no-value (15)
} (0..15)

IntegrityProtectionInformation ::= SEQUENCE {
    permittedAlgorithms     PermittedIntegrityProtectionAlgorithms,
    key             IntegrityProtectionKey,
    iE-Extensions           ProtocolExtensionContainer { {IntegrityProtectionInformation-ExtIEs} } OPTIONAL
}

IntegrityProtectionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

IntegrityProtectionKey          ::= BIT STRING (SIZE (128))

InterSystemInformationTransferType ::= CHOICE {
    rIM-Transfer                    RIM-Transfer,
    ...
}

InterSystemInformation-TransparentContainer ::= SEQUENCE {
    downlinkCellLoadInformation         CellLoadInformation     OPTIONAL,
    uplinkCellLoadInformation           CellLoadInformation     OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { InterSystemInformation-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

InterSystemInformation-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
...
}

IPMulticastAddress ::= BIT STRING
-- Reference: 23.003

IuSignallingConnectionIdentifier    ::= BIT STRING (SIZE (24))
```

```
IuTransportAssociation ::= CHOICE {
    gTP-TEI             GTP-TEI,
    bindingID           BindingID,
    ...
}

-- J
-- K

KeyStatus   ::= ENUMERATED {
    old,
    new,
    ...
}
-- L

LA-LIST  ::= SEQUENCE (SIZE (1..maxNrOfLAs)) OF
    SEQUENCE {
        lAC                     LAC,
        listOF-SNAs             ListOF-SNAs,
        iE-Extensions           ProtocolExtensionContainer { { LA-LIST-ExtIEs} } OPTIONAL,
        ...
    }

LA-LIST-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

LAC                 ::= OCTET STRING (SIZE (2))

LAI ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    lAC             LAC,
    iE-Extensions           ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL
}

LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

LastKnownServiceArea    ::= SEQUENCE {
    sAI         SAI,
    ageOfSAI    INTEGER (0..32767),
    iE-Extensions   ProtocolExtensionContainer { {LastKnownServiceArea-ExtIEs} } OPTIONAL,
    ...
}

LastKnownServiceArea-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
ListOF-SNAs ::= SEQUENCE (SIZE (1..maxNrOfSNAs)) OF SNAC
```

```
ListOfInterfacesToTrace ::= SEQUENCE (SIZE (1..maxNrOfInterfaces)) OF InterfacesToTraceItem

InterfacesToTraceItem ::= SEQUENCE {
    interface               ENUMERATED {iu-cs, iu-ps, iur, iub, uu, ...},
    iE-Extensions           ProtocolExtensionContainer { {InterfacesToTraceItem-ExtIEs} }   OPTIONAL,
    ...
}

InterfacesToTraceItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

LoadValue   ::= INTEGER (0..100)

LocationRelatedDataRequestType  ::= SEQUENCE {
    requestedLocationRelatedDataType            RequestedLocationRelatedDataType,
    requestedGPSAssistanceData                  RequestedGPSAssistanceData  OPTIONAL,
    -- This IE shall be present if the Requested Location Related Data Type IE is set to 'Dedicated Assistance Data for Assisted GPS' --
    ...
}

LocationRelatedDataRequestTypeSpecificToGERANIuMode ::= ENUMERATED {
    decipheringKeysEOTD,
    dedicatedMobileAssistedEOTDAssistanceData,
    dedicatedMobileBasedEOTDAssistanceData,
    ...
}

L3-Information              ::= OCTET STRING

-- M

MaxBitrate              ::= INTEGER (1..16000000)
-- Unit is bits per sec

MaxSDU-Size             ::= INTEGER (0..32768)
-- MaxSDU-Size
-- Unit is bit

MBMS-PTP-RAB-ID ::= BIT STRING (SIZE (8))

MBMSBearerServiceType ::= ENUMERATED {
    multicast,
    broadcast,
    ...
}

MBMSCNDe-Registration ::= ENUMERATED {
    normalsessionstop,
    deregister,
```

```
    ...
}

MBMSIPMulticastAddressandAPNRequest ::= SEQUENCE (SIZE (1..maxnoofMulticastServicesPerRNC)) OF
    TMGI

MBMSLinkingInformation ::= ENUMERATED {
    uE-has-joined-multicast-services,
    ...
}

MBMSRegistrationRequestType ::= ENUMERATED {
    register,
    deregister,
    ...
}

MBMSServiceArea ::= SEQUENCE {
    mBMSServiceAreaList     MBMSServiceAreaList,
    iE-Extensions           ProtocolExtensionContainer { {MBMSServiceArea-ExtIEs} } OPTIONAL
}

MBMSServiceAreaList ::= SEQUENCE (SIZE (1..maxMBMSSA)) OF
    MBMSServiceAreaCode

MBMSServiceAreaCode ::= INTEGER (0..65535)

MBMSServiceArea-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMSSessionDuration ::= SEQUENCE {
    seconds     INTEGER (0..86399),
    day         INTEGER (1..8)  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {MBMSSessionDuration-ExtIEs} } OPTIONAL
}

MBMSSessionDuration-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMSSessionIdentityfier ::= OCTET STRING (SIZE (21))

MBMSSessionRepetitionNumber ::= INTEGER (0..255)

-- N


NAS-PDU                 ::= OCTET STRING

NAS-SequenceNumber          ::= BIT STRING (SIZE (2))
```

```
-- Reference: 24.008

NAS-SynchronisationIndicator    ::= BIT STRING (SIZE (4))

NewBSS-To-OldBSS-Information        ::= OCTET STRING

NonSearchingIndication ::= ENUMERATED {
    non-searching,
    searching
}

NRTLoadInformationValue ::= INTEGER (0..3)

NumberOfIuInstances         ::= INTEGER (1..2)

NumberOfSteps               ::= INTEGER (1..16)

-- O

OldBSS-ToNewBSS-Information     ::= OCTET STRING

OMC-ID                  ::= OCTET STRING (SIZE (3..22))
-- Reference: GSM [25]

-- P

PagingAreaID ::= CHOICE {
    lAI             LAI,
    rAI             RAI,
    ...
}

PagingCause ::= ENUMERATED {
    terminating-conversational-call,
    terminating-streaming-call,
    terminating-interactive-call,
    terminating-background-call,
    terminating-low-priority-signalling,
    ...,
    terminating-high-priority-signalling
}

PDP-TypeInformation ::= SEQUENCE (SIZE (1..maxNrOfPDPDirections)) OF
    PDP-Type

PDP-Type ::= ENUMERATED {
    empty,
    ppp,
    osp-ihoss  -- this value shall not be used -- ,
    ipv4,
    ipv6,
```

```
    ...
}

PermanentNAS-UE-ID ::= CHOICE {
    iMSI                IMSI,
    ...
}

PermittedEncryptionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
    EncryptionAlgorithm

PermittedIntegrityProtectionAlgorithms ::= SEQUENCE (SIZE (1..16)) OF
    IntegrityProtectionAlgorithm

PLMNidentity                ::= TBCD-STRING (SIZE (3))

PLMNs-in-shared-network ::= SEQUENCE (SIZE (1..maxNrOfPLMNsSN)) OF
    SEQUENCE {
        pLMNidentity            PLMNidentity,
        lA-LIST                 LA-LIST,
        iE-Extensions           ProtocolExtensionContainer { { PLMNs-in-shared-network-ExtIEs} } OPTIONAL,
        ...
    }

PLMNs-in-shared-network-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

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

PositioningDataSet ::= SEQUENCE(SIZE(1..maxSet)) OF PositioningMethodAndUsage

PositioningMethodAndUsage ::= OCTET STRING (SIZE(1))

PositioningPriority ::= ENUMERATED {
    high-Priority,
    normal-Priority,
...
}

PositionData ::= SEQUENCE {
    positioningDataDiscriminator        PositioningDataDiscriminator,
    positioningDataSet                  PositioningDataSet          OPTIONAL,
-- This IE shall be present if the PositioningDataDiscriminator IE is set to the value "0000"  --
    iE-Extensions       ProtocolExtensionContainer { {PositionData-ExtIEs} } OPTIONAL,
    ...
}

PositionData-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
PositionDataSpecificToGERANIuMode ::= OCTET STRING

Pre-emptionCapability ::= ENUMERATED {
    shall-not-trigger-pre-emption,
    may-trigger-pre-emption
}

Pre-emptionVulnerability ::= ENUMERATED {
    not-pre-emptable,
    pre-emptable
}

PriorityLevel               ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

ProvidedData ::= CHOICE {
    shared-network-information              Shared-Network-Information,
    ...
}

P-TMSI                  ::= OCTET STRING (SIZE (4))

-- Q

QueuingAllowed ::= ENUMERATED {
    queueing-not-allowed,
    queueing-allowed
}

-- R
RAB-AsymmetryIndicator::= ENUMERATED {
    symmetric-bidirectional,
    asymmetric-unidirectional-downlink,
    asymmetric-unidirectional-uplink,
    asymmetric-bidirectional,
    ...
}

RAB-ID                  ::= BIT STRING (SIZE (8))

RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate

RAB-Parameter-MaxBitrateList        ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

RAB-Parameters ::= SEQUENCE {
    trafficClass            TrafficClass,
    rAB-AsymmetryIndicator          RAB-AsymmetryIndicator,
    maxBitrate          RAB-Parameter-MaxBitrateList,
    guaranteedBitRate       RAB-Parameter-GuaranteedBitrateList OPTIONAL
    -- This IE shall be present the traffic class IE is set to "Conversational" or "Streaming" --,
    deliveryOrder           DeliveryOrder,
```

```
    maxSDU-Size         MaxSDU-Size,
    sDU-Parameters          SDU-Parameters,
    transferDelay           TransferDelay OPTIONAL
    -- This IE shall be present the traffic class IE is set to "Conversational" or "Streaming" --,
    trafficHandlingPriority     TrafficHandlingPriority OPTIONAL
    -- This IE shall be present the traffic class IE is set to "Interactive" --,
    allocationOrRetentionPriority   AllocationOrRetentionPriority OPTIONAL,
    sourceStatisticsDescriptor  SourceStatisticsDescriptor OPTIONAL
    -- This IE shall be present the traffic class IE is set to "Conversational" or "Streaming" --,
    relocationRequirement   RelocationRequirement OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {RAB-Parameters-ExtIEs} } OPTIONAL,
    ...
}

RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable indication that Interactive User Plane data is of a signalling nature --
    { ID id-SignallingIndication    CRITICALITY ignore EXTENSION SignallingIndication PRESENCE optional },
    ...
}

RAB-SubflowCombinationBitRate   ::= INTEGER (0..16000000)

RAB-TrCH-Mapping ::=    SEQUENCE ( SIZE (1..maxNrOfRABs)) OF
    RAB-TrCH-MappingItem

RAB-TrCH-MappingItem ::= SEQUENCE {
    rAB-ID          RAB-ID,
    trCH-ID-List    TrCH-ID-List,
    iE-Extensions           ProtocolExtensionContainer { { RAB-TrCH-MappingItem-ExtIEs} } OPTIONAL,
    ...
}

RAB-TrCH-MappingItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable transfer of RAB Subflow mapping onto Iur transport channel Ids for a given indicated domain --
    {   ID id-CN-DomainIndicator    CRITICALITY ignore      EXTENSION CN-DomainIndicator    PRESENCE optional },
    ...
}

RAC                 ::= OCTET STRING (SIZE (1))

RAI ::= SEQUENCE {
    lAI             LAI,
    rAC             RAC,
    iE-Extensions           ProtocolExtensionContainer { {RAI-ExtIEs} } OPTIONAL,
    ...
}

RAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
RAListofIdleModeUEs ::= CHOICE {
    notEmptyRAListofIdleModeUEs         NotEmptyRAListofIdleModeUEs,
    emptyRAListofIdleModeUEs            ENUMERATED {emptylist},
    ...
}

NotEmptyRAListofIdleModeUEs ::= SEQUENCE {
    rAofIdleModeUEs         RAofIdleModeUEs,
    iE-Extensions           ProtocolExtensionContainer { {NotEmptyRAListofIdleModeUEs-ExtIEs} } OPTIONAL
}

RAofIdleModeUEs ::= SEQUENCE (SIZE (1..maxMBMSRA)) OF
    RAC

NotEmptyRAListofIdleModeUEs-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RateControlAllowed ::= ENUMERATED {
    not-allowed,
    allowed
}


RedirectionCompleted    ::= ENUMERATED {
    redirection-completed,
    ...
}

RejectCauseValue ::= ENUMERATED {
    pLMN-Not-Allowed,
    location-Area-Not-Allowed,
    roaming-Not-Allowed-In-This-Location-Area,
    no-Suitable-Cell-In-Location-Area,
    gPRS-Services-Not-Allowed-In-This-PLMN,
    ...
}


RelocationRequirement ::= ENUMERATED {
    lossless,
    none,
    ...,
    realtime
}

RelocationType ::= ENUMERATED {
    ue-not-involved,
    ue-involved,
    ...
}
```

```
RepetitionNumber0 ::= INTEGER (0..255)

RepetitionNumber1 ::= INTEGER (1..256)


ReportArea ::= ENUMERATED {
    service-area,
    geographical-area,
    ...
}

RequestedGPSAssistanceData  ::= OCTET STRING (SIZE (1 .. 38 ))
        -- gpsAssistanceData as defined in 24.080 --

RequestedLocationRelatedDataType ::= ENUMERATED {
    decipheringKeysUEBasedOTDOA,
    decipheringKeysAssistedGPS,
    dedicatedAssistanceDataUEBasedOTDOA,
    dedicatedAssistanceDataAssistedGPS,
    ...
}

RequestedMBMSIPMulticastAddressandAPNRequest ::= SEQUENCE (SIZE (1..maxnoofMulticastServicesPerRNC)) OF
    MBMSIPMulticastAddressandAPNlist

MBMSIPMulticastAddressandAPNlist ::= SEQUENCE {
    tMGI                    TMGI,
    iPMulticastAddress      IPMulticastAddress,
    aPN                     APN,
    iE-Extensions           ProtocolExtensionContainer { {MBMSIPMulticastAddressandAPNlist-ExtIEs} }    OPTIONAL,
    ...
}

MBMSIPMulticastAddressandAPNlist-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RequestedMulticastServiceList ::= SEQUENCE (SIZE (1.. maxnoofMulticastServicesPerUE)) OF
    TMGI

Requested-RAB-Parameter-Values ::= SEQUENCE {
    requestedMaxBitrates                Requested-RAB-Parameter-MaxBitrateList          OPTIONAL,
    requestedGuaranteedBitrates             Requested-RAB-Parameter-GuaranteedBitrateList        OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { Requested-RAB-Parameter-Values-ExtIEs} }  OPTIONAL,
    ...
}

Requested-RAB-Parameter-Values-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Requested-RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF MaxBitrate

Requested-RAB-Parameter-GuaranteedBitrateList   ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF GuaranteedBitrate


RequestType ::= SEQUENCE {
    event               Event,
    reportArea          ReportArea,
    accuracyCode        INTEGER (0..127)    OPTIONAL,
    ...
}

ResidualBitErrorRatio ::= SEQUENCE {
    mantissa            INTEGER (1..9),
    exponent            INTEGER (1..8),
    iE-Extensions           ProtocolExtensionContainer { {ResidualBitErrorRatio-ExtIEs} } OPTIONAL
}
-- ResidualBitErrorRatio = mantissa * 10^-exponent

ResidualBitErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ResponseTime    ::= ENUMERATED {
    lowdelay,
    delaytolerant,
...
}

RIMInformation                  ::= OCTET STRING

RIM-Transfer ::= SEQUENCE {
    rIMInformation              RIMInformation,
    rIMRoutingAddress           RIMRoutingAddress   OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {RIM-Transfer-ExtIEs} } OPTIONAL
}

RIM-Transfer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RIMRoutingAddress ::= CHOICE {
    globalRNC-ID                    GlobalRNC-ID,
    gERAN-Cell-ID                   GERAN-Cell-ID,
    ...
}


RNC-ID                  ::= INTEGER (0..4095)
-- RNC-ID                   ::= BIT STRING (SIZE (12))
```

```
-- Harmonized with RNSAP and NBAP definitions


RNCTraceInformation::= SEQUENCE {
    traceReference                  TraceReference,
    traceActivationIndicator        ENUMERATED {activated,deactivated},
    equipmentsToBeTraced            EquipmentsToBeTraced                                    OPTIONAL,
    -- This IE shall be present if the Trace Activation Indicator IE is set to "Activated".
    iE-Extensions                   ProtocolExtensionContainer { { RNCTraceInformation-ExtIEs} }    OPTIONAL
}

RNCTraceInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RRC-Container               ::= OCTET STRING

RTLoadValue ::= INTEGER (0..100)

-- S

SAC                 ::= OCTET STRING (SIZE (2))

SAI ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    lAC             LAC,
    sAC             SAC,
    iE-Extensions           ProtocolExtensionContainer { {SAI-ExtIEs} } OPTIONAL
}

SAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SAPI ::= ENUMERATED {
    sapi-0,
    sapi-3,
    ...
}

SessionUpdateID ::= INTEGER (0.. 1048575)

Shared-Network-Information ::= SEQUENCE {
        pLMNs-in-shared-network         PLMNs-in-shared-network,
        iE-Extensions           ProtocolExtensionContainer { {Shared-Network-Information-ExtIEs} } OPTIONAL,
        ...
    }

Shared-Network-Information-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
SignallingIndication ::= ENUMERATED {
    signalling,
    ...
}

SDU-ErrorRatio ::= SEQUENCE {
    mantissa            INTEGER (1..9),
    exponent            INTEGER (1..6),
    iE-Extensions           ProtocolExtensionContainer { {SDU-ErrorRatio-ExtIEs} } OPTIONAL
}
-- SDU-ErrorRatio = mantissa * 10^-exponent

SDU-ErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
SDU-FormatInformationParameters ::= SEQUENCE (SIZE (1..maxRAB-SubflowCombination)) OF
    SEQUENCE {
        subflowSDU-Size         SubflowSDU-Size     OPTIONAL,
        rAB-SubflowCombinationBitRate   RAB-SubflowCombinationBitRate   OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {SDU-FormatInformationParameters-ExtIEs} } OPTIONAL,
        ...
    }

SDU-FormatInformationParameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    SEQUENCE {
        sDU-ErrorRatio          SDU-ErrorRatio OPTIONAL
        -- This IE shall be present if the Delivery Of Erroneous SDU IE is set to "Yes" or "No" --,
        residualBitErrorRatio       ResidualBitErrorRatio,
        deliveryOfErroneousSDU      DeliveryOfErroneousSDU,
        sDU-FormatInformationParameters SDU-FormatInformationParameters OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
        ...
    }

SDU-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SNA-Access-Information ::= SEQUENCE {
        authorisedPLMNs         AuthorisedPLMNs,
        iE-Extensions           ProtocolExtensionContainer { {SNA-Access-Information-ExtIEs} } OPTIONAL,
        ...
    }

SNA-Access-Information-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

SNAC                ::= INTEGER (0..65535)

Service-Handover ::= ENUMERATED {
    handover-to-GSM-should-be-performed,
    handover-to-GSM-should-not-be-performed,
    handover-to-GSM-shall-not-be-performed,
    ...
}

SourceCellID ::= CHOICE {
    sourceUTRANCellID           SourceUTRANCellID,
    sourceGERANCellID           CGI,
    ...
}

SourceID ::= CHOICE {
    sourceRNC-ID            SourceRNC-ID,
    sAI             SAI,
    ...
}


SourceRNC-ID ::= SEQUENCE {
    pLMNidentity                PLMNidentity,
    rNC-ID              RNC-ID,
    iE-Extensions           ProtocolExtensionContainer { {SourceRNC-ID-ExtIEs} } OPTIONAL
}

SourceRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SourceRNC-ToTargetRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container           RRC-Container,
    numberOfIuInstances     NumberOfIuInstances,
    relocationType          RelocationType,
    chosenIntegrityProtectionAlgorithm ChosenIntegrityProtectionAlgorithm   OPTIONAL,
    integrityProtectionKey      IntegrityProtectionKey          OPTIONAL,
    chosenEncryptionAlgorithForSignalling ChosenEncryptionAlgorithm     OPTIONAL,
    cipheringKey            EncryptionKey               OPTIONAL,
    chosenEncryptionAlgorithForCS   ChosenEncryptionAlgorithm       OPTIONAL,
    chosenEncryptionAlgorithForPS   ChosenEncryptionAlgorithm       OPTIONAL,
    d-RNTI              D-RNTI                  OPTIONAL
    -- This IE shall be present if the Relocation type IE is set to "UE not involved in relocation of SRNS" --,
    targetCellId            TargetCellId                OPTIONAL
    -- This IE shall be present if the Relocation type IE is set to "UE involved in relocation of SRNS" --,
    rAB-TrCH-Mapping            RAB-TrCH-Mapping                OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
```

```
}

SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable transfer of SRB mapping onto Iur transport channel Ids --
    {   ID id-SRB-TrCH-Mapping  CRITICALITY reject      EXTENSION SRB-TrCH-Mapping  PRESENCE optional  }|
-- Extension for Release 5 to enable Inter RAN Load Information Exchange over Iu --
    {ID id-CellLoadInformationGroup CRITICALITY ignore      EXTENSION CellLoadInformationGroup    PRESENCE optional}|
-- Extension for Release 6 to provide Trace Recording Session Information to the Target RNC --
    {ID id-TraceRecordingSessionInformation     CRITICALITY ignore      EXTENSION TraceRecordingSessionInformation    PRESENCE optional}|
-- Extension for Release 6 to indicate to the Target RNC that the UE has activated Multicast Service --
    {ID id-MBMSLinkingInformation       CRITICALITY ignore      EXTENSION MBMSLinkingInformation  PRESENCE optional},
    ...
}

SourceStatisticsDescriptor ::= ENUMERATED {
    speech,
    unknown,
    ...
}

SourceUTRANCellID ::= SEQUENCE {
    pLMNidentity            PLMNidentity,
    uTRANcellID             TargetCellId,
    iE-Extensions           ProtocolExtensionContainer { {SourceUTRANCellID-ExtIEs} } OPTIONAL
}

SourceUTRANCellID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SRB-ID ::= INTEGER (1..32)

SRB-TrCH-Mapping ::=    SEQUENCE ( SIZE (1..maxNrOfSRBs)) OF
    SRB-TrCH-MappingItem

SRB-TrCH-MappingItem ::= SEQUENCE {
    sRB-ID          SRB-ID,
    trCH-ID         TrCH-ID,
    iE-Extensions           ProtocolExtensionContainer { { SRB-TrCH-MappingItem-ExtIEs} } OPTIONAL,
    ...
}


SRB-TrCH-MappingItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SubflowSDU-Size             ::= INTEGER (0..4095)
-- Unit is bit
```

```
-- T

TargetCellId                ::= INTEGER (0..268435455)

TargetID ::= CHOICE {
    targetRNC-ID            TargetRNC-ID,
    cGI             CGI,
    ...
}



TargetRNC-ID ::= SEQUENCE {
    lAI             LAI,
    rAC             RAC         OPTIONAL
    -- Must always be present towards the PS domain and never towards the CS domain --,
    rNC-ID              RNC-ID,
    iE-Extensions           ProtocolExtensionContainer { {TargetRNC-ID-ExtIEs} } OPTIONAL
}

TargetRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TargetRNC-ToSourceRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container           RRC-Container,
    d-RNTI                  D-RNTI                  OPTIONAL
    -- May be included to allow the triggering of the Relocation Detect procedure from the Iur Interface --,
    iE-Extensions           ProtocolExtensionContainer { {TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TBCD-STRING                 ::= OCTET STRING

TemporaryUE-ID ::= CHOICE {
    tMSI                TMSI,
    p-TMSI              P-TMSI,
    ...
}

TMGI ::= SEQUENCE {
    pLMNidentity            PLMNidentity,
    serviceID               OCTET STRING (SIZE (3)),
    iE-Extensions           ProtocolExtensionContainer { {TMGI-ExtIEs} } OPTIONAL
}
```

```
TMGI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TMSI                    ::= OCTET STRING (SIZE (4))

TraceDepth ::= ENUMERATED {
    minimum,
    medium,
    maximum,
    ...
}

TracePropagationParameters ::= SEQUENCE {
    traceRecordingSessionReference      TraceRecordingSessionReference,
    traceDepth                          TraceDepth,
    listOfInterfacesToTrace             ListOfInterfacesToTrace     OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { TracePropagationParameters-ExtIEs} } OPTIONAL,
    ...
}

TracePropagationParameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TraceRecordingSessionInformation    ::= SEQUENCE {
    traceReference                      TraceReference,
    traceRecordingSessionReference      TraceRecordingSessionReference,
    iE-Extensions                       ProtocolExtensionContainer { { TraceRecordingSessionInformation-ExtIEs} } OPTIONAL,
    ...
}

TraceRecordingSessionInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TraceRecordingSessionReference      ::= INTEGER (0..65535)

TraceReference              ::= OCTET STRING (SIZE (2..3))

TraceType               ::= OCTET STRING (SIZE (1))
-- Reference: GSM TS 12.08

TrafficClass ::= ENUMERATED {
    conversational,
    streaming,
    interactive,
    background,
    ...
}
```

```
TrafficHandlingPriority         ::= INTEGER { spare (0), highest (1), lowest (14), no-priority-used (15) } (0..15)

TransferDelay               ::= INTEGER (0..65535)
-- Unit is millisecond

UnsuccessfullyTransmittedDataVolume ::= INTEGER (0..4294967295)

TransportLayerAddress           ::= BIT STRING (SIZE (1..160, ...))

TrCH-ID ::= SEQUENCE {
    dCH-ID              DCH-ID      OPTIONAL,
    dSCH-ID             DSCH-ID     OPTIONAL,
    uSCH-ID             USCH-ID     OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { TrCH-ID-ExtIEs} } OPTIONAL,
    ...
}

TrCH-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 to enable transfer of HS-DSCH-MAC-d-Flow-ID onto Iur transport channel ID --
    {ID id-hS-DSCH-MAC-d-Flow-ID    CRITICALITY ignore      EXTENSION HS-DSCH-MAC-d-Flow-ID     PRESENCE optional},
    ...
}

TrCH-ID-List ::=  SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    TrCH-ID

TriggerID               ::= OCTET STRING (SIZE (3..22))

TypeOfError ::= ENUMERATED {
    not-understood,
    missing,
    ...
}


-- U

UE-ID ::= CHOICE {
    imsi                IMSI,
    imei                IMEI,
    ...,
    imeisv              IMEISV

}

UESBI-Iu ::= SEQUENCE {
    uESBI-IuA       UESBI-IuA   OPTIONAL,
    uESBI-IuB       UESBI-IuB   OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { {UESBI-Iu-ExtIEs} } OPTIONAL,
    ...
}
```

```
UESBI-Iu-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

UESBI-IuA               ::= BIT STRING (SIZE(1..128))
-- Reference: TR25.994 --
UESBI-IuB               ::= BIT STRING (SIZE(1..128))
-- Reference: TR25.995 --

UL-GTP-PDU-SequenceNumber       ::= INTEGER (0..65535)

UL-N-PDU-SequenceNumber         ::= INTEGER (0..65535)

UP-ModeVersions             ::= BIT STRING (SIZE (16))

USCH-ID                     ::= INTEGER (0..255)

UserPlaneMode ::= ENUMERATED {
    transparent-mode,
    support-mode-for-predefined-SDU-sizes,
    ...
}

-- V

VerticalAccuracyCode            ::= INTEGER (0..127)

END
```

9.3.5 Common Definitions

```
-- **************************************************************
--
-- Common definitions
--
-- **************************************************************

RANAP-CommonDataTypes {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-CommonDataTypes (3)  }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Criticality     ::= ENUMERATED { reject, ignore, notify }

Presence        ::= ENUMERATED { optional, conditional, mandatory }
```

```
PrivateIE-ID    ::= CHOICE {
    local               INTEGER (0..65535),
    global              OBJECT IDENTIFIER
}

ProcedureCode       ::= INTEGER (0..255)

ProtocolExtensionID ::= INTEGER (0..65535)

ProtocolIE-ID       ::= INTEGER (0..65535)

TriggeringMessage   ::= ENUMERATED { initiating-message, successful-outcome, unsuccessfull-outcome, outcome }

END
```

9.3.6 Constant Definitions

```
-- **************************************************************
--
-- Constant definitions
--
-- **************************************************************

RANAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- **************************************************************
--
-- Elementary Procedures
--
-- **************************************************************

id-RAB-Assignment                   INTEGER ::= 0
id-Iu-Release                       INTEGER ::= 1
id-RelocationPreparation            INTEGER ::= 2
id-RelocationResourceAllocation     INTEGER ::= 3
id-RelocationCancel                 INTEGER ::= 4
id-SRNS-ContextTransfer             INTEGER ::= 5
id-SecurityModeControl              INTEGER ::= 6
id-DataVolumeReport                 INTEGER ::= 7
id-Reset                            INTEGER ::= 9
id-RAB-ReleaseRequest               INTEGER ::= 10
id-Iu-ReleaseRequest                INTEGER ::= 11
id-RelocationDetect                 INTEGER ::= 12
id-RelocationComplete               INTEGER ::= 13
```

```
id-Paging                           INTEGER ::= 14
id-CommonID                         INTEGER ::= 15
id-CN-InvokeTrace                   INTEGER ::= 16
id-LocationReportingControl         INTEGER ::= 17
id-LocationReport                   INTEGER ::= 18
id-InitialUE-Message                INTEGER ::= 19
id-DirectTransfer                   INTEGER ::= 20
id-OverloadControl                  INTEGER ::= 21
id-ErrorIndication                  INTEGER ::= 22
id-SRNS-DataForward                 INTEGER ::= 23
id-ForwardSRNS-Context              INTEGER ::= 24
id-privateMessage                   INTEGER ::= 25
id-CN-DeactivateTrace               INTEGER ::= 26
id-ResetResource                    INTEGER ::= 27
id-RANAP-Relocation                 INTEGER ::= 28
id-RAB-ModifyRequest                INTEGER ::= 29
id-LocationRelatedData              INTEGER ::= 30
id-InformationTransfer              INTEGER ::= 31
id-UESpecificInformation            INTEGER ::= 32
id-UplinkInformationExchange        INTEGER ::= 33
id-DirectInformationTransfer        INTEGER ::= 34
id-MBMSSessionStart                 INTEGER ::= 35
id-MBMSSessionUpdate                INTEGER ::= 36
id-MBMSSessionStop                  INTEGER ::= 37
id-MBMSUELinking                    INTEGER ::= 38
id-MBMSRegistration                 INTEGER ::= 39
id-MBMSCNDe-Registration-Procedure  INTEGER ::= 40
id-MBMSRABEstablishmentIndication   INTEGER ::= 41



-- **************************************************************
--
-- Extension constants
--
-- **************************************************************

maxPrivateIEs                       INTEGER ::= 65535
maxProtocolExtensions               INTEGER ::= 65535
maxProtocolIEs                      INTEGER ::= 65535

-- **************************************************************
--
-- Lists
--
-- **************************************************************

maxNrOfDTs                          INTEGER ::= 15
maxNrOfErrors                       INTEGER ::= 256
maxNrOfIuSigConIds                  INTEGER ::= 250
maxNrOfPDPDirections                INTEGER ::= 2
```

```
maxNrOfPoints                       INTEGER ::= 15
maxNrOfRABs                         INTEGER ::= 256
maxNrOfSeparateTrafficDirections    INTEGER ::= 2
maxNrOfSRBs                         INTEGER ::= 8
maxNrOfVol                          INTEGER ::= 2
maxNrOfLevels                       INTEGER ::= 256
maxNrOfAltValues                    INTEGER ::= 16
maxNrOfPLMNsSN                      INTEGER ::= 32
maxNrOfLAs                          INTEGER ::= 65536
maxNrOfSNAs                         INTEGER ::= 65536
maxNrOfUEsToBeTraced                INTEGER ::= 64
maxNrOfInterfaces                   INTEGER ::= 16
maxRAB-Subflows                     INTEGER ::= 7
maxRAB-SubflowCombination           INTEGER ::= 64
maxSet                              INTEGER ::= 9
maxnoofMulticastServicesPerUE       INTEGER ::= 128
maxnoofMulticastServicesPerRNC      INTEGER ::= 512
maxMBMSSA                           INTEGER ::= 256
maxMBMSRA                           INTEGER ::= 65536

-- **************************************************************
--
-- IEs
--
-- **************************************************************

id-AreaIdentity                                 INTEGER ::= 0
id-CN-DomainIndicator                           INTEGER ::= 3
id-Cause                                        INTEGER ::= 4
id-ChosenEncryptionAlgorithm                    INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm           INTEGER ::= 6
id-ClassmarkInformation2                        INTEGER ::= 7
id-ClassmarkInformation3                        INTEGER ::= 8
id-CriticalityDiagnostics                       INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber                    INTEGER ::= 10
id-EncryptionInformation                        INTEGER ::= 11
id-IntegrityProtectionInformation               INTEGER ::= 12
id-IuTransportAssociation                       INTEGER ::= 13
id-L3-Information                               INTEGER ::= 14
id-LAI                                          INTEGER ::= 15
id-NAS-PDU                                      INTEGER ::= 16
id-NonSearchingIndication                       INTEGER ::= 17
id-NumberOfSteps                                INTEGER ::= 18
id-OMC-ID                                       INTEGER ::= 19
id-OldBSS-ToNewBSS-Information                  INTEGER ::= 20
id-PagingAreaID                                 INTEGER ::= 21
id-PagingCause                                  INTEGER ::= 22
id-PermanentNAS-UE-ID                           INTEGER ::= 23
id-RAB-ContextItem                              INTEGER ::= 24
id-RAB-ContextList                              INTEGER ::= 25
id-RAB-DataForwardingItem                       INTEGER ::= 26
```

```
id-RAB-DataForwardingItem-SRNS-CtxReq           INTEGER ::= 27
id-RAB-DataForwardingList                       INTEGER ::= 28
id-RAB-DataForwardingList-SRNS-CtxReq           INTEGER ::= 29
id-RAB-DataVolumeReportItem                     INTEGER ::= 30
id-RAB-DataVolumeReportList                     INTEGER ::= 31
id-RAB-DataVolumeReportRequestItem              INTEGER ::= 32
id-RAB-DataVolumeReportRequestList              INTEGER ::= 33
id-RAB-FailedItem                               INTEGER ::= 34
id-RAB-FailedList                               INTEGER ::= 35
id-RAB-ID                                       INTEGER ::= 36
id-RAB-QueuedItem                               INTEGER ::= 37
id-RAB-QueuedList                               INTEGER ::= 38
id-RAB-ReleaseFailedList                        INTEGER ::= 39
id-RAB-ReleaseItem                              INTEGER ::= 40
id-RAB-ReleaseList                              INTEGER ::= 41
id-RAB-ReleasedItem                             INTEGER ::= 42
id-RAB-ReleasedList                             INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp                   INTEGER ::= 44
id-RAB-RelocationReleaseItem                    INTEGER ::= 45
id-RAB-RelocationReleaseList                    INTEGER ::= 46
id-RAB-SetupItem-RelocReq                       INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck                    INTEGER ::= 48
id-RAB-SetupList-RelocReq                       INTEGER ::= 49
id-RAB-SetupList-RelocReqAck                    INTEGER ::= 50
id-RAB-SetupOrModifiedItem                      INTEGER ::= 51
id-RAB-SetupOrModifiedList                      INTEGER ::= 52
id-RAB-SetupOrModifyItem                        INTEGER ::= 53
id-RAB-SetupOrModifyList                        INTEGER ::= 54
id-RAC                                          INTEGER ::= 55
id-RelocationType                               INTEGER ::= 56
id-RequestType                                  INTEGER ::= 57
id-SAI                                          INTEGER ::= 58
id-SAPI                                         INTEGER ::= 59
id-SourceID                                     INTEGER ::= 60
id-SourceRNC-ToTargetRNC-TransparentContainer   INTEGER ::= 61
id-TargetID                                     INTEGER ::= 62
id-TargetRNC-ToSourceRNC-TransparentContainer   INTEGER ::= 63
id-TemporaryUE-ID                               INTEGER ::= 64
id-TraceReference                               INTEGER ::= 65
id-TraceType                                    INTEGER ::= 66
id-TransportLayerAddress                        INTEGER ::= 67
id-TriggerID                                    INTEGER ::= 68
id-UE-ID                                        INTEGER ::= 69
id-UL-GTP-PDU-SequenceNumber                    INTEGER ::= 70
id-RAB-FailedtoReportItem                       INTEGER ::= 71
id-RAB-FailedtoReportList                       INTEGER ::= 72
id-KeyStatus                                    INTEGER ::= 75
id-DRX-CycleLengthCoefficient                   INTEGER ::= 76
id-IuSigConIdList                               INTEGER ::= 77
id-IuSigConIdItem                               INTEGER ::= 78
id-IuSigConId                                   INTEGER ::= 79
```

```
id-DirectTransferInformationItem-RANAP-RelocInf INTEGER ::= 80
id-DirectTransferInformationList-RANAP-RelocInf INTEGER ::= 81
id-RAB-ContextItem-RANAP-RelocInf               INTEGER ::= 82
id-RAB-ContextList-RANAP-RelocInf               INTEGER ::= 83
id-RAB-ContextFailedtoTransferItem              INTEGER ::= 84
id-RAB-ContextFailedtoTransferList              INTEGER ::= 85
id-GlobalRNC-ID                                 INTEGER ::= 86
id-RAB-ReleasedItem-IuRelComp                   INTEGER ::= 87
id-MessageStructure                             INTEGER ::= 88
id-Alt-RAB-Parameters                           INTEGER ::= 89
id-Ass-RAB-Parameters                           INTEGER ::= 90
id-RAB-ModifyList                               INTEGER ::= 91
id-RAB-ModifyItem                               INTEGER ::= 92
id-TypeOfError                                  INTEGER ::= 93
id-BroadcastAssistanceDataDecipheringKeys       INTEGER ::= 94
id-LocationRelatedDataRequestType               INTEGER ::= 95
id-GlobalCN-ID                                  INTEGER ::= 96
id-LastKnownServiceArea                         INTEGER ::= 97
id-SRB-TrCH-Mapping                             INTEGER ::= 98
id-InterSystemInformation-TransparentContainer  INTEGER ::= 99
id-NewBSS-To-OldBSS-Information                         INTEGER ::= 100
id-SourceRNC-PDCP-context-info                          INTEGER ::= 103
id-InformationTransferID                                INTEGER ::= 104
id-SNA-Access-Information                               INTEGER ::= 105
id-ProvidedData                                         INTEGER ::= 106
id-GERAN-BSC-Container                                  INTEGER ::= 107
id-GERAN-Classmark                                      INTEGER ::= 108
id-GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item       INTEGER ::= 109
id-GERAN-Iumode-RAB-FailedList-RABAssgntResponse        INTEGER ::= 110
id-VerticalAccuracyCode                                 INTEGER ::= 111
id-ResponseTime                                         INTEGER ::= 112
id-PositioningPriority                                  INTEGER ::= 113
id-ClientType                                           INTEGER ::= 114
id-LocationRelatedDataRequestTypeSpecificToGERANIuMode  INTEGER ::= 115
id-SignallingIndication                                 INTEGER ::= 116
id-hS-DSCH-MAC-d-Flow-ID                                INTEGER ::= 117
id-UESBI-Iu                                             INTEGER ::= 118
id-PositionData                                         INTEGER ::= 119
id-PositionDataSpecificToGERANIuMode                    INTEGER ::= 120
id-CellLoadInformationGroup                             INTEGER ::= 121
id-AccuracyFulfilmentIndicator                          INTEGER ::= 122
id-InformationTransferType                              INTEGER ::= 123
id-TraceRecordingSessionInformation                     INTEGER ::= 124
id-TracePropagationParameters                           INTEGER ::= 125
id-InterSystemInformationTransferType                   INTEGER ::= 126
id-SelectedPLMN-ID                                      INTEGER ::= 127
id-RedirectionCompleted                                 INTEGER ::= 128
id-RedirectionIndication                                INTEGER ::= 129
id-NAS-SequenceNumber                                   INTEGER ::= 130
id-RejectCauseValue                                     INTEGER ::= 131
id-APN                                                  INTEGER ::= 132
```

```
id-CNMBMSLinkingInformation                     INTEGER ::= 133
id-DeltaRAListofIdleModeUEs                     INTEGER ::= 134
id-FrequenceLayerConvergenceFlag                INTEGER ::= 135
id-InformationExchangeID                        INTEGER ::= 136
id-InformationExchangeType                      INTEGER ::= 137
id-InformationRequested                         INTEGER ::= 138
id-InformationRequestType                       INTEGER ::= 139
id-IPMulticastAddress                           INTEGER ::= 140
id-JoinedMBMSBearerServicesList                 INTEGER ::= 141
id-LeftMBMSBearerServicesList                   INTEGER ::= 142
id-MBMSBearerServiceType                        INTEGER ::= 143
id-MBMSCNDe-Registration                        INTEGER ::= 144
id-MBMSServiceArea                              INTEGER ::= 145
id-MBMSSessionDuration                          INTEGER ::= 146
id-MBMSSessionIdentityfier                      INTEGER ::= 147
id-PDP-TypeInformation                          INTEGER ::= 148
id-RAB-Parameters                               INTEGER ::= 149
id-RAListofIdleModeUEs                          INTEGER ::= 150
id-MBMSRegistrationRequestType                  INTEGER ::= 151
id-SessionUpdateID                              INTEGER ::= 152
id-TMGI                                         INTEGER ::= 153
id-TransportLayerInformation                    INTEGER ::= 154
id-UnsuccessfulLinkingList                      INTEGER ::= 155
id-MBMSLinkingInformation                       INTEGER ::= 156
id-MBMSSessionRepetitionNumber                  INTEGER ::= XXX


END
```

9.3.7 Container Definitions

```
-- **************************************************************
--
-- Container definitions
--
-- **************************************************************

RANAP-Containers {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Containers (5) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

```
IMPORTS
    Criticality,
    Presence,
    PrivateIE-ID,
    ProtocolExtensionID,
    ProtocolIE-ID
FROM RANAP-CommonDataTypes

    maxPrivateIEs,
    maxProtocolExtensions,
    maxProtocolIEs
FROM RANAP-Constants;

-- **************************************************************
--
-- Class Definition for Protocol IEs
--
-- **************************************************************

RANAP-PROTOCOL-IES ::= CLASS {
    &id             ProtocolIE-ID                   UNIQUE,
    &criticality            Criticality,
    &Value,
    &presence           Presence
}
WITH SYNTAX {
    ID              &id
    CRITICALITY         &criticality
    TYPE                &Value
    PRESENCE            &presence
}

-- **************************************************************
--
-- Class Definition for Protocol IEs
--
-- **************************************************************

RANAP-PROTOCOL-IES-PAIR ::= CLASS {
    &id             ProtocolIE-ID                   UNIQUE,
    &firstCriticality       Criticality,
    &FirstValue,
    &secondCriticality      Criticality,
    &SecondValue,
    &presence           Presence
}
WITH SYNTAX {
    ID              &id
    FIRST CRITICALITY       &firstCriticality
    FIRST TYPE          &FirstValue
```

```
    SECOND CRITICALITY      &secondCriticality
    SECOND TYPE         &SecondValue
    PRESENCE            &presence
}

-- **************************************************************
--
-- Class Definition for Protocol Extensions
--
-- **************************************************************

RANAP-PROTOCOL-EXTENSION ::= CLASS {
    &id             ProtocolExtensionID                 UNIQUE,
    &criticality            Criticality,
    &Extension,
    &presence       Presence
}
WITH SYNTAX {
    ID              &id
    CRITICALITY         &criticality
    EXTENSION           &Extension
    PRESENCE        &presence
}

-- **************************************************************
--
-- Class Definition for Private IEs
--
-- **************************************************************

RANAP-PRIVATE-IES ::= CLASS {
    &id             PrivateIE-ID,
    &criticality            Criticality,
    &Value,
    &presence       Presence
}
WITH SYNTAX {
    ID              &id
    CRITICALITY         &criticality
    TYPE            &Value
    PRESENCE        &presence
}

-- **************************************************************
--
-- Container for Protocol IEs
--
-- **************************************************************

ProtocolIE-Container {RANAP-PROTOCOL-IES : IEsSetParam} ::=
    SEQUENCE (SIZE (0..maxProtocolIEs)) OF
```

```
    ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-Field {RANAP-PROTOCOL-IES : IEsSetParam} ::= SEQUENCE {
    id              RANAP-PROTOCOL-IES.&id              ({IEsSetParam}),
    criticality         RANAP-PROTOCOL-IES.&criticality         ({IEsSetParam}{@id}),
    value               RANAP-PROTOCOL-IES.&Value               ({IEsSetParam}{@id})
}

-- **************************************************************
--
-- Container for Protocol IE Pairs
--
-- **************************************************************

ProtocolIE-ContainerPair {RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::=
    SEQUENCE (SIZE (0..maxProtocolIEs)) OF
    ProtocolIE-FieldPair {{IEsSetParam}}

ProtocolIE-FieldPair {RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::= SEQUENCE {
    id              RANAP-PROTOCOL-IES-PAIR.&id         ({IEsSetParam}),
    firstCriticality        RANAP-PROTOCOL-IES-PAIR.&firstCriticality   ({IEsSetParam}{@id}),
    firstValue          RANAP-PROTOCOL-IES-PAIR.&FirstValue         ({IEsSetParam}{@id}),
    secondCriticality       RANAP-PROTOCOL-IES-PAIR.&secondCriticality  ({IEsSetParam}{@id}),
    secondValue         RANAP-PROTOCOL-IES-PAIR.&SecondValue            ({IEsSetParam}{@id})
}

-- **************************************************************
--
-- Container Lists for Protocol IE Containers
--
-- **************************************************************

ProtocolIE-ContainerList {INTEGER : lowerBound, INTEGER : upperBound, RANAP-PROTOCOL-IES : IEsSetParam} ::=
    SEQUENCE (SIZE (lowerBound..upperBound)) OF
    ProtocolIE-Container {{IEsSetParam}}

ProtocolIE-ContainerPairList {INTEGER : lowerBound, INTEGER : upperBound, RANAP-PROTOCOL-IES-PAIR : IEsSetParam} ::=
    SEQUENCE (SIZE (lowerBound..upperBound)) OF
    ProtocolIE-ContainerPair {{IEsSetParam}}

-- **************************************************************
--
-- Container for Protocol Extensions
--
-- **************************************************************

ProtocolExtensionContainer {RANAP-PROTOCOL-EXTENSION : ExtensionSetParam} ::=
    SEQUENCE (SIZE (1..maxProtocolExtensions)) OF
    ProtocolExtensionField {{ExtensionSetParam}}

ProtocolExtensionField {RANAP-PROTOCOL-EXTENSION : ExtensionSetParam} ::= SEQUENCE {
```

```
    id              RANAP-PROTOCOL-EXTENSION.&id            ({ExtensionSetParam}),
    criticality         RANAP-PROTOCOL-EXTENSION.&criticality       ({ExtensionSetParam}{@id}),
    extensionValue          RANAP-PROTOCOL-EXTENSION.&Extension     ({ExtensionSetParam}{@id})
}

-- **************************************************************
--
-- Container for Private IEs
--
-- **************************************************************

PrivateIE-Container {RANAP-PRIVATE-IES : IEsSetParam } ::=
    SEQUENCE (SIZE (1.. maxPrivateIEs)) OF
    PrivateIE-Field {{IEsSetParam}}

PrivateIE-Field {RANAP-PRIVATE-IES : IEsSetParam} ::= SEQUENCE {
    id              RANAP-PRIVATE-IES.&id           ({IEsSetParam}),
    criticality         RANAP-PRIVATE-IES.&criticality      ({IEsSetParam}{@id}),
    value           RANAP-PRIVATE-IES.&Value        ({IEsSetParam}{@id})
}

END
```

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3GPP TSG-RAN WG3 Meeting #46
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CR-Form-v7.1

CHANGE REQUEST

⌘ **25.413** **CR** **724** ⌘**rev** **3** ⌘ Current version: **6.4.1** ⌘

*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 **X** Core Network **X**

Title:	⌘	MBMS RAB Management
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	23/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:
Ph2 (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)
Rel-7 (Release 7)

Reason for change:	⌘	Unsupported MBMS RAB management function
Summary of change:	⌘	New procedure MBMS RAB RELEASE where MBMS RAB is released without releasing the Iu connection
Consequences if not approved:	⌘	It will not be possible to release MBMS RAB without releasing the Iu connections

Clauses affected:	⌘	8.1, 8.xx (new), 9.1.x1 (new), 9.1.x2 (new), 9.1.x3 (new), 9.2.1.1, 9.2.1.4, 9.3.2, 9.3.3, 9.3.4, 9.3.6

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘

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

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

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

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

8 RANAP Procedures

8.1 Elementary Procedures

In the following tables, all EPs are divided into Class 1, Class 2 and Class 3 EPs (see subclause 3.1 for explanation of the different classes):

Table 1: Class 1

Elementary Procedure	Initiating Message	Successful Outcome	Unsuccessful Outcome
		Response message	Response message
Iu Release	IU RELEASE COMMAND	IU RELEASE COMPLETE	
Relocation Preparation	RELOCATION REQUIRED	RELOCATION COMMAND	RELOCATION PREPARATION FAILURE
Relocation Resource Allocation	RELOCATION REQUEST	RELOCATION REQUEST ACKNOWLEDGE	RELOCATION FAILURE
Relocation Cancel	RELOCATION CANCEL	RELOCATION CANCEL ACKNOWLEDGE	
SRNS Context Transfer	SRNS CONTEXT REQUEST	SRNS CONTEXT RESPONSE	
Security Mode Control	SECURITY MODE COMMAND	SECURITY MODE COMPLETE	SECURITY MODE REJECT
Data Volume Report	DATA VOLUME REPORT REQUEST	DATA VOLUME REPORT	
Reset	RESET	RESET ACKNOWLEDGE	
Reset Resource	RESET RESOURCE	RESET RESOURCE ACKNOWLEDGE	
Location related Data	LOCATION RELATED DATA REQUEST	LOCATION RELATED DATA RESPONSE	LOCATION RELATED DATA FAILURE
Information Transfer	INFORMATION TRANSFER INDICATION	INFORMATION TRANSFER CONFIRMATION	INFORMATION TRANSFER FAILURE
Uplink Information Exchange	UPLINK INFORMATION EXCHANGE REQUEST	UPLINK INFORMATION EXCHANGE RESPONSE	UPLINK INFORMATION EXCHANGE FAILURE
MBMS Session Start	MBMS SESSION START	MBMS SESSION START RESPONSE	MBMS SESSION START FAILURE
MBMS Session Update	MBMS SESSION UPDATE	MBMS SESSION UPDATE RESPONSE	MBMS SESSION UPDATE FAILURE
MBMS Session Stop	MBMS SESSION STOP REQUEST	MBMS SESSION STOP RESPONSE	
MBMS UE Linking	MBMS UE LINKING REQUEST	MBMS UE LINKING RESPONSE	
MBMS Registration	MBMS REGISTRATION REQUEST	MBMS REGISTRATION RESPONSE	MBMS REGISTRATION FAILURE
MBMS CN De-Registration	MBMS CN DE-REGISTRATION REQUEST	MBMS CN DE-REGISTRATION RESPONSE	
MBMS RAB Release	MBMS RAB RELEASE REQUEST	MBMS RAB RELEASE	MBMS RAB RELEASE FAILURE

Table 2: Class 2

Elementary Procedure	Message
RAB Modification Request	RAB MODIFY REQUEST
RAB Release Request	RAB RELEASE REQUEST
Iu Release Request	IU RELEASE REQUEST
Relocation Detect	RELOCATION DETECT
Relocation Complete	RELOCATION COMPLETE
SRNS Data Forwarding Initiation	SRNS DATA FORWARD COMMAND
SRNS Context Forwarding from Source RNC to CN	FORWARD SRNS CONTEXT
SRNS Context Forwarding to Target RNC from CN	FORWARD SRNS CONTEXT
Paging	PAGING
Common ID	COMMON ID
CN Invoke Trace	CN INVOKE TRACE
CN Deactivate Trace	CN DEACTIVATE TRACE
Location Reporting Control	LOCATION REPORTING CONTROL
Location Report	LOCATION REPORT
Initial UE Message	INITIAL UE MESSAGE
Direct Transfer	DIRECT TRANSFER
Overload Control	OVERLOAD
Error Indication	ERROR INDICATION
UE Specific Information	UE SPECIFIC INFORMATION INDICATION
Direct Information Transfer	DIRECT INFORMATION TRANSFER
MBMS RAB Establishment Indication	MBMS RAB ESTABLISHMENT INDICATION

Table 3: Class 3

Elementary Procedure	Initiating Message	Response Message
RAB Assignment	RAB ASSIGNMENT REQUEST	RAB ASSIGNMENT RESPONSE x N (N>=1)

The following applies concerning interference between Elementary Procedures:

- The Reset procedure takes precedence over all other EPs.
- The Reset Resource procedure takes precedence over all other EPs except the Reset procedure.
- The Iu Release procedure takes precedence over all other EPs except the Reset procedure and the Reset Resource procedure.

8.42 MBMS RAB Establishment Indication

8.42.1 General

The purpose of the MBMS RAB Establishment Indication procedure is to inform the CN of the establishment of the MBMS RAB corresponding to the MBMS Iu signalling connection used for this procedure.

The procedure uses connection oriented signalling.

8.42.2 Successful Operation

Figure 55: Initial UE Message procedure. Successful operation.

When the RNC has not yet established the MBMS RAB for a particular Multicast Service and is informed that a given UE joined this particular Multicast Service, the RNC shall initiate the MBMS RAB Establishment Indication procedure and send the MBMS RAB ESTABLISHMENT INDICATION message to the CN. If NNSF is active, the selection of the CN node is implementation dependant.

The MBMS RAB ESTABLISHMENT INDICATION message shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE.

8.42.3 Abnormal Conditions

Not applicable.

8.xx MBMS RAB Release

8.xx.1 General

The purpose of the MBMS RAB Release procedure is to enable the UTRAN to request the release of an MBMS RAB.

The procedure uses connection oriented signalling.

8.xx.2 Successful Operation

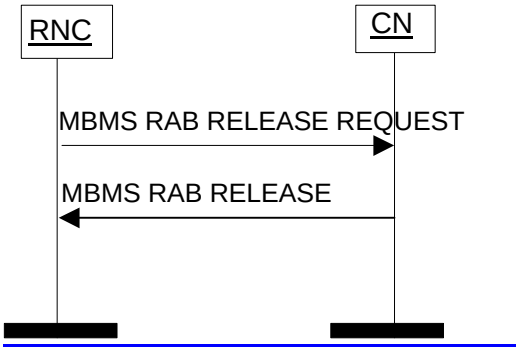

Figure x1: MBMS RAB Release procedure. Successful operation.

The RNC initiates the procedure by generating a MBMS RAB RELEASE REQUEST message towards the CN. The MBMS RAB RELEASE REQUEST message is sent on the Iu connection related to the MBMS RAB to be released. The included cause value indicates the reason for the release, e.g. "RAB pre-empted", "Release due to UTRAN Generated Reason", "MBMS - No Data Bearer Necessary".

The CN should according to the MBMS RAB RELEASE REQUEST message initiate the release of all MBMS resources related to the Iu connection without releasing the Iu signalling connection.

The RNC may at reception of MBMS RAB RELEASE initiate release of the related MBMS bearer resources.

8.xx.3 Unsuccessful Operation

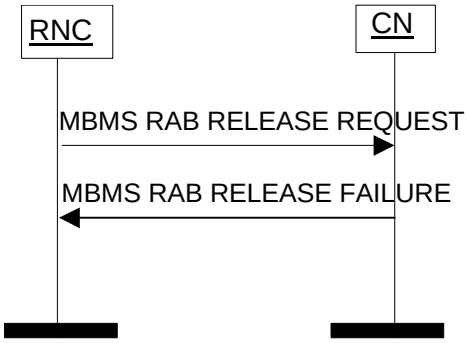

Figure x2: MBMS RAB RELEASE procedure. Unsuccessful operation.

If the CN node is not capable of correctly processing the request, the RNC shall be informed by the MBMS RAB RELEASE FAILURE message.

The MBMS RAB RELEASE FAILURE message shall inform the RNC about the reason for the unsuccessful operation with an appropriate cause value.

8.xx.4 Abnormal Conditions

Not applicable.

9.1.73 MBMS RAB ESTABLISHMENT INDICATION

This message is sent by the RNC to the CN to inform the CN of the establishment of the MBMS RAB corresponding to the MBMS Iu signalling connection used by this message.

Direction: RNC → CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Transport Layer Information	M				YES	ignore
>Transport Layer Address	M		9.2.2.1		YES	ignore
>Iu Transport Association	M		9.2.2.2		YES	ignore

9.1.x1 MBMS RAB RELEASE REQUEST

This message is sent by the RNC to request the CN to release the MBMS RAB.

Direction: RNC → CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
Cause	M		9.2.1.4		YES	ignore

9.1.x2 MBMS RAB RELEASE

This message is sent by the CN to order the RNC to release all MBMS resources related to the Iu connection.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
Cause	M		9.2.1.4		YES	ignore

9.1.X3 MBMS RAB RELEASE FAILURE

This message is sent by the CN to the RNC as an unsuccessful response to the MBMS RAB RELEASE REQUEST message.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
Cause	M		9.2.1.4		YES	ignore

9.2.1 Radio Network Layer Related IEs

9.2.1.1 Message Type

The *Message Type* IE uniquely identifies the message being sent. It is mandatory for all messages.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type				Assumed max no of messages is 256.
>Procedure Code	M		(RAB Assignment, RAB Release Request, Iu Release Request, Iu Release, Relocation Preparation, Relocation Resource Allocation, Relocation Detect, Relocation Complete Relocation Cancel, SRNS Context Transfer, SRNS Data Forwarding Initiation, SRNS Context Forwarding from Source RNC to CN, SRNS Context Forwarding to Target RNC from CN, Paging, Common ID, CN Invoke Trace, Security Mode Control, Location Reporting Control Location Report, Data Volume Report, Initial UE Message Direct Transfer, Overload Control, Reset, Error Indication, CN Deactivate Trace, RANAP Relocation Information, Reset Resource, …, RAB Modify Request, Location Related Data, Information Transfer, UE Specific Information, Direct Information Transfer, Uplink Information Exchange, MBMS Session Start, MBMS Session Update, MBMS Session Stop, MBMS UE Linking, MBMS Registration, MBMS CN De-Registration, MBMS RAB Establishment Indication, MBMS RAB Release)	
>Type of Message	M		CHOICE (Initiating Message, Successful Outcome, Unsuccessful Outcome, Outcome, …)	

9.2.1.4 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueuing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphering and/or Integrity Protection Algorithms not Supported(12), Conflict with already existing Integrity protection and/or Ciphering information (13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19),	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Requested Maximum Bit Rate not Available(20), Requested Maximum Bit Rate for DL not Available(33), Requested Maximum Bit Rate for UL not Available(34), Requested Guaranteed Bit Rate not Available(21), Requested Guaranteed Bit Rate for DL not Available(35), Requested Guaranteed Bit Rate for UL not Available(36), Requested Transfer Delay not Achievable(22), Invalid RAB Parameters Combination(23), Condition Violation for SDU Parameters(24), Condition Violation for Traffic Handling Priority(25), Condition Violation for Guaranteed Bit Rate(26), User Plane Versions not Supported(27), Iu UP Failure(28), TRELOCalloc Expiry (7), Relocation Failure in Target CN/RNC or Target System (29), Invalid RAB	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			ID(30), No remaining RAB(31), Interaction with other procedure(32), Repeated Integrity Checking Failure(37), Requested Request Type not supported(38), Request superseded(39), Release due to UE generated signalling connection release(40), Resource Optimisation Relocation(41), Requested Information Not Available(42), Relocation desirable for radio reasons (43), Relocation not supported in Target RNC or Target system(44), Directed Retry (45), Radio Connection With UE Lost(46), RNC unable to establish all RFCs (47), Deciphering Keys Not Available(48), Dedicated Assistance data Not Available(49), Relocation Target not allowed(50), Location Reporting Congestion(51),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Reduce Load in Serving Cell (52), No Radio Resources Available in Target cell (53), GERAN Iu-mode failure (54), Access Restricted Due to Shared Networks(55), Incoming Relocation Not Supported Due To PUESBINE Feature(56), Traffic Load In The Target Cell Higher Than In The Source Cell(57), MBMS - No Multicast Service For This UE(58), MBMS - Unknown UE ID(59), Successful MBMS Session Start - No Data Bearer Necessary(60), MBMS - Superseded Due To NNSF(61), MBMS - UE Linking Already Done(62), MBMS - UE De-Linking Failure - No Existing UE Linking(63), TMGI Unknown(64))	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Transport Layer Cause			INTEGER (Signalling Transport Resource Failure(65), Iu Transport Connection Failed to Establish(66))	Value range is 65 – 80.
>NAS Cause			INTEGER (User Restriction Start Indication(81), User Restriction End Indication(82), Normal Release(83))	Value range is 81 – 96.
>Protocol Cause			INTEGER (Transfer Syntax Error(97), Semantic Error (98), Message not compatible with receiver state (99), Abstract Syntax Error (Reject) (100), Abstract Syntax Error (Ignore and Notify) (101), Abstract Syntax Error (Falsely Constructed Message) (102))	Value range is 97 – 112.
>Miscellaneous Cause			INTEGER (O&M Intervention(113), No Resource Available(114), Unspecified Failure(115), Network Optimisation(116))	Value range is 113 – 128.
>Non-standard Cause			INTEGER ()	Value range is 129 – 256. Cause value 256 shall not be used.
>Radio Network Layer Cause Extension			INTEGER (IP Multicast Address And APN Not Valid(257), MBMS De-	Value range is 257 – 512.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Registration Rejected Due To Implicit Registration(258), MBMS - Request Superseded(259), MBMS De-Registration During Session Not Allowed(260), MBMS - No Data Bearer Necessary(261))	

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the related capability is missing. On the other hand, "not available" cause values indicate that the related capability is present, but insufficient resources were available to perform the requested action.

Radio Network Layer cause	Meaning
Deciphering Keys Not Available	The action failed because RNC is not able to provide requested deciphering keys.
Conflict with already existing Integrity protection and/or Ciphering information	The action was not performed due to that the requested security mode configuration was in conflict with the already existing security mode configuration.
Condition Violation For Guaranteed Bit Rate	The action was not performed due to condition violation for guaranteed bit rate.
Condition Violation For SDU Parameters	The action was not performed due to condition violation for SDU parameters.
Condition Violation For Traffic Handling Priority	The action was not performed due to condition violation for traffic handling priority.
Dedicated Assistance data Not Available	The action failed because RNC is not able to successfully deliver the requested dedicated assistance data to the UE.
Directed Retry	The reason for action is Directed Retry
Failure In The Radio Interface Procedure	Radio interface procedure has failed.
Incoming Relocation Not Supported Due To PUESBINE Feature	The incoming relocation cannot be accepted by the target RNC because of the PUESBINE feature.
Interaction With Other Procedure	Relocation was cancelled due to interaction with other procedure.
Invalid RAB ID	The action failed because the RAB ID is unknown in the RNC.
Invalid RAB Parameters Combination	The action failed due to invalid RAB parameters combination.
Invalid RAB Parameters Value	The action failed due to invalid RAB parameters value.
Iu UP Failure	The action failed due to Iu UP failure.
No remaining RAB	The reason for the action is no remaining RAB.
RAB Pre-empted	The reason for the action is that RAB is pre-empted.
Radio Connection With UE Lost	The action is requested due to losing radio connection to the UE
Release Due To UE Generated Signalling Connection Release	Release requested due to UE generated signalling connection release.
Release Due To UTRAN Generated Reason	Release is initiated due to UTRAN generated reason.
Relocation Cancelled	The reason for the action is relocation cancellation.
Relocation Desirable for Radio Reasons	The reason for requesting relocation is radio related.
Relocation Failure In Target CN/RNC Or Target System	Relocation failed due to a failure in target CN/RNC or target system.
Relocation Not Supported In Target RNC Or Target System	Relocation failed because relocation was not supported in target RNC or target system.
Relocation Target not allowed	Relocation to the indicated target cell is not allowed for the UE in question.
Relocation Triggered	The action failed due to relocation.
Repeated Integrity Checking Failure	The action is requested due to repeated failure in integrity checking.
Request Superseded	The action failed because there was a second request on the same RAB.
Requested Ciphering And/Or Integrity Protection Algorithms Not Supported	The UTRAN or the UE is unable to support the requested ciphering and/or integrity protection algorithms.
Requested Guaranteed Bit Rate For DL Not Available	The action failed because requested guaranteed bit rate for DL is not available.
Requested Guaranteed Bit Rate For UL Not Available	The action failed because requested guaranteed bit rate for UL is not available.
Requested Guaranteed Bit Rate Not Available	The action failed because requested guaranteed bit rate is not available.
Requested Information Not Available	The action failed because requested information is not available.
Requested Maximum Bit Rate For DL Not Available	The action failed because requested maximum bit rate for DL is not available.
Requested Maximum Bit Rate For UL Not Available	The action failed because requested maximum bit rate for UL is not available.
Requested Maximum Bit Rate Not Available	The action failed because requested maximum bit rate is not available.
Requested Request Type Not Supported	The RNC is not supporting the requested location request type either because it doesn't support the requested event or

	it doesn't support the requested report area.
Location Reporting Congestion	The action was not performed due to an inability to support location reporting caused by overload.
Requested Traffic Class Not Available	The action failed because requested traffic class is not available.
Requested Transfer Delay Not Achievable	The action failed because requested transfer delay is not achievable.
Resource Optimisation Relocation	The reason for requesting relocation is resource optimisation.
Successful Relocation	The reason for the action is completion of successful relocation.
Time Critical Relocation	Relocation is requested for time critical reason i.e. this cause value is reserved to represent all critical cases where the connection is likely to be dropped if relocation is not performed.
$T_{QUEUING}$ Expiry	The action failed due to expiry of the timer $T_{QUEUING}$.
$T_{RELOCalloc}$ Expiry	Relocation Resource Allocation procedure failed due to expiry of the timer $T_{RELOCalloc}$.
$T_{RELOCcomplete}$ Expiry	The reason for the action is expiry of timer $T_{RELOCcomplete}$.
$T_{RELOCoverall}$ Expiry	The reason for the action is expiry of timer $T_{RELOCoverall}$.
$T_{RELOCprep}$ Expiry	Relocation Preparation procedure is cancelled when timer $T_{RELOCprep}$ expires.
Unable To Establish During Relocation	RAB failed to establish during relocation because it cannot be supported in the target RNC.
Unknown Target RNC	Relocation rejected because the target RNC is not known to the CN.
User Inactivity	The action is requested due to user inactivity on one or several non real time RABs e.g. in order to optimise radio resource.
User Plane Versions Not Supported	The action failed because requested user plane versions were not supported.
RNC unable to establish all RFCs	RNC couldn't establish all RAB subflow combinations indicated within the *RAB Parameters* IE.
Reduce Load in Serving Cell	Load on serving cell needs to be reduced.
No Radio Resources Available in Target Cell	Load on target cell is too high.
GERAN Iu-mode failure	The RAB establishment/modification/relocation failed because the GERAN BSC cannot provide an appropriate RAB due to limited capabilities within GERAN.
Access Restricted Due to Shared Networks	Access is not permitted in the cell due to Shared Networks.
Traffic Load In The Target Cell Higher Than In The Source Cell	Relocation to reduce load in the source cell is rejected, as the target cell's traffic load is higher than that in the source cell.
MBMS - No Multicast Service For This UE	The request for the Multicase Service list of one UE was not fulfilled because the UE does not have any active multicast service.
MBMS - Unknown UE ID	The request for the Multicase Service list of one UE was not fulfilled because the CN does not know the UE.
Successful MBMS Session Start - No Data Bearer Necessary	The MBMS Session Start procedure was successfully performed, but the RNC does not have any interested UE.
MBMS - Superseded Due To NNSF	The MBMS Session Start procedure was rejected because of successful operation towards another CN node.
MBMS - UE Linking Already Done	The UE linking failed, because the UE has already been linked to the given Multicast service.
MBMS - UE De-Linking Failure - No Existing UE Linking	The UE de-linking failed, because the UE had not been linked to the given Multicast service.
TMGI Unknown	The requested MBMS action failed because the indicated TMGI is unknown.
Radio Network Layer cause extension	Meaning
IP Multicast Address And APN Not Valid	The MBMS registration failed because the IP Multicast Address and APN are not valid.
MBMS De-Registration Rejected Due To Implicit Registration	The MBMS De-registration was rejected because of implicit registration.
MBMS - Request Superseded	The MBMS Registration or De-registration was superseded due to another ongoing procedure.
MBMS De-Registration During Session Not Allowed	The MBMS De-registration is not allowed during the MBMS session.

MBMS - No Data Bearer Necessary	The RNC no longer have any UEs interested in the MBMS data bearer.

Transport Layer cause	Meaning
Iu Transport Connection Failed to Establish	The action failed because the Iu Transport Network Layer connection could not be established.
Signalling Transport Resource Failure	Signalling transport resources have failed *(e.g. processor reset).*

NAS cause	Meaning
Normal Release	The release is normal.
User Restriction Start Indication	A location report is generated due to entering a classified area set by O&M.
User Restriction End Indication	A location report is generated due to leaving a classified area set by O&M.

Protocol cause	Meaning
Abstract Syntax Error (Reject)	The received message included an abstract syntax error and the concerning criticality indicated "reject".
Abstract Syntax Error (Ignore And Notify)	The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify".
Abstract Syntax Error (Falsely Constructed Message)	The received message contained IEs or IE groups in wrong order or with too many occurrences.
Message Not Compatible With Receiver State	The received message was not compatible with the receiver state.
Semantic Error	The received message included a semantic error.
Transfer Syntax Error	The received message included a transfer syntax error.

Miscellaneous cause	Meaning
Network Optimisation	The action is performed for network optimisation.
No Resource Available	No requested resource is available.
O&M Intervention	The action is due to O&M intervention.
Unspecified Failure	Sent when none of the specified cause values applies.

9.3.2 Elementary Procedure Definitions

```
-- **************************************************************
--
-- Elementary Procedure definitions
--
-- **************************************************************

RANAP-PDU-Descriptions  {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    Criticality,
    ProcedureCode
FROM RANAP-CommonDataTypes

    Iu-ReleaseCommand,
    Iu-ReleaseComplete,
    RelocationCommand,
    RelocationPreparationFailure,
    RelocationRequired,
    RelocationRequest,
    RelocationRequestAcknowledge,
    RelocationFailure,
    RelocationCancel,
    RelocationCancelAcknowledge,
    SRNS-ContextRequest,
    SRNS-ContextResponse,
    SecurityModeCommand,
    SecurityModeComplete,
    SecurityModeReject,
    DataVolumeReportRequest,
    DataVolumeReport,
    Reset,
    ResetAcknowledge,
    RAB-ReleaseRequest,
    Iu-ReleaseRequest,
    RelocationDetect,
    RelocationComplete,
    Paging,
    CommonID,
    CN-InvokeTrace,
    CN-DeactivateTrace,
    LocationReportingControl,
    LocationReport,
    InitialUE-Message,
    DirectTransfer,
    Overload,
    ErrorIndication,
    SRNS-DataForwardCommand,
    ForwardSRNS-Context,
    RAB-AssignmentRequest,
    RAB-AssignmentResponse,
    RAB-ModifyRequest,
    PrivateMessage,
    ResetResource,
    ResetResourceAcknowledge,
    RANAP-RelocationInformation,
    LocationRelatedDataRequest,
    LocationRelatedDataResponse,
    LocationRelatedDataFailure,
    InformationTransferIndication,
    InformationTransferConfirmation,
    InformationTransferFailure,
    UESpecificInformationIndication,
    DirectInformationTransfer,
```

```
    UplinkInformationExchangeRequest,
    UplinkInformationExchangeResponse,
    UplinkInformationExchangeFailure,
    MBMSSessionStart,
    MBMSSessionStartResponse,
    MBMSSessionStartFailure,
    MBMSSessionUpdate,
    MBMSSessionUpdateResponse,
    MBMSSessionUpdateFailure,
    MBMSSessionStop,
    MBMSSessionStopResponse,
    MBMSUELinkingRequest,
    MBMSUELinkingResponse,
    MBMSRegistrationRequest,
    MBMSRegistrationResponse,
    MBMSRegistrationFailure,
    MBMSCNDe-RegistrationRequest,
    MBMSCNDe-RegistrationResponse,
    MBMSRABEstablishmentIndication,
    MBMSRABReleaseRequest,
    MBMSRABRelease,
    MBMSRABReleaseFailure
FROM RANAP-PDU-Contents

    id-LocationRelatedData,
    id-CN-DeactivateTrace,
    id-CN-InvokeTrace,
    id-CommonID,
    id-DataVolumeReport,
    id-DirectTransfer,
    id-ErrorIndication,
    id-ForwardSRNS-Context,
    id-InformationTransfer,
    id-InitialUE-Message,
    id-Iu-Release,
    id-Iu-ReleaseRequest,
    id-LocationReport,
    id-LocationReportingControl,
    id-OverloadControl,
    id-Paging,
    id-privateMessage,
    id-RAB-Assignment,
    id-RAB-ReleaseRequest,
    id-RAB-ModifyRequest,
    id-RANAP-Relocation,
    id-RelocationCancel,
    id-RelocationComplete,
    id-RelocationDetect,
    id-RelocationPreparation,
    id-RelocationResourceAllocation,
    id-Reset,
    id-SRNS-ContextTransfer,
    id-SRNS-DataForward,
    id-SecurityModeControl,
    id-ResetResource,
    id-UESpecificInformation,
    id-DirectInformationTransfer,
    id-UplinkInformationExchange,
    id-MBMSSessionStart,
    id-MBMSSessionUpdate,
    id-MBMSSessionStop,
    id-MBMSUELinking,
    id-MBMSRegistration,
    id-MBMSCNDe-Registration-Procedure,
    id-MBMSRABEstablishmentIndication,
    id-MBMSRABRelease

FROM RANAP-Constants;

-- **************************************************************
--
-- Interface Elementary Procedure Class
--
-- **************************************************************

RANAP-ELEMENTARY-PROCEDURE ::= CLASS {
    &InitiatingMessage              ,
    &SuccessfulOutcome              OPTIONAL,
```

```
    &UnsuccessfulOutcome                OPTIONAL,
    &Outcome                    OPTIONAL,
    &procedureCode          ProcedureCode   UNIQUE,
    &criticality            Criticality     DEFAULT ignore
}
WITH SYNTAX {
    INITIATING MESSAGE      &InitiatingMessage
    [SUCCESSFUL OUTCOME     &SuccessfulOutcome]
    [UNSUCCESSFUL OUTCOME       &UnsuccessfulOutcome]
    [OUTCOME            &Outcome]
    PROCEDURE CODE              &procedureCode
    [CRITICALITY            &criticality]
}

-- **************************************************************
--
-- Interface PDU Definition
--
-- **************************************************************

RANAP-PDU ::= CHOICE {
    initiatingMessage   InitiatingMessage,
    successfulOutcome   SuccessfulOutcome,
    unsuccessfulOutcome UnsuccessfulOutcome,
    outcome         Outcome,
    ...
}

InitiatingMessage ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&InitiatingMessage   ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode})
}

SuccessfulOutcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome   ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode})
}

UnsuccessfulOutcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode})
}

Outcome ::= SEQUENCE {
    procedureCode   RANAP-ELEMENTARY-PROCEDURE.&procedureCode   ({RANAP-ELEMENTARY-PROCEDURES}),
    criticality RANAP-ELEMENTARY-PROCEDURE.&criticality     ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode}),
    value       RANAP-ELEMENTARY-PROCEDURE.&Outcome     ({RANAP-ELEMENTARY-
PROCEDURES}{@procedureCode})
}

-- **************************************************************
--
-- Interface Elementary Procedure List
--
-- **************************************************************

RANAP-ELEMENTARY-PROCEDURES RANAP-ELEMENTARY-PROCEDURE ::= {
    RANAP-ELEMENTARY-PROCEDURES-CLASS-1 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-2 |
    RANAP-ELEMENTARY-PROCEDURES-CLASS-3 ,
    ...
}


RANAP-ELEMENTARY-PROCEDURES-CLASS-1 RANAP-ELEMENTARY-PROCEDURE ::= {
    iu-Release          |
    relocationPreparation       |
    relocationResourceAllocation    |
```

```
    relocationCancel        |
    sRNS-ContextTransfer        |
    securityModeControl     |
    dataVolumeReport        |
    reset       |
    resetResource               ,
    ...,
    locationRelatedData     |
    informationTransfer     |
    uplinkInformationExchange   |
    mBMSSessionStart            |
    mBMSSessionUpdate           |
    mBMSSessionStop             |
    mBMSUELinking               |
    mBMSRegistration            |
    mBMSCNDe-Registration       |
    mBMSRABRelease
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-2 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-ReleaseRequest      |
    iu-ReleaseRequest       |
    relocationDetect        |
    relocationComplete      |
    paging                  |
    commonID                |
    cN-InvokeTrace          |
    cN-DeactivateTrace      |
    locationReportingControl    |
    locationReport          |
    initialUE-Message       |
    directTransfer          |
    overloadControl         |
    errorIndication         |
    sRNS-DataForward        |
    forwardSRNS-Context     |
    privateMessage          |
    rANAP-Relocation        ,
    ...,
    rAB-ModifyRequest       |
    uESpecificInformation   |
    directInformationTransfer   |
    mBMSRABEstablishmentIndication
}

RANAP-ELEMENTARY-PROCEDURES-CLASS-3 RANAP-ELEMENTARY-PROCEDURE ::= {
    rAB-Assignment          ,
    ...
}
```

Lots of unaffected ASN1 in 9.3.2 not shown

```
mBMSRABEstablishmentIndication RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  MBMSRABEstablishmentIndication
    PROCEDURE CODE      id-MBMSRABEstablishmentIndication
    CRITICALITY     ignore
}

mBMSRABRelease RANAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  MBMSRABReleaseRequest
    SUCCESSFUL OUTCOME      MBMSRABRelease
    UNSUCCESSFUL OUTCOME    MBMSRABReleaseFailure
    PROCEDURE CODE      id-MBMSRABRelease
    CRITICALITY     reject
}

END
```

9.3.3 PDU Definitions

```
-- **************************************************************
--
-- PDU definitions for RANAP.
--
-- **************************************************************

RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN
```

Lots of unaffected ASN1 in 9.3.3 not shown

```
-- **************************************************************
--
-- MBMS RAB ESTABLISHMENT INDICATION PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS RAB Establishment Indication
--
-- **************************************************************

MBMSRABEstablishmentIndication ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { { MBMSRABEstablishmentIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer  { {
MBMSRABEstablishmentIndicationExtensions} }         OPTIONAL,
    ...
}

MBMSRABEstablishmentIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TransportLayerInformation       CRITICALITY ignore  TYPE TransportLayerInformation
    PRESENCE mandatory  } ,
    ...
}

MBMSRABEstablishmentIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS RAB RELEASE PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- MBMS RAB Release Request
--
-- **************************************************************

MBMSRABReleaseRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { {MBMSRABReleaseRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer  { {MBMSRABReleaseRequestExtensions} }
    OPTIONAL,
    ...
}

MBMSRABReleaseRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause       CRITICALITY ignore  TYPE Cause              PRESENCE mandatory  },
    ...
}


MBMSRABReleaseRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
-- **************************************************************
--
-- MBMS RAB Release
--
-- **************************************************************

MBMSRABRelease ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { {MBMSRABReleaseIEs} },
    protocolExtensions      ProtocolExtensionContainer  { {MBMSRABReleaseExtensions} }
    OPTIONAL,
    ...
}

MBMSRABReleaseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause       CRITICALITY ignore  TYPE Cause              PRESENCE mandatory  },
    ...
}

MBMSRABReleaseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- MBMS RAB Release Failure
--
-- **************************************************************

MBMSRABReleaseFailure ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container        { {MBMSRABReleaseFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer  { {MBMSRABReleaseFailureExtensions} }
    OPTIONAL,
    ...
}

MBMSRABReleaseFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause       CRITICALITY ignore  TYPE Cause              PRESENCE mandatory  },
    ...
}

MBMSRABReleaseFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

END
```

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN
```

Lots of unaffected ASN1 in 9.3.4 not shown

```
CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    conflict-with-already-existing-integrity-protection-and-or-ciphering-information (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bit-rate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-request-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40),
    resource-optimisation-relocation (41),
    requested-information-not-available (42),
    relocation-desirable-for-radio-reasons (43),
    relocation-not-supported-in-target-RNC-or-target-system (44),
    directed-retry (45),
    radio-connection-with-UE-Lost (46),
    rNC-unable-to-establish-all-RFCs  (47),
    deciphering-keys-not-available(48),
    dedicated-assistance-data-not-available(49),
    relocation-target-not-allowed (50),
    location-reporting-congestion (51),
    reduce-load-in-serving-cell (52),
    no-radio-resources-available-in-target-cell (53),
    gERAN-Iumode-failure (54),
    access-restricted-due-to-shared-networks (55),
    incoming-relocation-not-supported-due-to-PUESBINE-feature (56),
```

```
    traffic-load-in-the-target-cell-higher-than-in-the-source-cell (57),
    mBMS-no-multicast-service-for-this-UE(58),
    mBMS-unknown-UE-ID(59),
    successful-MBMS-session-start-no-data-bearer-necessary(60),
    mBMS-superseded-due-to-NNSF(61),
    mBMS-UE-linking-already-done(62),
    mBMS-UE-de-linking-failure-no-existing-UE-linking(63),
    tMGI-unknown(64)} (1..64)

CauseRadioNetworkExtension ::= INTEGER {
    iP-multicast-address-and-APN-not-valid(257),
    mBMS-de-registration-rejected-due-to-implicit-registration(258),
    mBMS-request-superseded(259),
    mBMS-de-registration-during-session-not-allowed(260),
    MBMS-no-data-bearer-necessary(261)
} (257..512)

                    Lots of unaffected ASN1 in 9.3.4 not shown

END
```

9.3.6 Constant Definitions

```
-- **************************************************************
--
-- Constant definitions
--
-- **************************************************************

RANAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- **************************************************************
--
-- Elementary Procedures
--
-- **************************************************************

id-RAB-Assignment                   INTEGER ::= 0
id-Iu-Release                       INTEGER ::= 1
id-RelocationPreparation            INTEGER ::= 2
id-RelocationResourceAllocation     INTEGER ::= 3
id-RelocationCancel                 INTEGER ::= 4
id-SRNS-ContextTransfer             INTEGER ::= 5
id-SecurityModeControl              INTEGER ::= 6
id-DataVolumeReport                 INTEGER ::= 7
id-Reset                            INTEGER ::= 9
id-RAB-ReleaseRequest               INTEGER ::= 10
id-Iu-ReleaseRequest                INTEGER ::= 11
id-RelocationDetect                 INTEGER ::= 12
id-RelocationComplete               INTEGER ::= 13
id-Paging                           INTEGER ::= 14
id-CommonID                         INTEGER ::= 15
id-CN-InvokeTrace                   INTEGER ::= 16
id-LocationReportingControl         INTEGER ::= 17
id-LocationReport                   INTEGER ::= 18
id-InitialUE-Message                INTEGER ::= 19
id-DirectTransfer                   INTEGER ::= 20
id-OverloadControl                  INTEGER ::= 21
id-ErrorIndication                  INTEGER ::= 22
id-SRNS-DataForward                 INTEGER ::= 23
id-ForwardSRNS-Context              INTEGER ::= 24
id-privateMessage                   INTEGER ::= 25
id-CN-DeactivateTrace               INTEGER ::= 26
id-ResetResource                    INTEGER ::= 27
id-RANAP-Relocation                 INTEGER ::= 28
id-RAB-ModifyRequest                INTEGER ::= 29
id-LocationRelatedData              INTEGER ::= 30
id-InformationTransfer              INTEGER ::= 31
id-UESpecificInformation            INTEGER ::= 32
id-UplinkInformationExchange        INTEGER ::= 33
id-DirectInformationTransfer        INTEGER ::= 34
id-MBMSSessionStart                 INTEGER ::= 35
id-MBMSSessionUpdate                INTEGER ::= 36
id-MBMSSessionStop                  INTEGER ::= 37
id-MBMSUELinking                    INTEGER ::= 38
id-MBMSRegistration                 INTEGER ::= 39
id-MBMSCNDe-Registration-Procedure  INTEGER ::= 40
id-MBMSRABEstablishmentIndication   INTEGER ::= 41
id-MBMSRABRelease                   INTEGER ::= 42
```

Lots of unaffected ASN1 in 9.3.6 not shown

```
END
```

3GPP TSG-RAN WG3 #46 **⌘R3-050182**
Phoenix, USA, 14th February – 18 February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **TS25.413** **CR** **CR734** ⌘ **rev** **-** ⌘ Current version: **6.4.1** ⌘

*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 **X** Core Network **X**

Title:	⌘	Handling of MBMS Contexts and Attributes
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	14/02/2005
Category:	⌘	**F**
Release:	⌘	REL-6

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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Alignment with the stage2 and fulfilment of some mobility scenarios not covered.
Summary of change:	⌘	One statement added in the Session Start procedure. Impact assessment towards the previous version of the specification (same release): This CR has isolated impact towards the previous version of the specification (same release). This CR has an impact under functional and protocol point of view. The impact can be considered isolated because it only affects the Session Start procedure.
Consequences if not approved:	⌘	RANAP is not aligned with TS23.246 leading to some mobility scenarios which are not covered.

Clauses affected:	⌘	8.36

		Y	N		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘	

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.36 MBMS Session Start

8.36.1 General

The purpose of the MBMS Session Start procedure is to request the UTRAN to notify UEs about an upcoming MBMS Session of a given MBMS Bearer Service and to establish a MBMS RAB and MBMS Iu signalling connection for this MBMS Session.

The procedure uses connection oriented signalling.

8.36.2 Successful Operation

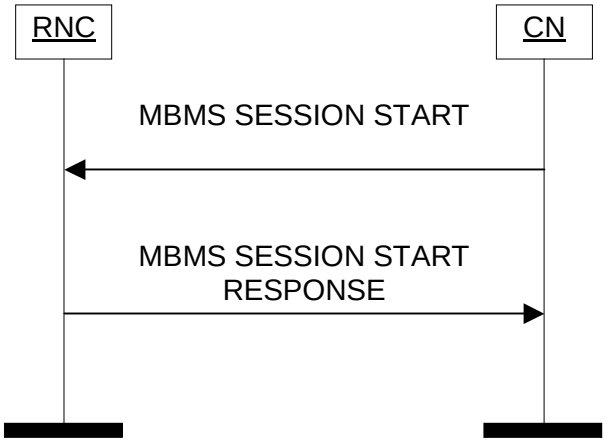

Figure 46: MBMS Session Start procedure. Successful operation.

The CN initiates the procedure by sending a MBMS SESSION START message.

The MBMS SESSION START message shall contain:

- TMGI;
- MBMS Bearer Service Type;
- MBMS Session Identifier;
- Iu Signalling Connection Identifier IE;
- RAB parameters (including e.g. Allocation/Retention Priority);
- PDP Type Information, if available;
- MBMS Session Duration, if available;
- MBMS Service Area;
- Frequency Layer Convergence Flag, if available;
- RA List of Idle Mode UEs, if available.
- Global CN-ID IE, only when the MBMS SESSION START message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node.

Upon reception of the MBMS SESSION START message, the RNC shall store the *Iu Signalling Connection Identifier* IE for the duration of the MBMS Iu signalling connection. The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN. The value for the *Iu Signalling Connection Identifier* IE shall be allocated so as to uniquely identify an Iu signalling connection for the involved CN node.

The *Global CN-ID* IE contains the identity of the CN node that sent the MBMS SESSION START message, and it shall, if included, be stored together with the Iu signalling connection identifier. If the *Global CN-ID* IE is not included, the MBMS SESSION START message shall be considered as coming from the default CN node.

~~If the RNC controls cells contained in the indicated MBMS Service Area or serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area, the~~ Upon reception of the MBMS SESSION START message, the RNC shall store, if not already, and remember the *TMGI* IE, the *RAB parameters* IE and the other attributes of the session as part of the MBMS Service Context. The *TMGI* IE contains the TMGI identifier which uniquely identifies the MBMS Bearer Service.

Upon reception of the MBMS SESSION START message, the RNC shall initiate allocation of requested resources for the MBMS RAB if at least one of the following two conditions is fulfilled:

- the RNC controls at least one cell contained in the indicated MBMS Service Area and, if the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message, at least one RNC´s RA is contained in this list,

- the RNC serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area.

In case the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message but none of above conditions is fulfilled, the RNC may decide to wait for either an update of the RA List of Idle Mode UEs or a UE linking to finally establish the MBMS RAB. If the RNC decides so, it shall report it immediately to the CN in the MBMS SESSION START RESPONSE message with the cause value "Successful MBMS Session Start - No Data Bearer Necessary".

The allocation of requested resources shall be made according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators) and the resource situation as follows:

- The RNC shall consider the priority level of the requested MBMS RAB, when deciding on the resource allocation.

- The *Queuing Allowed* IE shall be ignored for MBMS RAB.

- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the MBMS RAB establishment has to be performed unconditionally and immediately. If the requested MBMS RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the MBMS SESSION START message, shall be treated as follows:

  1. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure. UTRAN shall only pre-empt RABs (other MBMS RABs or UE specific RABs) with lower priority, in ascending order of priority.

  2. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.

  3. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.

  4. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.

  5. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.

- If the *Allocation/Retention Priority* IE is not given in the MBMS SESSION START message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.

The UTRAN shall use the *PDP Type Information* IE to configure any compression algorithms.

In case of successful MBMS RAB establishment, the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the MBMS SESSION START RESPONSE message. The RNC may answer successfully even though the MBMS resources have not been established in all relevant cells.

If NNSF is active, the RNC may receive from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message. In this case, if the RNC decides to establish the requested MBMS RAB, it shall only establish one MBMS Iu bearer and shall inform the selected CN node accordingly i.e. with MBMS SESSION START RESPONSE message including the *Transport Layer Address* IE and the *Iu Transport Association* IE.

If the RNC receives from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message and all the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall, if supported, maintain an MBMS Iu signalling connection toward all the CN nodes and inform them accordingly i.e. with MBMS SESSION START RESPONSE message and cause value "Successful MBMS Session Start - No Data Bearer Necessary" to all the CN nodes except the one, if any, towards which the RNC confirmed the successful MBMS RAB establishment.

Transmission and reception of a MBMS SESSION START RESPONSE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.3 Unsuccessful Operation

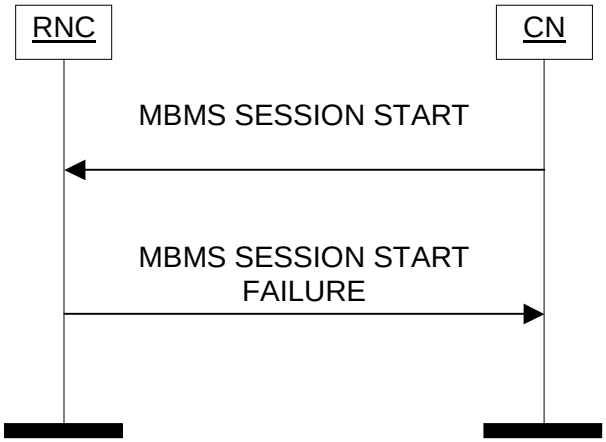

Figure 47: MBMS Session Start procedure. Unsuccessful operation.

If the RNC is not capable of correctly processing the request (e.g. the MBMS resources could not be established at all in any cell), the CN shall be informed by the MBMS SESSION START FAILURE message.

If NNSF is active and the RNC received from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message, but not all of the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall inform the respective CN nodes accordingly i.e. with MBMS SESSION START FAILURE message and cause value "MBMS - Superseded Due To NNSF" to all the CN nodes except the one towards which the RNC confirmed the successful MBMS RAB establishment with MBMS SESSION START RESPONSE message.

When UTRAN reports failure of the MBMS Session Start procedure, the cause value should be precise enough to enable the core network to know the reason for unsuccessful establishment/modification. Typical cause values are: "MBMS - Superseded Due To NNSF", "Requested Traffic Class not Available", "Invalid RAB Parameters Value", "Requested Maximum Bit Rate not Available", "Requested Guaranteed Bit Rate not Available", "Requested Transfer Delay not Achievable", "Invalid RAB Parameters Combination", "Condition Violation for Guaranteed Bit Rate", "Iu Transport Connection Failed to Establish", "No Resource Available".

Transmission and reception of a MBMS SESSION START FAILURE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.4 Abnormal Conditions

If, for a MBMS RAB requested to be set up, the *PDP Type Information* IE is not present, the RNC shall continue with the procedure.

3GPP TSG-RAN WG3 Meeting #46 **Tdoc ⌘R3-050362**
Scottsdale, Arizona, US, 14th February – 18th February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.413** **CR** **737** ⌘**rev** **3** ⌘ Current version: **6.4.1** ⌘

*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:	⌘	MBMS IE Codings
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	07/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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:
Ph2 *(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)*
Rel-7 *(Release 7)*

Reason for change: ⌘

Rev3:
ASN.1 corrected
Rev2:
Session Duration changed to be OCTET STRING (SIZE(3)) to enable transparent transmission from BM-SC to RNC. The coding of seconds, days and "infinite" added into the semantics description.
Rev1:
Session ID change removed, because it will be corrected by CR R3-050304 Session Duration. Seconds corrected that maximum value becomes a full day. From comments part in cover page, the MBMS PTP RAB ID is removed, because it is already clarified.
Rev0:
The RAN3 received many incoming Lses to RAN3#46 meeting from various groups relating how MBMS Information Elements should be coded in RANAP specification. This CR gathers the comments from other groups and proposes to adopt following changes into the RANAP version 6.4.1:
Session ID changed to one octet according to information received from RAN2 (Session Id in RRC is one octet) and GERAN2 group (in R3-050041) to save radio resources. SA4 hasn't decided their final view, but says (in R3-050037) that one octet at the moment can be used as a best estimate.
Session Duration. Infinite duration added according to information received from SA2 (in R3-050033/034/035) and GERAN2 (in R3-050038).
IP multicast address and APN. According to CN4 (in R3-040010) the length of IPv4 address is (4 OCTETS) and IPv6 address (16 OCTETS) and the coding for APN is (1-255 OCTETS). Currently there are no limits for octet amounts in RANAP and they are changed to be finite.

Summary of change:	⌘	The coding for Session ID, Session Duration and IP multicast address and APN corrected Impact analysis: This CR has no impacts to the earlier releases as MBMS is Rel-6 feature.
Consequences if not approved:	⌘	Information received from various groups is not captured into RANAP specification

Clauses affected:	⌘	9.2.3.38, 9.2.3.40, 9.2.3.46, 9.3.4			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	RAN3 asked coding also for other Ies in the LS, which was sent out in RAN3#45 meeting (in R3-041648): MBMS Service Area. No confirmation received to the “all cells SAC, ‘0’”. No confirmation also about GERAN2/RAN3 view on the max # of SACs in BM-SC (65536) and under one SA (256). MBMS Service Id. Defined as octet string size 3 in RRC and RANAP.			

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.

9.2.3.37 TMGI

The TMGI uniquely identifies the MBMS Bearer Service.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
TMGI				
>PLMN identity	M		OCTET STRING (SIZE (3))	- digits 0 to 9, encoded 0000 to 1001, - 1111 used as filler digit, two digits per octet, - bits 4 to 1 of octet n encoding digit 2n-1 - bits 8 to 5 of octet n encoding digit 2n -The PLMN identity consists of 3 digits from MCC followed by either -a filler digit plus 2 digits from MNC (in case of 2 digit MNC) or -3 digits from MNC (in case of a 3 digit MNC).
>Service ID	M		OCTET STRING (SIZE (3))	

Unaffected parts removed

9.2.3.39 MBMS Bearer Service Type

Indicates the type of the MBMS Bearer Service.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Bearer Service Type	M		ENUMERATED (multicast, broadcast, …)	

9.2.3.40 MBMS Session Duration

This IE defines the duration of the MBMS Session.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Session Duration	M		OCTET STRING (SIZE (3))	-bits 0 to 16 (17bits) consists of seconds. Maximum allowed value is 86400 seconds. - bits 17 to 23 (7bits) consists of days. Maximum allowed value is 18 days. For the whole session duration the seconds and days are added together and maximum session duration is 19 days. - All bits set to zero represents infinite session duration
~~>Seconds~~	~~M~~		~~INTEGER (0..86399)~~	~~The value represents the estimated elapsed time in seconds corresponding to the duration of the MBMS Session. See [41]~~
~~>Day~~	~~O~~		~~INTEGER (1..8)~~	~~The value represents number of days in addition to the duration in seconds of the MBMS Session.~~

9.2.3.41 MBMS Service Area

The MBMS Service Area IE consists of a list of one or several MBMS Service Area Identities where each MBMS Service Area represents one or more cells.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Service Area				
> MBMS Service Area List		1 to <maxMBMSSA>		The same MBMS Service Area Code must only be present once.
>>MBMS Service Area Code	M		INTEGER(0..65535)	The mapping between MBMS Service Area Codes and cells are configured in the RNC via O&M. The MBMS Service Area Code with value 0 shall always be mapped to all the cells of the RNC. If no mapping is configured for a certain MBMS Service Area Code in RNC, it shall simply ignore it. All cells corresponding to a MBMS Service Area Code (except for the specific MBMS Service Area Code with value 0) are MBMS capable and the mapping of MBMS Service Area Codes to cells is supposed to be configured accordingly. A cell may be mapped to one or several MBMS Service Area Codes. The MBMS Service Area Code shall be globally unique.

Range bound	Explanation
maxMBMSSA	Maximum no. of MBMS Service Area Codes. The value for maxMBMSSA is 256.

9.2.3.42 RA List of Idle Mode UEs

Indicates the list of RAs where idle-mode UEs interested in a given Multicast Service are.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **RA List of Idle Mode UEs**				
> Not Empty RA List of Idle Mode UEs				The same Routing Area Code must only be present once.
>> RA of Idle Mode UEs		1 to <maxMBMSRA>		
>> RAC	M		9.2.3.7	
> Empty RA List of Idle Mode UEs			ENUMERATED (emptylist, …)	

Range bound	Explanation
maxMBMSRA	Maximum no. of Routing Areas where idle-mode UEs interested in a given Multicast Service are. The value for maxMBMSRA is 65536.

9.2.3.43 Delta RA List of Idle Mode UEs

Indicates the list of new RAs where idle-mode UEs interested in a given Multicast Service became or moved to, as well as the list of RAs where there is no interested idle-mode UEs in a given Multicast Service any longer.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Delta RA List of Idle Mode UEs				The same Routing Area Code must only be present once.
>New RA List of Idle Mode UEs	O			
>> New RA of Idle Mode UEs		1 to <maxMBMSRA>		
>>> RAC	M		9.2.3.7	
>RA List with No Idle Mode UEs Any More	O			
>> RA with No Idle Mode UEs Any More		1 to <maxMBMSRA>		
>>> RAC	M		9.2.3.7	

Range bound	Explanation
maxMBMSRA	Maximum no. of Routing Areas where idle-mode UEs interested in a given Multicast Service are. The value for maxMBMSRA is 65536.

9.2.3.44 MBMS CN De-Registration

Indicates whether the MBMS Session Stop procedure is a normal Session Stop or a total de-registration for a given MBMS Bearer Service.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS CN De-Registration	M		ENUMERATED(normal session stop, deregister, ...)	

9.2.3.45 MBMS Registration Request Type

Indicates the type of the MBMS Registration Request.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
MBMS Registration Request Type	M		ENUMERATED(register, deregister, ...)	

9.2.3.46 Requested MBMS IP Multicast Address and APN

Informs the RNC about the requested pairs of IP Multicast Address and APN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Requested MBMS IP Multicast Address and APN				
>MBMS IP Multicast Address and APN list		1 to <maxnoofMulticastServicesPerRNC>		
>>TMGI	M		9.2.3.37	
>>IP Multicast Address	M		OCTET STRING (4..16)~~BIT STRING~~	Transparent information to RAN. Octet string size 4 represents Ipv4 address. Octet string size 16 represents Ipv6 address.
>>APN	M		OCTET STRING (1..255)	Transparent information to RAN.

Range bound	Explanation
maxnoofMulticastServicesPerRNC	Maximum no. of Multicast Services that a RNC can have context for. Value is 512.

9.2.3.47 Requested Multicast Service List

Informs the RNC about the requested Multicast Service list for a particular UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Requested Multicast Service List				
>TMGI	M	1 to <maxnoofMulticastServicesJoinedPerUE>	9.2.3.37	The same TMGI must only be present once.

Range bound	Explanation
maxnoofMulticastServicesJoinedPerUE	Maximum no. of Multicast Services that a UE can join respectively. Value is 128.

********** Unchanged part omitted **********

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************
```

********** Unchanged part omitted **********

```
Alt-RAB-Parameter-MaxBitrateType ::= ENUMERATED{
    unspecified,
    value-range,
    discrete-values,
    ...
}

Alt-RAB-Parameter-MaxBitrates ::= SEQUENCE (SIZE (1..maxNrOfAltValues)) OF
    Alt-RAB-Parameter-MaxBitrateList


Alt-RAB-Parameter-MaxBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF
MaxBitrate

APN ::= OCTET STRING (SIZE (1..255))
-- Reference: 23.003

AreaIdentity ::= CHOICE {
    sAI             SAI,
    geographicalArea        GeographicalArea,
    ...
}
```

********** Unchanged part omitted **********

```
InterSystemInformationTransferType ::= CHOICE {
    rIM-Transfer                    RIM-Transfer,
    ...
}

InterSystemInformation-TransparentContainer ::= SEQUENCE {
    downlinkCellLoadInformation         CellLoadInformation     OPTIONAL,
    uplinkCellLoadInformation           CellLoadInformation     OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { InterSystemInformation-
TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

InterSystemInformation-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
...
}

IPMulticastAddress ::= OCTET STRING (SIZE (4..16))BIT STRING
-- Reference: 23.003
```

```
IuSignallingConnectionIdentifier    ::= BIT STRING (SIZE (24))

IuTransportAssociation ::= CHOICE {
    gTP-TEI             GTP-TEI,
    bindingID           BindingID,
    ...
}
```

********** Unchanged part omitted **********

```
MBMSServiceArea ::= SEQUENCE {
    mBMSServiceAreaList     MBMSServiceAreaList,
    iE-Extensions           ProtocolExtensionContainer { {MBMSServiceArea-ExtIEs} } OPTIONAL
}

MBMSServiceAreaList ::= SEQUENCE (SIZE (1..maxMBMSSA)) OF
    MBMSServiceAreaCode

MBMSServiceAreaCode ::= INTEGER (0..65535)

MBMSServiceArea-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMSSessionDuration ::= OCTET STRING (SIZE (3))SEQUENCE {
    seconds     INTEGER (0..86399),
    day         INTEGER (1..8)  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {MBMSSessionDuration-ExtIEs} } OPTIONAL
}

MBMSSessionDuration-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMSSessionIdentifier ::= OCTET STRING (SIZE (12))

-- N
```

3GPP TSG-RAN WG3 #46 ⌘***R3-050219***
Phoenix, USA, 14th February – 18 February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **TS25.413 CR CR738** ⌘**rev -** ⌘ Current version: **6.4.1** ⌘

*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 **X** Core Network **X**

Title:	⌘	Session Start Failure
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	14/02/2005
Category:	⌘	**F**
Release:	⌘	REL-6

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:
Ph2 (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)
Rel-7 (Release 7)

Reason for change:	⌘	Non establishment is not necessarily the reason for failing the session start procedure.
Summary of change:	⌘	Establisment failure differentiated from Session Start procedure failure. Impact assessment towards the previous version of the specification (same release): This CR has isolated impact towards the previous version of the specification (same release). This CR has an impact under functional and protocol point of view. The impact can be considered isolated because it only affects the MBMS Session Start procedure.
Consequences if not approved:	⌘	Session Start Failure message used erroneously in case of failure of RAB or Iu Bearer Establishment..

Clauses affected:	⌘	8.36				
Other specs affected:	⌘	**Y**	**N**		⌘	
			X	Other core specifications		
			X	Test specifications		
			X	O&M Specifications		

Other comments: ⌘

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8.36 MBMS Session Start

8.36.1 General

The purpose of the MBMS Session Start procedure is to request the UTRAN to notify UEs about an upcoming MBMS Session of a given MBMS Bearer Service and to establish a MBMS RAB and MBMS Iu signalling connection for this MBMS Session.

The procedure uses connection oriented signalling.

8.36.2 Successful Operation

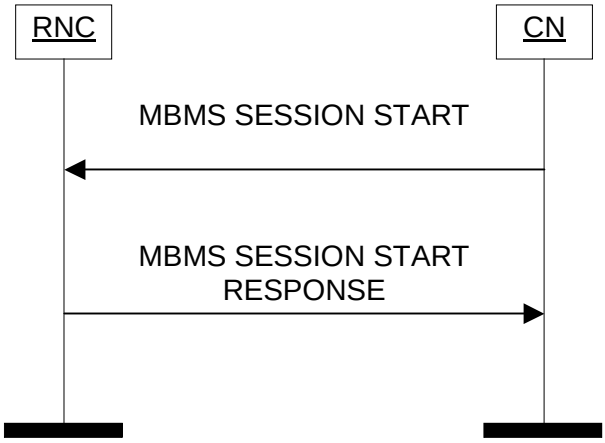

Figure 46: MBMS Session Start procedure. Successful operation.

The CN initiates the procedure by sending a MBMS SESSION START message.

The MBMS SESSION START message shall contain:

- TMGI;
- MBMS Bearer Service Type;
- MBMS Session Identifier;
- Iu Signalling Connection Identifier IE;
- RAB parameters (including e.g. Allocation/Retention Priority);
- PDP Type Information, if available;
- MBMS Session Duration, if available;
- MBMS Service Area;
- Frequency Layer Convergence Flag, if available;
- RA List of Idle Mode UEs, if available.
- Global CN-ID IE, only when the MBMS SESSION START message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node.

Upon reception of the MBMS SESSION START message, the RNC shall store the *Iu Signalling Connection Identifier* IE for the duration of the MBMS Iu signalling connection. The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN. The value for the *Iu Signalling Connection Identifier* IE shall be allocated so as to uniquely identify an Iu signalling connection for the involved CN node.

The *Global CN-ID* IE contains the identity of the CN node that sent the MBMS SESSION START message, and it shall, if included, be stored together with the Iu signalling connection identifier. If the *Global CN-ID* IE is not included, the MBMS SESSION START message shall be considered as coming from the default CN node.

If the RNC controls cells contained in the indicated MBMS Service Area or serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area, the RNC shall store, if not already, and remember the *TMGI* IE, the *RAB parameters* IE and the other attributes of the session as part of the MBMS Service Context. The *TMGI* IE contains the TMGI identifier which uniquely identifies the MBMS Bearer Service.

Upon reception of the MBMS SESSION START message, the RNC shall initiate allocation of requested resources for the MBMS RAB if at least one of the following two conditions is fulfilled:

- the RNC controls at least one cell contained in the indicated MBMS Service Area and, if the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message, at least one RNC´s RA is contained in this list,

- the RNC serves UEs consuming radio resources from cells contained in the indicated MBMS Service Area.

In case the *RA List of Idle Mode UEs* IE is included in MBMS SESSION START message but none of above conditions is fulfilled, the RNC may decide to wait for either an update of the RA List of Idle Mode UEs or a UE linking to finally establish the MBMS RAB. If the RNC decides so, it shall report it immediately to the CN in the MBMS SESSION START RESPONSE message with the cause value "Successful MBMS Session Start - No Data Bearer Necessary".

The allocation of requested resources shall be made according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators) and the resource situation as follows:

- The RNC shall consider the priority level of the requested MBMS RAB, when deciding on the resource allocation.

- The *Queuing Allowed* IE shall be ignored for MBMS RAB.

- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the MBMS RAB establishment has to be performed unconditionally and immediately. If the requested MBMS RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the MBMS SESSION START message, shall be treated as follows:

    1. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure. UTRAN shall only pre-empt RABs (other MBMS RABs or UE specific RABs) with lower priority, in ascending order of priority.

    2. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.

    3. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.

    4. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.

    5. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.

- If the *Allocation/Retention Priority* IE is not given in the MBMS SESSION START message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.

The UTRAN shall use the *PDP Type Information* IE to configure any compression algorithms.

In case of successful MBMS RAB establishment, the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the MBMS SESSION START RESPONSE message. The RNC may answer successfully even though the MBMS resources have not been established in all relevant cells.

If NNSF is active, the RNC may receive from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message. In this case, if the RNC decides to establish the requested MBMS RAB, it shall only

establish one MBMS Iu bearer and shall inform the selected CN node accordingly i.e. with MBMS SESSION START RESPONSE message including the *Transport Layer Address* IE and the *Iu Transport Association* IE.

If the RNC receives from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message and all the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall, if supported, maintain an MBMS Iu signalling connection toward all the CN nodes and inform them accordingly i.e. with MBMS SESSION START RESPONSE message and cause value "Successful MBMS Session Start - No Data Bearer Necessary" to all the CN nodes except the one, if any, towards which the RNC confirmed the successful MBMS RAB establishment.

Transmission and reception of a MBMS SESSION START RESPONSE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.3 Unsuccessful Operation

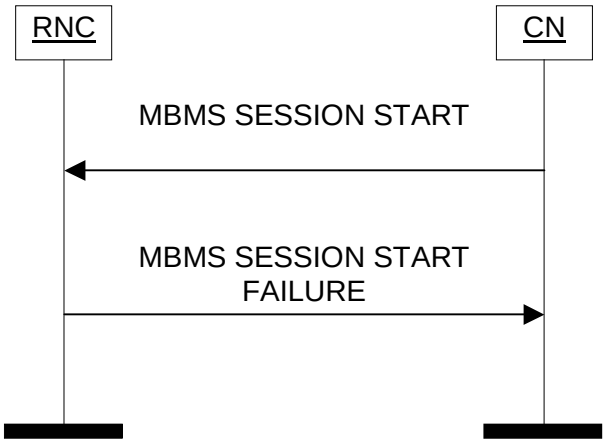

Figure 47: MBMS Session Start procedure. Unsuccessful operation.

If the RNC is not capable of correctly processing the request (e.g. the MBMS resources could not be established at all in any cell), the CN shall be informed by the MBMS SESSION START FAILURE message.

If NNSF is active and the RNC received from several CN nodes for a certain MBMS Bearer Service the MBMS SESSION START message, but not all of the MBMS SESSION START messages include the *RA List of Idle Mode UEs* IE, the RNC shall inform the respective CN nodes accordingly i.e. with MBMS SESSION START FAILURE message and cause value "MBMS - Superseded Due To NNSF" to all the CN nodes except the one towards which the RNC confirmed the successful MBMS RAB establishment with MBMS SESSION START RESPONSE message.

When UTRAN reports failure of the MBMS Session Start procedure, the cause value should be precise enough to enable the core network to know the reason for the failure~~unsuccessful establishment/modification~~. Typical cause values are: "MBMS - Superseded Due To NNSF", "Requested Traffic Class not Available", "Invalid RAB Parameters Value", "Requested Maximum Bit Rate not Available", "Requested Guaranteed Bit Rate not Available", "Requested Transfer Delay not Achievable", "Invalid RAB Parameters Combination", "Condition Violation for Guaranteed Bit Rate", "Iu Transport Connection Failed to Establish", "No Resource Available".

Transmission and reception of a MBMS SESSION START FAILURE message terminate the procedure in the UTRAN and in the CN respectively.

8.36.4 Abnormal Conditions

If, for a MBMS RAB requested to be set up, the *PDP Type Information* IE is not present, the RNC shall continue with the procedure.

3GPP TSG-RAN3 Meeting #46
Scottsdale, USA, 14th - 18th February 2005

Tdoc ⌘R3-050354

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.423** **CR** **1021** ⌘**rev** **3** ⌘ Current version: **6.4.1** ⌘

*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 [X] Core Network [ ]

Title:	⌘	Optimalisation of MBMS channel type indication via Iur
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	18/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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)*
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Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Optimisation of MBMS Iur procedures
Summary of change:	⌘	MBMS Channel Type Indication function mapping extended to the Radio Link Setup/Addition procedures and the Common Transport Channel Resource Initiation procedure. Transmission mode IE added to the RL Setup/Addition Respose message and the Common Tranport Channel Resources Response message. Impact assessment towards the previous version of the specification (same release): This CR has isolated impact towards the previous version of the specification (same release). This CR has an impact under functional and protocol point of view. The impact can be considered isolated because it only affects the Radio Link Setup/Addition and Common Transport Channel Resources Initiation procedures.
Consequences if not approved:	⌘	More RNSAP messages than necessary will be transmitted.

Clauses affected:	⌘	7, 8.2.1, 8.3.1, 8.3.2, 8.4.1, 9.1.4, 9.1.7, 9.1.36, 9.3.3, 9.3.4, 9.3.6
Other specs	⌘	Y [ ] N [X] Other core specifications ⌘

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

How to create CRs using this form:

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

7 Functions of RNSAP

The RNSAP protocol provides the following functions:

- Radio Link Management. This function allows the SRNC to manage radio links using dedicated resources in a DRNS;
- Physical Channel Reconfiguration. This function allows the DRNC to reallocate the physical channel resources for a Radio Link;
- Radio Link Supervision. This function allows the DRNC to report failures and restorations of a Radio Link;
- Compressed Mode Control [FDD]. This function allows the SRNC to control the usage of compressed mode within a DRNS;
- Measurements on Dedicated Resources. This function allows the SRNC to initiate measurements on dedicated resources in the DRNS. The function also allows the DRNC to report the result of the measurements;
- DL Power Drifting Correction [FDD]. This function allows the SRNC to adjust the DL power level of one or more Radio Links in order to avoid DL power drifting between the Radio Links;
- DCH Rate Control. This function allows the DRNC to limit the rate of each DCH configured for the Radio Link(s) of a UE in order to avoid congestion situations in a cell;
- CCCH Signalling Transfer. This function allows the SRNC and DRNC to pass information between the UE and the SRNC on a CCCH controlled by the DRNS;
- GERAN Signalling Transfer. This function allows the SBSS and DBSS, the SRNC and DBSS or the SBSS and DRNC to pass information between the UE/MS and the SRNC/SBSS on an SRB2/CCCH controlled by the DBSS/DRNC;
- Paging. This function allows the SRNC/SBSS to page a UE in a URA/GRA or a cell in the DRNS;
- Common Transport Channel Resources Management. This function allows the SRNC to utilise Common Transport Channel Resources within the DRNS (excluding DSCH resources for FDD);
- Relocation Execution. This function allows the SRNC/SBSS to finalise a Relocation previously prepared via other interfaces;
- Reporting of General Error Situations. This function allows reporting of general error situations, for which function specific error messages have not been defined.
- DL Power Timeslot Correction [TDD]. This function enables the DRNS to apply an individual offset to the transmission power in each timeslot according to the downlink interference level at the UE.
- Measurements on Common Resources. This function allows an RNC/BSS to request from another RNC/BSS to initiate measurements on Common Resources. The function also allows the requested RNC/BSS to report the result of the measurements.
- Information Exchange. This function allows an RNC to request from another RNC the transfer of information. The function also allows the requested RNC to report the requested information.
- Resetting the Iur. This function is used to completely or partly reset the Iur interface.
- UE Measurement Forwarding[TDD]. This function allows the DRNC to request and receive UE measurements from the SRNC.
- Tracing. This function allows the SRNC to activate or deactivate trace in a DRNC.
- MBMS UE Linking/De-linking. This function allows the SRNC to provide/update/remove the UE Link to/in/from the DRNC.
- MBMS URA Linking/De-linking. This function allows the SRNC to provide/update/remove the URA Link to/in/from the DRNC.

- MBMS Channel Type Indication. This function allows the DRNC to indicate to the SRNC the selected channel type for an MBMS bearer service within a certain cell.

The mapping between the above functions and RNSAP elementary procedures is shown in the Table 1.

Table 1: Mapping between functions and RNSAP elementary procedures

Function	Elementary Procedure(s)
Radio Link Management	a) Radio Link Setup b) Radio Link Addition c) Radio Link Deletion d) Unsynchronised Radio Link Reconfiguration e) Synchronised Radio Link Reconfiguration Preparation f) Synchronised Radio Link Reconfiguration Commit g) Synchronised Radio Link Reconfiguration Cancellation h) Radio Link Pre-emptioni) Radio Link Activation j) Radio Link Parameter Update
Physical Channel Reconfiguration	Physical Channel Reconfiguration
Radio Link Supervision	a) Radio Link Failure b) Radio Link Restoration
Compressed Mode Control [FDD]	a) Radio Link Setup b) Radio Link Addition c) Compressed Mode Command d) Unsynchronised Radio Link Reconfiguration e) Synchronised Radio Link Reconfiguration Preparation f) Synchronised Radio Link Reconfiguration Commit g) Synchronised Radio Link Reconfiguration Cancellation
Measurements on Dedicated Resources	a) Dedicated Measurement Initiation b) Dedicated Measurement Reporting c) Dedicated Measurement Termination d) Dedicated Measurement Failure
DL Power Drifting Correction [FDD]	Downlink Power Control
DCH Rate Control	a) Radio Link Setup b) Radio Link Addition c) Unsynchronised Radio Link Reconfiguration d) Synchronised Radio Link Reconfiguration Preparation e) Radio Link Congestion
CCCH Signalling Transfer	a) Uplink Signalling Transfer b) Downlink Signalling Transfer
GERAN Signalling Transfer	a) GERAN Uplink Signalling Transfer b) Downlink Signalling Transfer
Paging	Paging
Common Transport Channel Resources Management	a) Common Transport Channel Resources Initiation b) Common Transport Channel Resources Release
Relocation Execution	Relocation Commit
Reporting of General Error Situations	Error Indication
Measurements on Common Resources	a) Common Measurement Initiation b) Common Measurement Reporting c) Common Measurement Termination d) Common Measurement Failure
Information Exchange	a) Information Exchange Initiation b) Information Reporting c) Information Exchange Termination d) Information Exchange Failure
DL Power Timeslot Correction [TDD]	Downlink Power Timeslot Control
Reset	Reset
UE Measurement Forwarding[TDD]	a) UE Measurement Initiation b) UE Measurement Reporting c) UE Measurement Termination d) UE Measurement Failure
Trace	a) Iur Invoke Trace b) Iur Deactivate Trace

Function	Elementary Procedure(s)
MBMS UE Linking/De-linking	a) Common Transport Channel Resources Initiation b) Radio Link Setup c) Downlink Signalling Transfer d) MBMS Attach e) MBMS Detach
MBMS Channel Type Indication	a) MBMS Channel Type Reconfiguration b) Uplink Signalling Transfer c) Radio Link Setup d) Radio Link Addition e) Common Transport Channel Resources Initiation
MBMS URA Linking/De-linking	a) Downlink Signalling Transfer b) MBMS Attach c) MBMS Detach

********** unaffected parts are omitted **********

8.2.1 Uplink Signalling Transfer

8.2.1.1 General

The procedure is used by the DRNC to forward a Uu message received on the CCCH to the SRNC.

This procedure shall use the connectionless mode of the signalling bearer.

8.2.1.2 Successful Operation

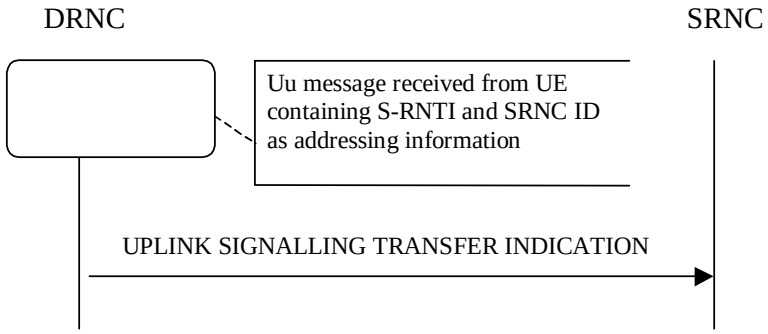

Figure 1: Uplink Signalling Transfer procedure, Successful Operation

When the DRNC receives an Uu message on the CCCH in which the UE addressing information is U-RNTI, i.e. S-RNTI and SRNC-ID, DRNC shall send the UPLINK SIGNALLING TRANSFER INDICATION message to the SRNC identified by the SRNC-ID received from the UE.

If at least one URA Identity is being broadcast in the cell where the Uu message was received (the accessed cell), the DRNC shall include a URA Identity for this cell in the *URA ID* IE, the *Multiple URAs Indicator* IE indicating whether or not multiple URA Identities are being broadcast in the accessed cell, and the RNC Identity of all other RNCs that are having at least one cell within the URA where the Uu message was received in the *URA Information* IE in the UPLINK SIGNALLING TRANSFER INDICATION message.

The DRNC shall include in the message the C-RNTI that it allocates to identify the UE in the radio interface in the accessed cell. If there is no valid C-RNTI for the UE in the accessed cell, the DRNS shall allocate a new C-RNTI for the UE. If the DRNS allocates a new C-RNTI it shall also release any C-RNTI previously allocated for the UE.

If the DRNS has any RACH, [FDD - CPCH], and/or FACH resources allocated for the UE identified by the U-RNTI in another cell than the accessed cell in which the Mac SDU sizes, flow control settings (including credits) and/or transport bearer are different from those in the old cell, then the DRNS shall not include the *Common Transport Channel*

Resources Initialisation Not Required IE in the UPLINK SIGNALLING TRANSFER INDICATION message. In addition the DRNS shall release these RACH, [FDD - CPCH,] and/or FACH resources in old cell.

If the DRNS has any RACH, [FDD - CPCH], and/or FACH resources allocated for the UE identified by the U-RNTI in another cell than the accessed cell in which the Mac SDU sizes, flow control settings (including credits) and transport bearer are the same as in the old cell, there is no need for Common Transport Channel Resources Initialisation to be initiated. In that case, DRNC may include the *Common Transport Channel Resources Initialisation Not Required* IE in the UPLINK SIGNALLING TRANSFER INDICATION message. In addition, the DRNS shall move these RACH, [FDD - CPCH,] and/or FACH resources to the new cell. If no Common Transfer Channel Resources Initialisation procedure is executed, the currently applicable Mac SDU sizes, flow control settings (including credits) and transport bearer shall continue to be used while the UE is in the new cell.

If no context exists for this UE in the DRNC, the DRNC shall create a UE Context for this UE, allocate a D-RNTI for the UE Context, and include the *D-RNTI* IE and the identifiers for the CN CS Domain and CN PS Domain that the DRNC is connected to in the UPLINK SIGNALLING TRANSFER INDICATION message. These CN Domain Identifiers shall be based on the LAC and RAC respectively of the cell where the message was received from the UE.

Depending on local configuration in the DRNS, it may include the geographical co-ordinates of the cell, represented either by the *Cell GAI* IE or by the *Cell GA Additional Shapes* IE, in which the Uu message was received in the UPLINK SIGNALLING TRANSFER INDICATION message. If the DRNC includes the *Cell GA Additional Shapes* IE in the UPLINK SIGNALLING TRANSFER INDICATION message, it shall also include the *Cell GAI* IE.

[FDD - The DRNC shall include the *DPC Mode Change Support Indicator* IE in the UPLINK SIGNALLING TRANSFER INDICATION message if the accessed cell supports DPC mode change.]

The DRNC shall include [FDD - the *Cell Capability Container FDD* IE] [3.84Mcps TDD - the *Cell Capability Container TDD* IE] [1.28Mcps TDD - the *Cell Capability Container TDD LCR* IE] in the UPLINK SIGNALLING TRANSFER INDICATION message if the accessed cell supports any functionalities listed in [FDD - 9.2.2.D] [3.84Mcps TDD - 9.2.3.1a] [1.28Mcps TDD - 9.2.3.1b].

If available, the DRNC shall include the *SNA Information* IE for the concerned cell.

When receiving the *SNA Information* IE, the SRNC should use it to restrict cell access based on SNA information. See also [40] for a broader description of the SNA access control.

[FDD - The DRNC shall include the *Cell Portion ID* IE in the UPLINK SIGNALLING TRANSFER INDICATION message if available.]

If the *D-RNTI* IE is not to be included in the UPLINK SIGNALLING TRANSFER INDICATION message and the UE Link is currently stored in the UE Context in the DRNC, the DRNC shall assume that the UE changes the cell under which it camps in the DRNS (see ref. [50], section 5.1.6 on intra-DRNC cell change). In this case, if an MBMS session for some MBMS bearer services contained in the UE Link is ongoing in the cell identified by the *UC-ID* IE, the DRNC shall include in the *Active MBMS Bearer Service List* IE the *Transmission Mode* IE for each of these active MBMS bearer services.

8.2.1.3 Abnormal Conditions

-

********** unaffected parts are omitted **********

8.3.1 Radio Link Setup

8.3.1.2 Successful Operation

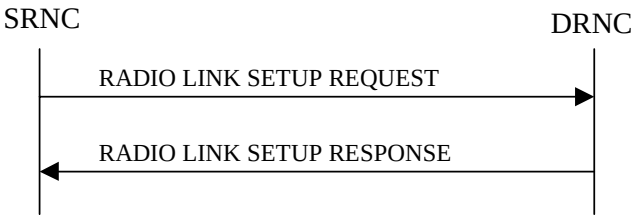

Figure 5: Radio Link Setup procedure: Successful Operation

********** unaffected parts are omitted **********

[1.28Mcps TDD - Uplink Timing Advance Control LCR]:

[1.28Mcps TDD - The DRNC shall include the *Uplink Timing Advance Control LCR* IE in the RADIO LINK SETUP RESPONSE message.]

MBMS Handling:

If the *MBMS Bearer Service List* IE is included in the RADIO LINK SETUP REQUEST message, the DRNC shall perform the UE Linking as specified in [50], section 5.1.6. If the UE Link is currently stored in the UE Context or the *MBMS Bearer Service List* IE is included in the RADIO LINK SETUP REQUEST message and if an MBMS session for some MBMS bearer services contained in the UE Link is ongoing in some of the cells identified by the *C-ID* IEs in the RADIO LINK SETUP REQUEST message, the DRNC shall include for each of these active MBMS bearer services in the *Active MBMS Bearer Service List* IE the *Transmission Mode* IE in the concerned *RL Information Response* IEs in the RADIO LINK SETUP RESPONSE message.

General:

If the RADIO LINK SETUP REQUEST message includes the *RL Specific DCH Information* IE, the DRNC may use the transport layer address and the binding identifier received from the SRNC when establishing a transport bearer for the DCH or the set of co-ordinated DCHs.

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity* IE and the *S-Field Length* IE, the DRNS shall activate SSDT, if supported, using the *SSDT Cell Identity* IE, *S-Field Length* IE and *SSDT Cell Identity Length* IE.]

********** unaffected parts are omitted **********

8.3.2 Radio Link Addition

8.3.2.2 Successful Operation

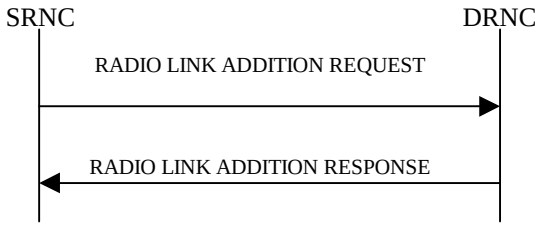

Figure 7: Radio Link Addition procedure: Successful Operation

********** unaffected parts are omitted **********

[1.28Mcps TDD - Uplink Synchronisation Parameters LCR]:

[1.28Mcps TDD - If the *Uplink Synchronisation Parameters LCR* IE is present, the DRNC shall use the indicated values of *Uplink synchronisation stepsize* IE and *Uplink synchronisation frequency* IE when evaluating the timing of the UL synchronisation.]

[1.28Mcps TDD - Uplink Timing Advance Control LCR]:

[1.28Mcps TDD - The DRNC shall include the *Uplink Timing Advance Control LCR* IE in the RADIO LINK ADDITION RESPONSE message.]

MBMS Handling:

If the UE Link is currently stored in the UE Context and an MBMS session for some MBMS bearer services contained in the UE Link is ongoing in some of the cells identified by the *C-ID* IEs in the RADIO LINK ADDITION REQUEST message, the DRNC shall include for each of these active MBMS bearer services in the *Active MBMS Bearer Service List* IE the *Transmission Mode* IE in the concerned *RL Information Response* IEs in the RADIO LINK ADDITION RESPONSE message.

General:

If the RADIO LINK ADDITION REQUEST message includes the *RL Specific DCH Information* IE, the DRNC may use the transport layer address and the binding identifier received from the SRNC when establishing a transport bearer for the DCH or the set of co-ordinated DCHs.

[FDD - If the RADIO LINK ADDITION REQUEST message contains an *SSDT Cell Identity* IE, the DRNS shall, if supported, activate SSDT for the concerned new RL using the indicated SSDT Cell Identity.]

********** unaffected parts are omitted **********

8.4.1 Common Transport Channel Resources Initialisation

8.4.1.1 General

The Common Transport Channel Resources Initialisation procedure is used by the SRNC for the initialisation of the Common Transport Channel user plane towards the DRNC and/or for the initialisation of the Common Transport Channel resources in the DRNC to be used by a UE.

This procedure shall use the connectionless mode of the signalling bearer.

8.4.1.2 Successful Operation

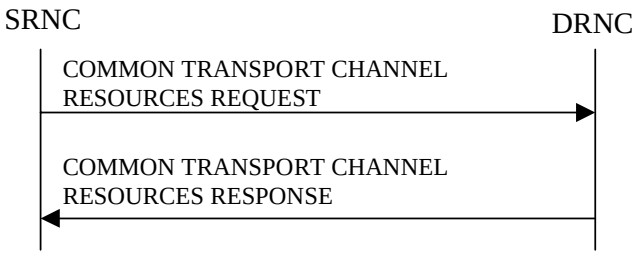

Figure 27: Common Transport Channel Resources Initialisation procedure, Successful Operation

The SRNC initiates the procedure by sending the message COMMON TRANSPORT CHANNEL RESOURCES REQUEST message to the DRNC.

If the value of the *Transport Bearer Request Indicator* IE is set to "Bearer Requested", the DRNC shall store the received *Transport Bearer ID* IE. The DRNC may use the *Transport Layer Address* and *Binding ID* IEs included in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message received from the SRNC when establishing a transport bearer for the common transport channel. In addition, the DRNC shall include its own *Binding ID* IE and *Transport Layer Address* IE in the COMMON TRANSPORT CHANNEL RESOURCES RESPONSE message.

If the value of the *Transport Bearer Request Indicator* IE is set to" Bearer not Requested", the DRNC shall use the transport bearer indicated by the *Transport Bearer ID* IE.

If the *C-ID* IE is included in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message, the DRNC shall allocate a C-RNTI for the indicated cell and include the *C-RNTI* IE in the COMMON TRANSPORT CHANNEL RESOURCES RESPONSE message.

If the *C-ID* IE is included in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message, the DRNC shall include the *FACH Info for UE Selected S-CCPCH* IE valid for the cell indicated by the *C-ID* IE and the corresponding *C-ID* IE in the COMMON TRANSPORT CHANNEL RESOURCES RESPONSE message. If the *C-ID* IE is not included in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message, the DRNC shall include the *FACH Info for UE Selected S-CCPCH* IE valid for the cell where the UE is located and the corresponding *C-ID* IE. The DRNC shall include the *FACH Scheduling Priority* IE and *FACH Initial Window Size* IE in the *FACH Flow Control Information* IE of the *FACH Info for UE Selected S-CCPCH* IE for each priority class that the DRNC has determined shall be used. The DRNC may include several *MAC-c/sh SDU Length* IEs for each priority class.

If the DRNS has any RACH, [FDD - CPCH,] and/or FACH resources previously allocated for the UE in another cell than the cell in which resources are currently being allocated, the DRNS shall release the previously allocated RACH, [FDD - CPCH,] and/or FACH resources.

If the DRNS has successfully reserved the required resources, the DRNC shall respond to the SRNC with the COMMON TRANSPORT CHANNEL RESOURCES RESPONSE message.

If the *Permanent NAS UE Identity* IE is present in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message, the DRNS shall store the information for the considered UE Context for the lifetime of the UE Context.

If the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message includes a *C-ID* IE corresponding to a cell reserved for operator use and the Permanent NAS UE Identity is available in the DRNC for the considered UE Context, the DRNC shall use this information to determine whether it can reserve resources on a common transport channel in this cell or not.

If the *MBMS Bearer Service List* IE is included in the COMMON TRANSPORT CHANNEL RESOURCES REQUEST message, the DRNC shall perform the UE Linking as specified in [50], section 5.1.6. If an MBMS session for some MBMS bearer services contained in the UE Link is ongoing in the cell identified by the *C-ID* IE, the DRNC shall include in the *Active MBMS Bearer Service List* IE the *Transmission Mode* IE for each of these active MBMS bearer services in the COMMON TRANPORT CHANNEL RESOURCES RESPONSE message.

9.1.4 RADIO LINK SETUP RESPONSE

9.1.4.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
D-RNTI	O		9.2.1.24		YES	ignore
CN PS Domain Identifier	O		9.2.1.12		YES	ignore
CN CS Domain Identifier	O		9.2.1.11		YES	ignore
RL Information Response		*1..<maxnoofRLs>*			EACH	ignore
>RL ID	M		9.2.1.49		–	
>RL Set ID	M		9.2.2.35		–	
>URA Information	O		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>Received Total Wide Band Power	M		9.2.2.35A		–	
>Secondary CCPCH Info	O		9.2.2.37B		–	
>DL Code Information	M		FDD DL Code Information 9.2.2.14A		–	
>CHOICE *Diversity Indication*	M				–	
>>Combining					–	
>>>RL ID	M		9.2.1.49	Reference RL ID for the combining	–	
>>>DCH Information Response	O		9.2.1.16A		YES	ignore
>>>E-DCH FDD Information Response	O		9.2.2.4C		YES	ignore
>>Non Combining or First RL					–	
>>>DCH Information Response	M		9.2.1.16A		–	
>>>E-DCH FDD Information Response	M		9.2.2.4C		YES	ignore
>SSDT Support Indicator	M		9.2.2.43		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Closed Loop Timing Adjustment Mode	O		9.2.2.3A		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>Primary Scrambling Code	O		9.2.1.45		–	
>UL UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nu in ref. [6]	–	
>DL UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nd in ref. [6]	–	
>Primary CPICH Power	M		9.2.1.44		–	
>DSCH Information	O		DSCH		YES	ignore

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Response			FDD Information Response 9.2.2.13B			
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>PC Preamble	M		9.2.2.27a		–	
>SRB Delay	M		9.2.2.39A		–	
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>DL Power Balancing Activation Indicator	O		9.2.2.10B		YES	ignore
>TFCI PC Support Indicator	O		9.2.2.46A		YES	ignore
>HCS Prio	O		9.2.1.30N		YES	ignore
>Primary CPICH Usage For Channel Estimation	O		9.2.2.32A		YES	ignore
>Secondary CPICH Information	O		9.2.2.38A		YES	ignore
>E-DCH RL Set ID	O		9.2.2.35		YES	ignore
>E-DCH FDD DL Control Channel Information	O		9.2.2.4D		YES	ignore
>Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>>TMGI	M		9.2.1.80		–	
>>Transmission Mode	M		9.2.1.81		–	
Uplink SIR Target	O		Uplink SIR 9.2.1.69		YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore
DSCH-RNTI	O		9.2.1.26Ba		YES	ignore
HS-DSCH-RNTI	O		9.2.1.30P		YES	ignore
HS-DSCH Information Response	O		HS-DSCH FDD Information Response 9.2.2.19b		YES	ignore

Range bound	Explanation
maxnoofRLs	Maximum number of RLs for one UE.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.4.2 TDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
D-RNTI	O		9.2.1.24		YES	ignore
CN PS Domain Identifier	O		9.2.1.12		YES	ignore
CN CS Domain Identifier	O		9.2.1.11		YES	ignore
RL Information Response		*0..1*		Mandatory for 3.84Mcps TDD , not applicable to 1.28Mcps TDD	YES	ignore
>RL ID	M		9.2.1.49		–	
>URA Information	O		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>UL Time Slot ISCP Info	M		9.2.3.13D		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nt in ref. [7]	–	
>Cell Parameter ID	O		9.2.1.8		–	
>Sync Case	O		9.2.1.54		–	
>SCH Time Slot	C-Case2		9.2.1.51		–	
>SCTD Indicator	O		9.2.1.78		–	
>PCCPCH Power	M		9.2.1.43		–	
>Timing Advance Applied	M		9.2.3.12A		–	
>Alpha Value	M		9.2.3.a		–	
>UL PhysCH SF Variation	M		9.2.3.13B		–	
>Synchronisation Configuration	M		9.2.3.7E		–	
>Secondary CCPCH Info TDD	O		9.2.3.7B		–	
>UL CCTrCH Information		*0..<maxnoofCCTrCHs>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>UL DPCH Information		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>UL Timeslot Information	M		9.2.3.13C		–	
>>Uplink SIR Target CCTrCH	O		Uplink SIR 9.2.1.69		YES	ignore
>DL CCTrCH Information		*0..<maxnoofCCTrCHs>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>DL DPCH Information		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>DL Timeslot Information	M		9.2.3.2C			
>>CCTrCH Maximum DL TX Power	O		DL Power 9.2.1.21A	Maximum allowed power on DPCH	YES	ignore
>>CCTrCH Minimum DL TX Power	O		DL Power 9.2.1.21A	Minimum allowed power on DPCH	YES	ignore
>DCH Information Response	O		9.2.1.16A		YES	ignore
>DSCH Information Response		*0 .. <maxnoof DSCHs>*			GLOBAL	ignore
>>DSCH ID	M		9.2.1.26A		–	
>>DSCH Flow Control Information	M		9.2.1.26B		–	
>>Binding ID	O		9.2.1.3		–	
>>Transport Layer Address	O		9.2.1.62		–	
>>Transport Format Management	M		9.2.3.13		–	
>USCH Information Response		*0 .. <maxnoof USCHs>*			GLOBAL	ignore
>>USCH ID	M		9.2.3.14		–	
>>Binding ID	O		9.2.1.3		–	
>>Transport Layer Address	O		9.2.1.62		–	
>>Transport Format Management	M		9.2.3.13		–	
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>HCS Prio	O		9.2.1.30N		YES	ignore
>Time Slot for SCH	C-Case1		Time Slot 9.2.1.56		YES	ignore
Uplink SIR Target	M		Uplink SIR 9.2.1.69		YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore
RL Information Response LCR		*0..1*		Mandatory for 1.28Mcps TDD, not applicable to 1.28Mcps TDD	YES	ignore
>RL ID	M		9.2.1.49		–	
>URA Information	M		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>UL Time Slot ISCP Info LCR	M		9.2.3.13H		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
			9.2.1.21A			
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nt in ref. [7]	–	
>Cell Parameter ID	O		9.2.1.8		–	
>SCTD Indicator	O		9.2.1.78		–	
>PCCPCH Power	M		9.2.1.43		–	
>Alpha Value	M		9.2.3.a		–	
>UL PhysCH SF Variation	M		9.2.3.13B		–	
>Synchronisation Configuration	M		9.2.3.7E		–	
>Secondary CCPCH Info TDD LCR	O		9.2.3.7F		–	
>UL CCTrCH Information LCR		*0..<maxnoofCCTrCHsLCR>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>UL DPCH Information LCR		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>UL Timeslot Information LCR	M		9.2.3.13G		–	
>>Uplink SIR Target CCTrCH	O		Uplink SIR 9.2.1.69		YES	ignore
>DL CCTrCH Information LCR		*0..<maxnoofCCTrCHsLCR>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>DL DPCH Information LCR		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>DL Timeslot Information LCR	M		9.2.3.2E			
>>>TSTD Indicator	M		9.2.3.13E		–	
>DCH Information Response	O		9.2.1.16A		YES	ignore
>DSCH Information Response LCR		*0 .. <maxnoofDSCHsLCR>*			GLOBAL	ignore
>>DSCH ID	M		9.2.1.26A		–	
>>DSCH Flow Control Information	M		9.2.1.26B		–	
>>Binding ID	O		9.2.1.3		–	
>>Transport Layer Address	O		9.2.1.62		–	
>>Transport Format Management	M		9.2.3.13		–	
>USCH Information Response LCR		*0 .. <maxnoofUSCHsLCR>*			GLOBAL	ignore
>>USCH ID	M		9.2.3.14		–	
>>Binding ID	O		9.2.1.3		–	
>>Transport Layer Address	O		9.2.1.62		–	
>>Transport Format Management	M		9.2.3.13		–	
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>HCS Prio	O		9.2.1.30N		YES	ignore
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>Uplink Timing Advance Control LCR	M		9.2.3.13K		YES	ignore
HS-DSCH-RNTI	O		9.2.1.30P		YES	ignore
HS-DSCH Information Response	O		HS-DSCH TDD Information Response 9.2.3.3ab		YES	ignore
DSCH RNTI	O		9.2.1.26Ba		YES	ignore
Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>TMGI	M		9.2.1.80		–	
>Transmission Mode	M		9.2.1.81		–	

Condition	Explanation
Case2	The IE shall be present if *Sync Case* IE is equal to "Case2".
Case1	This IE shall be present if *Sync Case* IE is equal to "Case1".

Range bound	Explanation
maxnoofDSCHs	Maximum number of DSCHs for one UE for 3.84Mcps TDD.
maxnoofUSCHs	Maximum number of USCHs for one UE for 3.84Mcps TDD.
maxnoofCCTrCHs	Maximum number of CCTrCH for one UE for 3.84Mcps TDD.
maxnoofDSCHsLCR	Maximum number of DSCHs for one UE for 1.28Mcps TDD.
maxnoofUSCHsLCR	Maximum number of USCHs for one UE for 1.28Mcps TDD.
maxnoofCCTrCHsLCR	Maximum number of CCTrCH for one UE for 1.28Mcps TDD.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.5 RADIO LINK SETUP FAILURE

9.1.5.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
D-RNTI	O		9.2.1.24		YES	ignore
CN PS Domain Identifier	O		9.2.1.12		YES	ignore
CN CS Domain Identifier	O		9.2.1.11		YES	ignore
CHOICE *Cause Level*	M				YES	ignore
>General					–	
>>Cause	M		9.2.1.5		–	
>RL Specific					–	
>>Unsuccessful RL Information Response		*1..<maxnoofRLs>*			EACH	ignore
>>>RL ID	M		9.2.1.49		–	
>>>Cause	M		9.2.1.5		–	
>>>Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>>>>TMGI	M		9.2.1.80		–	
>>>>Transmission Mode	M		9.2.1.81		–	
>>Successful RL Information Response		*0..<maxnoofRLs-1>*			EACH	ignore
>>>RL ID	M		9.2.1.49		–	
>>>RL Set ID	M		9.2.2.35		–	
>>>URA Information	O		9.2.1.70B		–	
>>>SAI	M		9.2.1.52		–	
>>>Cell GAI	O		9.2.1.5A		–	
>>>UTRAN Access Point Position	O		9.2.1.70A		–	
>>>Received Total Wide Band Power	M		9.2.2.35A		–	
>>>Secondary CCPCH Info	O		9.2.2.37B		–	
>>>DL Code Information	M		FDD DL Code Information 9.2.2.14A		–	
>>>CHOICE *Diversity Indication*	M				–	
>>>>*Combining*					–	
>>>>>RL ID	M		9.2.1.49	Reference RL ID for the combining	–	
>>>>>DCH Information Response	O		9.2.1.16A		YES	ignore
>>>>>E-DCH FDD Information Response	O		9.2.2.4C		YES	ignore
>>>>*Non Combining or First RL*					–	
>>>>>DCH Information Response	M		9.2.1.16A		–	
>>>>>E-DCH FDD Information Response	O		9.2.2.4C		YES	ignore
>>>SSDT Support Indicator	M		9.2.2.43		–	
>>>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>>>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>>>Closed Loop Timing Adjustment Mode	O		9.2.2.3A		–	
>>>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>>>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>>>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>>>Primary CPICH Power	M		9.2.1.44		–	
>>>Primary Scrambling Code	O		9.2.1.45		–	
>>>UL UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nu in ref. [6]	–	
>>>DL UARFCN	O		UARFCN 9.2.1.66	Corresponds to Nd in ref. [6]	–	
>>>DSCH Information Response	O		DSCH FDD Information Response 9.2.2.13B		YES	ignore
>>>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>>>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>>>PC Preamble	M		9.2.2.27a		–	
>>>SRB Delay	M		9.2.2.39A		–	
>>>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>>>DL Power Balancing Activation Indicator	O		9.2.2.10B		YES	ignore
>>>TFCI PC Support Indicator	O		9.2.2.46A		YES	ignore
>>>HCS Prio	O		9.2.1.30N		YES	ignore
>>>Primary CPICH Usage For Channel Estimation	O		9.2.2.32A		YES	ignore
>>>Secondary CPICH Information	O		9.2.2.38A		YES	ignore
>>>E-DCH RL Set ID	O		9.2.2.35		YES	ignore
>>>E-DCH FDD DL Control Channel Information	O		9.2.2.4D		YES	ignore
>>>Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>>>>TMGI	M		9.2.1.80		–	
>>>>Transmission Mode	M		9.2.1.81		–	
>>DSCH-RNTI	O		9.2.1.26Ba		YES	ignore
>>HS-DSCH-RNTI	O		9.2.1.30P		YES	ignore
>>HS-DSCH Information Response	O		HS-DSCH FDD Information Response 9.2.2.19b		YES	ignore
Uplink SIR Target	O		Uplink SIR 9.2.1.69		YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore

Range bound	Explanation
maxnoofRLs	Maximum number of RLs for one UE.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.7 RADIO LINK ADDITION RESPONSE

9.1.7.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
RL Information Response		*1..<maxnoof RLs-1>*			EACH	ignore
>RL ID	M		9.2.1.49		–	
>RL Set ID	M		9.2.2.35		–	
>URA Information	O		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>Received Total Wide Band Power	M		9.2.2.35A		–	
>Secondary CCPCH Info	O		9.2.2.37B		–	
>DL Code Information	M		FDD DL Code Information 9.2.2.14A		YES	ignore
>CHOICE *Diversity Indication*	M				–	
>>*Combining*					–	
>>>RL ID	M		9.2.1.49	Reference RL ID	–	
>>>DCH Information Response	O		9.2.1.16A		YES	ignore
>>>E-DCH FDD Information Response	O		9.2.2.4C		YES	ignore
>>*Non Combining*					–	
>>>DCH Information Response	M		9.2.1.16A		–	
>>>E-DCH FDD Information Response	O		9.2.2.4C		YES	ignore
>SSDT Support Indicator	M		9.2.2.43		–	
>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Closed Loop Timing Adjustment Mode	O		9.2.2.3A		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>PC Preamble	M		9.2.2.27a		–	
>SRB Delay	M		9.2.2.39A		–	
>Primary CPICH Power	M		9.2.1.44		–	
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>DL Power Balancing Activation Indicator	O		9.2.2.10B		YES	ignore
>TFCI PC Support Indicator	O		9.2.2.46A		YES	ignore

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>HCS Prio	O		9.2.1.30N		YES	ignore
>Primary CPICH Usage For Channel Estimation	O		9.2.2.32A		YES	ignore
>E-DCH RL Set ID	O		9.2.2.35		YES	ignore
>E-DCH FDD DL Control Channel Information	O		9.2.2.4D		YES	ignore
>Active MBMS Bearer Service List		*0..<maxnoof ActiveMBMS>*			GLOBAL	ignore
>>TMGI	M		9.2.1.80		–	
>>Transmission Mode	M		9.2.1.81		–	
Criticality Diagnostics	O		9.2.1.13		YES	ignore

Range bound	Explanation
maxnoofRLs	Maximum number of radio links for one UE.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.7.2 TDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
RL Information Response		*0..1*		Mandatory for 3.84Mcps TDD, not applicable to 1.28Mcps TDD	YES	ignore
>RL ID	M		9.2.1.49		–	
>URA Information	O		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>UL Time Slot ISCP Info	M		9.2.3.13D		–	
>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>PCCPCH Power	M		9.2.1.43		–	
>Timing Advance Applied	M		9.2.3.12A		–	
>Alpha Value	M		9.2.3.a		–	
>UL PhysCH SF Variation	M		9.2.3.13B		–	
>Synchronisation Configuration	M		9.2.3.7E		–	
>Secondary CCPCH Info TDD	O		9.2.3.7B		–	
>UL CCTrCH Information		*0..<maxnoof CCTrCHs>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>UL DPCH Information		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>UL Timeslot Information	M		9.2.3.13C		–	
>DL CCTrCH Information		*0..<maxnoof CCTrCHs>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>DL DPCH Information		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>DL Timeslot Information	M		9.2.3.2C		–	
>>CCTrCH Maximum DL TX Power	O		DL Power 9.2.1.21A	Maximum allowed power on DPCH	YES	ignore
>>CCTrCH Minimum DL TX Power	O		DL Power 9.2.1.21A	Minimum allowed power on DPCH	YES	ignore

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>DCH Information		0..1			–	
>>CHOICE *Diversity Indication*	M				–	
>>>Combining					–	
>>>>RL ID	M		9.2.1.49	Reference RL	–	
>>>>DCH Information Response	O		9.2.1.16A		YES	ignore
>>>Non Combining					–	
>>>>DCH Information Response	M		9.2.1.16A		–	
>DSCH Information Response		*0 .. <maxnoof DSCHs>*			GLOBAL	ignore
>>DSCH ID	M		9.2.1.26A		–	
>>Transport Format Management	M		9.2.3.13		–	
>>DSCH Flow Control Information	M		9.2.1.26B		–	
>>CHOICE *Diversity Indication*	O				–	
>>>Non Combining					–	
>>>>Binding ID	O		9.2.1.3		–	
>>>>Transport Layer Address	O		9.2.1.62		–	
>USCH Information Response		*0 .. <maxnoof USCHs>*			GLOBAL	ignore
>>USCH ID	M		9.2.3.14		–	
>>Transport Format Management	M		9.2.3.13		–	
>>CHOICE *Diversity Indication*	O				–	
>>>Non Combining					–	
>>>>Binding ID	O		9.2.1.3		–	
>>>>Transport Layer Address	O		9.2.1.62		–	
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>HCS Prio	O		9.2.1.30N		YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore
RL Information Response LCR		*0..1*		Mandatory for 1.28Mcps TDD, not applicable to 3.84Mcps TDD	YES	ignore
>RL ID	M		9.2.1.49		–	
>URA Information	M		9.2.1.70B		–	
>SAI	M		9.2.1.52		–	
>Cell GAI	O		9.2.1.5A		–	
>UTRAN Access Point Position	O		9.2.1.70A		–	
>UL Time Slot ISCP Info LCR	M		9.2.3.13H		–	
>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>Minimum Uplink SIR	M		Uplink SIR		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
			9.2.1.69			
>PCCPCH Power	M		9.2.1.43		–	
>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>Alpha Value	M		9.2.3.a		–	
>UL PhysCH SF Variation	M		9.2.3.13B		–	
>Synchronisation Configuration	M		9.2.3.7E		–	
>Secondary CCPCH Info TDD LCR	O		9.2.3.7F		–	
>UL CCTrCH Information LCR		*0..<maxnoofCCTrCHsLCR>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>UL DPCH Information LCR		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>UL Timeslot Information LCR	M		9.2.3.13G		–	
>DL CCTrCH Information LCR		*0..<maxnoofCCTrCHsLCR>*		For DCH	GLOBAL	ignore
>>CCTrCH ID	M		9.2.3.2		–	
>>DL DPCH Information LCR		*0..1*			YES	ignore
>>>Repetition Period	M		9.2.3.7		–	
>>>Repetition Length	M		9.2.3.6		–	
>>>TDD DPCH Offset	M		9.2.3.8A		–	
>>>DL Timeslot Information LCR	M		9.2.3.2E		–	
>>>TSTD Indicator	M		9.2.3.13E		–	
>DCH Information Response	M		9.2.1.16A		–	
>DSCH Information Response LCR		*0 .. <maxnoofDSCHsLCR>*			GLOBAL	ignore
>>DSCH ID	M		9.2.1.26A		–	
>>DSCH Flow Control Information	M		9.2.1.26B		–	
>>Binding ID	O		9.2.1.3		–	
>>Transport Layer Address	O		9.2.1.62		–	
>>Transport Format Management	M		9.2.3.13		–	
>USCH Information Response LCR		*0 .. <maxnoofUSCHsLCR>*			GLOBAL	ignore
>>USCH ID	M		9.2.3.14		–	
>>Transport Format Management	M		9.2.3.13		–	
>>CHOICE *Diversity Indication*	O				–	
>>>Non Combining					–	
>>>>Binding ID	O		9.2.1.3		–	
>>>>Transport Layer Address	O		9.2.1.62		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>HCS Prio	O		9.2.1.30N		YES	ignore
>Uplink Timing Advance Control LCR	M		9.2.3.13K		YES	ignore
Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>TMGI	M		9.2.1.80		–	
>Transmission Mode	M		9.2.1.81		–	

Range Bound	Explanation
maxnoofDSCHs	Maximum number of DSCHs for one UE for 3.84Mcps TDD.
maxnoofUSCHs	Maximum number of USCHs for one UE for 3.84Mcps TDD.
maxnoofCCTrCHs	Maximum number of CCTrCHs for one UE for 3.84Mcps TDD.
maxnoofDSCHsLCR	Maximum number of DSCHs for one UE for 1.28Mcps TDD.
maxnoofUSCHsLCR	Maximum number of USCHs for one UE for 1.28Mcps TDD.
maxnoofCCTrCHsLCR	Maximum number of CCTrCH for one UE for 1.28Mcps TDD.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.8 RADIO LINK ADDITION FAILURE

9.1.8.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
CHOICE *Cause Level*	M				YES	ignore
>General					–	
>>Cause	M		9.2.1.5		–	
>RL Specific					–	
>>Unsuccessful RL Information Response		*1..<maxnoof RLs-1>*			EACH	ignore
>>>RL ID	M		9.2.1.49		–	
>>>Cause	M		9.2.1.5		–	
>>>Active MBMS Bearer Service List		*0..<maxnoof ActiveMBMS>*			GLOBAL	ignore
>>>>TMGI	M		9.2.1.80		–	
>>>>Transmission Mode	M		9.2.1.81		–	
>>Successful RL Information Response		*0..<maxnoof RLs-2>*			EACH	ignore
>>>RL ID	M		9.2.1.49		–	
>>>RL Set ID	M		9.2.2.35		–	
>>>URA Information	O		9.2.1.70B		–	
>>>SAI	M		9.2.1.52		–	
>>>Cell GAI	O		9.2.1.5A		–	
>>>UTRAN Access Point Position	O		9.2.1.70A		–	
>>>Received Total Wide Band Power	M		9.2.2.35A		–	
>>>Secondary CCPCH Info	O		9.2.2.37B		–	
>>>DL Code Information	M		FDD DL Code Information 9.2.2.14A		YES	ignore
>>>CHOICE *Diversity Indication*	M				–	
>>>>*Combining*					–	
>>>>>RL ID	M		9.2.1.49	Reference RL ID	–	
>>>>>DCH Information Response	O		9.2.1.16A		YES	ignore
>>>>>E-DCH FDD Information Response	M		9.2.2.4C		YES	ignore
>>>>*Non Combining*					–	
>>>>>DCH Information Response	M		9.2.1.16A		–	
>>>>>E-DCH FDD Information Response	M		9.2.2.4C		YES	ignore
>>>SSDT Support Indicator	M		9.2.2.43		–	
>>>Minimum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>>>Maximum Uplink SIR	M		Uplink SIR 9.2.1.69		–	
>>>Closed Loop Timing Adjustment	O		9.2.2.3A		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Mode						
>>>Maximum Allowed UL Tx Power	M		9.2.1.35		–	
>>>Maximum DL TX Power	M		DL Power 9.2.1.21A		–	
>>>Minimum DL TX Power	M		DL Power 9.2.1.21A		–	
>>>Neighbouring UMTS Cell Information	O		9.2.1.41A		–	
>>>Neighbouring GSM Cell Information	O		9.2.1.41C		–	
>>>Primary CPICH Power	M		9.2.1.44		–	
>>>PC Preamble	M		9.2.2.27a		–	
>>>SRB Delay	M		9.2.2.39A		–	
>>>Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
>>>DL Power Balancing Activation Indicator	O		9.2.2.10B		YES	ignore
>>>TFCI PC Support Indicator	O		9.2.2.46A		YES	ignore
>>>HCS Prio	O		9.2.1.30N		YES	ignore
>>>Primary CPICH Usage For Channel /Estimation	O		9.2.2.32A		YES	ignore
>>>E-DCH RL Set ID	O		9.2.2.35		YES	ignore
>>>E-DCH FDD DL Control Channel Information	O		9.2.2.4D		YES	ignore
>>>Active MBMS Bearer Service List		*0..<maxnoof ActiveMBMS>*			GLOBAL	ignore
>>>>TMGI	M		9.2.1.80		–	
>>>>Transmission Mode	M		9.2.1.81		–	
Criticality Diagnostics	O		9.2.1.13		YES	ignore

Range bound	Explanation
maxnoofRLs	Maximum number of radio links for one UE.
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.36 COMMON TRANSPORT CHANNEL RESOURCES RESPONSE

9.1.36.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
S-RNTI	M		9.2.1.53		YES	ignore
C-RNTI	O		9.2.1.14		YES	ignore
FACH Info for UE Selected S-CCPCH		*1*			YES	ignore
>FACH Flow Control Information	M		9.2.1.26C		YES	ignore
Transport Layer Address	O		9.2.1.62		YES	ignore
Binding Identity	O		9.2.1.3		YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore
C-ID	M		9.2.1.6		YES	ignore
Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>TMGI	M		9.2.1.80		–	
>Transmission Mode	M		9.2.1.81		–	

Range bound	Explanation
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.1.36.2 TDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	Reject
Transaction ID	M		9.2.1.59		–	
S-RNTI	M		9.2.1.53		YES	Ignore
C-RNTI	O		9.2.1.14		YES	Ignore
FACH Info for UE Selected S-CCPCHs		*1*			YES	Ignore
>FACH Flow Control Information	M		9.2.1.26C		YES	Ignore
Transport Layer Address	O		9.2.1.62		YES	Ignore
Binding Identity	O		9.2.1.3		YES	Ignore
Criticality Diagnostics	O		9.2.1.13		YES	Ignore
C-ID	M		9.2.1.6		YES	Ignore
Active MBMS Bearer Service List		*0..<maxnoofActiveMBMS>*			GLOBAL	ignore
>TMGI	M		9.2.1.80		–	
>Transmission Mode	M		9.2.1.81		–	

Range bound	Explanation
maxnoofActiveMBMS	Maximum number of MBMS bearer services that are active in parallel.

9.3.3 PDU Definitions

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

```
-- PDU definitions for RNSAP.
--
-- ***************************************************************

RNSAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) rnsap (1) version1 (1) rnsap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    Active-Pattern-Sequence-Information,    AccessPointName,
    Active-MBMS-Bearer-Service-ListFDD
    Active-MBMS-Bearer-Service-ListTDD
    AllocationRetentionPriority,
    AllowedQueuingTime,
    Allowed-Rate-Information,
    AlphaValue,
    AntennaColocationIndicator,
    BLER,
    SCTD-Indicator,
    BindingID,


********** unaffected parts are omitted **********


FROM RNSAP-Containers

    maxNoOfDSCHs,
    maxNoOfUSCHs,
    maxNrOfCCTrCHs,
    maxNrOfDCHs,
    maxNrOfTS,
    maxNrOfDPCHs,
    maxNrOfInterfaces,
    maxNrOfRLs,
    maxNrOfRLSets,
    maxNrOfRLSets-1,
    maxNrOfRLs-1,
    maxNrOfRLs-2,
    maxNrOfULTs,
    maxNrOfDLTs,
    maxResetContext,
    maxResetContextGroup,
    maxNoOfDSCHsLCR,
    maxNoOfUSCHsLCR,
    maxNrOfCCTrCHsLCR,
    maxNrOfTsLCR,
    maxNrOfDLTsLCR,
    maxNrOfULTsLCR,
    maxNrOfDPCHsLCR,
    maxNrOfLCRTDDNeighboursPerRNC,
    maxNrOfMeasNCell,
    maxNrOfMACdFlows,
    maxNrOfHSSICHs,
    maxNrOfActiveMBMSServices,
    maxNrOfMBMSServices,
    maxNrOfUEs,

    id-Active-MBMS-Bearer-Service-UplinkSigTrFDD,
    id-Active-MBMS-Bearer-Service-UplinkSigTrTDD,
    id-Active-Pattern-Sequence-Information,
    id-AdjustmentRatio,
    id-AffectedUEInformationForMBMS,
    id-AllowedQueuingTime,
    id-AntennaColocationIndicator,
    id-BindingID,
    id-C-ID,
    id-C-RNTI,
```

```
    id-CFN,
    id-CFNReportingIndicator,
    id-CN-CS-DomainIdentifier,
    id-CN-PS-DomainIdentifier,
    id-Cause,
    id-CauseLevel-RL-AdditionFailureFDD,
    id-CauseLevel-RL-AdditionFailureTDD,
    id-CauseLevel-RL-ReconfFailure,
    id-CauseLevel-RL-SetupFailureFDD,
    id-CauseLevel-RL-SetupFailureTDD,
    id-CCTrCH-InformationItem-RL-FailureInd,
    id-CCTrCH-InformationItem-RL-RestoreInd,
    id-CellCapabilityContainer-FDD,
    id-CellCapabilityContainer-TDD,
    id-CellCapabilityContainer-TDD-LCR,
    id-CellPortionID,
```

********** unaffected parts are omitted **********

```
-- **************************************************************
--
-- RADIO LINK SETUP RESPONSE FDD
--
-- **************************************************************

RadioLinkSetupResponseFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkSetupResponseFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkSetupResponseFDD-
Extensions}}                  OPTIONAL,
    ...
}

RadioLinkSetupResponseFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-D-RNTI                          CRITICALITY ignore  TYPE D-RNTI
    PRESENCE optional   } |
    { ID id-CN-PS-DomainIdentifier          CRITICALITY ignore  TYPE CN-PS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-CN-CS-DomainIdentifier          CRITICALITY ignore  TYPE CN-CS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-RL-InformationResponseList-RL-SetupRspFDD   CRITICALITY ignore  TYPE RL-
InformationResponseList-RL-SetupRspFDD  PRESENCE mandatory  } |
    { ID id-UL-SIRTarget                    CRITICALITY ignore  TYPE UL-SIR                PRESENCE
optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics
    PRESENCE optional   },
    ...
}
RL-InformationResponseList-RL-SetupRspFDD       ::= SEQUENCE (SIZE (1..maxNrOfRLs)) OF ProtocolIE-
Single-Container { {RL-InformationResponseItemIEs-RL-SetupRspFDD} }

RL-InformationResponseItemIEs-RL-SetupRspFDD RNSAP-PROTOCOL-IES ::= {
    { ID id-RL-InformationResponseItem-RL-SetupRspFDD   CRITICALITY ignore  TYPE RL-
InformationResponseItem-RL-SetupRspFDD  PRESENCE mandatory  }
}

RL-InformationResponseItem-RL-SetupRspFDD ::= SEQUENCE {
    rL-ID                           RL-ID,
    rL-Set-ID                       RL-Set-ID,
    uRA-Information                 URA-Information     OPTIONAL,
    sAI                             SAI,
    gA-Cell                         GA-Cell     OPTIONAL,
    gA-AccessPointPosition          GA-AccessPointPosition      OPTIONAL,
    received-total-wide-band-power  Received-total-wide-band-power,
    secondary-CCPCH-Info            Secondary-CCPCH-Info        OPTIONAL,
    dl-CodeInformation              FDD-DL-CodeInformation,
    diversityIndication             DiversityIndication-RL-SetupRspFDD,

    sSDT-SupportIndicator           SSDT-SupportIndicator,
    maxUL-SIR                       UL-SIR,
    minUL-SIR                       UL-SIR,
    closedlooptimingadjustmentmode  Closedlooptimingadjustmentmode  OPTIONAL,
    maximumAllowedULTxPower         MaximumAllowedULTxPower,
    maximumDLTxPower                DL-Power,
    minimumDLTxPower                DL-Power,
    primaryScramblingCode           PrimaryScramblingCode   OPTIONAL,
```

```
    uL-UARFCN                       UARFCN                  OPTIONAL,
    dL-UARFCN                       UARFCN                  OPTIONAL,
    primaryCPICH-Power              PrimaryCPICH-Power,
    dSCHInformationResponse         DSCH-InformationResponse-RL-SetupRspFDD OPTIONAL,
    neighbouring-UMTS-CellInformation   Neighbouring-UMTS-CellInformation OPTIONAL,
    neighbouring-GSM-CellInformation    Neighbouring-GSM-CellInformation OPTIONAL,
    pC-Preamble                     PC-Preamble,
    sRB-Delay                       SRB-Delay,
    iE-Extensions                   ProtocolExtensionContainer { {RL-InformationResponseItem-RL-
SetupRspFDD-ExtIEs} } OPTIONAL,
    ...
}

RL-InformationResponseItem-RL-SetupRspFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-GA-CellAdditionalShapes                     CRITICALITY ignore  EXTENSION GA-
CellAdditionalShapes                                PRESENCE optional }|
    { ID id-DL-PowerBalancing-ActivationIndicator       CRITICALITY ignore  EXTENSION DL-
PowerBalancing-ActivationIndicator          PRESENCE optional }|
    { ID id-TFCI-PC-SupportIndicator                    CRITICALITY ignore  EXTENSION TFCI-PC-
SupportIndicator                            PRESENCE optional }|
    { ID id-HCS-Prio                                    CRITICALITY ignore  EXTENSION HCS-Prio
                                                PRESENCE optional }|
    { ID id-Primary-CPICH-Usage-For-Channel-Estimation  CRITICALITY ignore  EXTENSION Primary-CPICH-
Usage-For-Channel-Estimation    PRESENCE optional }|
    { ID id-Secondary-CPICH-Information                  CRITICALITY ignore  EXTENSION Secondary-
CPICH-Information                       PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
    ...
}

DiversityIndication-RL-SetupRspFDD ::= CHOICE {
    combining                       Combining-RL-SetupRspFDD,
    nonCombiningOrFirstRL           NonCombiningOrFirstRL-RL-SetupRspFDD
}
```

********** unaffected parts are omitted **********

```
-- **************************************************************
--
-- RADIO LINK SETUP RESPONSE TDD
--
-- **************************************************************

RadioLinkSetupResponseTDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkSetupResponseTDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkSetupResponseTDD-
Extensions}}                    OPTIONAL,
    ...
}
```

********** unaffected parts are omitted **********

```
USCHInformationItem-RL-SetupRspTDD ::= SEQUENCE {
    usch-ID                     USCH-ID,
    bindingID                   BindingID   OPTIONAL,
    transportLayerAddress       TransportLayerAddress   OPTIONAL,
    transportFormatManagement   TransportFormatManagement,
    iE-Extensions               ProtocolExtensionContainer { {USCHInformationItem-RL-SetupRspTDD-
ExtIEs} } OPTIONAL,
    ...
}

USCHInformationItem-RL-SetupRspTDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

RadioLinkSetupResponseTDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-RL-LCR-InformationResponse-RL-SetupRspTDD   CRITICALITY ignore  EXTENSION   RL-LCR-
InformationResponse-RL-SetupRspTDD      PRESENCE optional}|
    --Mandatory for 1.28Mcps TDD only
    { ID id-HSDSCH-RNTI                         CRITICALITY ignore      EXTENSION HSDSCH-RNTI
                        PRESENCE optional }|
    { ID id-HSDSCH-TDD-Information-Response     CRITICALITY ignore      EXTENSION HSDSCH-TDD-
Information-Response        PRESENCE optional }|
    { ID id-DSCH-RNTI                           CRITICALITY ignore      EXTENSION DSCH-RNTI
                        PRESENCE optional }|
```

```
    { ID id-Active-MBMS-Bearer-ServiceTDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListTDD      PRESENCE optional},
    ...
}

RL-LCR-InformationResponse-RL-SetupRspTDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    uRA-Information             URA-Information,
    sAI                         SAI,
    gA-Cell                     GA-Cell     OPTIONAL,
    gA-AccessPointPosition      GA-AccessPointPosition  OPTIONAL,
    ul-TimeSlot-ISCP-LCR-Info   UL-TimeSlot-ISCP-LCR-Info,
    maxUL-SIR                   UL-SIR,
    minUL-SIR                   UL-SIR,
    maximumAllowedULTxPower     MaximumAllowedULTxPower,
    maximumDLTxPower            DL-Power,
    minimumDLTxPower            DL-Power,
    uARFCNforNt                 UARFCN                  OPTIONAL,
    cellParameterID             CellParameterID         OPTIONAL,
    sCTD-Indicator      SCTD-Indicator  OPTIONAL,
    pCCPCH-Power                PCCPCH-Power,
    alphaValue                  AlphaValue,
    ul-PhysCH-SF-Variation      UL-PhysCH-SF-Variation,
    synchronisationConfiguration            SynchronisationConfiguration,
    secondary-LCR-CCPCH-Info-TDD            Secondary-LCR-CCPCH-Info-TDD
    OPTIONAL,
    ul-LCR-CCTrCHInformation                UL-LCR-CCTrCHInformationList-RL-SetupRspTDD
    OPTIONAL,
    dl-LCR-CCTrCHInformation                DL-LCR-CCTrCHInformationList-RL-SetupRspTDD
    OPTIONAL,
    dCH-InformationResponse                 DCH-InformationResponseList-RL-SetupRspTDD
    OPTIONAL,
    dsch-LCR-InformationResponse            DSCH-LCR-InformationResponse-RL-SetupRspTDD
    OPTIONAL,
    usch-LCR-InformationResponse            USCH-LCR-InformationResponse-RL-SetupRspTDD
OPTIONAL,
    neighbouring-UMTS-CellInformation       Neighbouring-UMTS-CellInformation
OPTIONAL,
    neighbouring-GSM-CellInformation        Neighbouring-GSM-CellInformation
    OPTIONAL,
    iE-Extensions                           ProtocolExtensionContainer { { RL-LCR-
InformationResponseList-RL-SetupRspTDD-ExtIEs} }        OPTIONAL,
    ...
}
********** unaffected parts are omitted **********



-- **************************************************************
--
-- RADIO LINK SETUP FAILURE FDD
--
-- **************************************************************

RadioLinkSetupFailureFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkSetupFailureFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkSetupFailureFDD-
Extensions}}                  OPTIONAL,
    ...
}

********** unaffected parts are omitted **********


UnsuccessfulRL-InformationResponseList-RL-SetupFailureFDD ::= SEQUENCE (SIZE (1..maxNrOfRLs)) OF
ProtocolIE-Single-Container { {UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD-IEs} }

UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD       CRITICALITY ignore  TYPE
UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD       PRESENCE mandatory  }
}

UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    cause                       Cause,
    iE-Extensions                   ProtocolExtensionContainer { {UnsuccessfulRL-
InformationResponse-RL-SetupFailureFDD-ExtIEs} } OPTIONAL,
    ...
```

```
}

UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
...
}

SuccessfulRL-InformationResponseList-RL-SetupFailureFDD ::= SEQUENCE (SIZE (0..maxNrOfRLs-1)) OF
ProtocolIE-Single-Container { {SuccessfulRL-InformationResponse-RL-SetupFailureFDD-IEs} }

SuccessfulRL-InformationResponse-RL-SetupFailureFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-SuccessfulRL-InformationResponse-RL-SetupFailureFDD     CRITICALITY ignore  TYPE
SuccessfulRL-InformationResponse-RL-SetupFailureFDD     PRESENCE mandatory  }
}

SuccessfulRL-InformationResponse-RL-SetupFailureFDD ::= SEQUENCE {
    rL-ID                                   RL-ID,
    rL-Set-ID                               RL-Set-ID,
    uRA-Information                         URA-Information     OPTIONAL,
    sAI                                     SAI,
    gA-Cell                                 GA-Cell     OPTIONAL,
    gA-AccessPointPosition                  GA-AccessPointPosition      OPTIONAL,
    received-total-wide-band-power                                  Received-total-wide-band-power,
    secondary-CCPCH-Info                    Secondary-CCPCH-Info        OPTIONAL,
    dl-CodeInformation                      FDD-DL-CodeInformation,
    diversityIndication                     DiversityIndication-RL-SetupFailureFDD,

    sSDT-SupportIndicator                   SSDT-SupportIndicator,
    maxUL-SIR                               UL-SIR,
    minUL-SIR                               UL-SIR,
    closedlooptimingadjustmentmode          Closedlooptimingadjustmentmode  OPTIONAL,
    maximumAllowedULTxPower                 MaximumAllowedULTxPower,
    maximumDLTxPower                        DL-Power,
    minimumDLTxPower                        DL-Power,
    primaryCPICH-Power                      PrimaryCPICH-Power,
    primaryScramblingCode                   PrimaryScramblingCode   OPTIONAL,
    uL-UARFCN                                       UARFCN      OPTIONAL,
    dL-UARFCN                                       UARFCN      OPTIONAL,
    dSCH-InformationResponse-RL-SetupFailureFDD     DSCH-InformationResponseList-RL-SetupFailureFDD
        OPTIONAL,
    neighbouring-UMTS-CellInformation       Neighbouring-UMTS-CellInformation OPTIONAL,
    neighbouring-GSM-CellInformation        Neighbouring-GSM-CellInformation OPTIONAL,
    pC-Preamble                             PC-Preamble,
    sRB-Delay                               SRB-Delay,
    iE-Extensions                           ProtocolExtensionContainer { {SuccessfulRL-
InformationResponse-RL-SetupFailureFDD-ExtIEs} } OPTIONAL,
    ...
}

SuccessfulRL-InformationResponse-RL-SetupFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-GA-CellAdditionalShapes                     CRITICALITY ignore  EXTENSION GA-
CellAdditionalShapes                                PRESENCE optional }|
    { ID id-DL-PowerBalancing-ActivationIndicator       CRITICALITY ignore  EXTENSION DL-
PowerBalancing-ActivationIndicator          PRESENCE optional }|
    { ID id-TFCI-PC-SupportIndicator                    CRITICALITY ignore  EXTENSION TFCI-PC-
SupportIndicator                            PRESENCE optional }|
    { ID id-HCS-Prio                                    CRITICALITY ignore  EXTENSION HCS-Prio
                                                PRESENCE optional }|
    { ID id-Primary-CPICH-Usage-For-Channel-Estimation  CRITICALITY ignore  EXTENSION Primary-CPICH-
Usage-For-Channel-Estimation    PRESENCE optional }|
    { ID id-Secondary-CPICH-Information                  CRITICALITY ignore  EXTENSION Secondary-
CPICH-Information                       PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
    ...
}

DiversityIndication-RL-SetupFailureFDD ::= CHOICE {
    combining                       Combining-RL-SetupFailureFDD,
    nonCombiningOrFirstRL       NonCombiningOrFirstRL-RL-SetupFailureFDD
}

Combining-RL-SetupFailureFDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    iE-Extensions               ProtocolExtensionContainer { { CombiningItem-RL-SetupFailureFDD-
ExtIEs} } OPTIONAL,
    ...
```

```
}
```

********** unaffected parts are omitted **********

```
-- **************************************************************
--
-- RADIO LINK ADDITION RESPONSE FDD
--
-- **************************************************************

RadioLinkAdditionResponseFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkAdditionResponseFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkAdditionResponseFDD-
Extensions}}                  OPTIONAL,
    ...
}

RadioLinkAdditionResponseFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-RL-InformationResponseList-RL-AdditionRspFDD    CRITICALITY ignore  TYPE RL-
InformationResponseList-RL-AdditionRspFDD       PRESENCE mandatory  } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics
    PRESENCE optional   },
    ...
}
```

********** unaffected parts are omitted **********

```
RL-InformationResponseItem-RL-AdditionRspFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-GA-CellAdditionalShapes         CRITICALITY ignore  EXTENSION   GA-CellAdditionalShapes
        PRESENCE optional }|
    { ID id-DL-PowerBalancing-ActivationIndicator   CRITICALITY ignore      EXTENSION       DL-
PowerBalancing-ActivationIndicator      PRESENCE optional}|
    { ID id-TFCI-PC-SupportIndicator        CRITICALITY ignore  EXTENSION   TFCI-PC-SupportIndicator
        PRESENCE optional }|
    { ID id-HCS-Prio            CRITICALITY ignore  EXTENSION   HCS-Prio        PRESENCE optional }|
    { ID id-Primary-CPICH-Usage-For-Channel-Estimation      CRITICALITY ignore  EXTENSION   Primary-
CPICH-Usage-For-Channel-Estimation      PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
    ...
}

DL-CodeInformationList-RL-AdditionRspFDD ::= ProtocolIE-Single-Container {{ DL-
CodeInformationListIEs-RL-AdditionRspFDD }}

DL-CodeInformationListIEs-RL-AdditionRspFDD RNSAP-PROTOCOL-IES ::= {
    { ID id-FDD-DL-CodeInformation   CRITICALITY ignore TYPE FDD-DL-CodeInformation     PRESENCE
mandatory }
}

DiversityIndication-RL-AdditionRspFDD ::= CHOICE {
    combining                       Combining-RL-AdditionRspFDD,
    nonCombining                    NonCombining-RL-AdditionRspFDD
}

Combining-RL-AdditionRspFDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    iE-Extensions               ProtocolExtensionContainer { { CombiningItem-RL-AdditionRspFDD-
ExtIEs} } OPTIONAL,
    ...
}

CombiningItem-RL-AdditionRspFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-DCH-InformationResponse         CRITICALITY ignore  EXTENSION DCH-InformationResponse
        PRESENCE optional   },
    ...
}

NonCombining-RL-AdditionRspFDD ::= SEQUENCE {
    dCH-InformationResponse                 DCH-InformationResponse,
    iE-Extensions                               ProtocolExtensionContainer { { NonCombiningItem-RL-
AdditionRspFDD-ExtIEs} } OPTIONAL,
    ...
}
```

```
NonCombiningItem-RL-AdditionRspFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

RadioLinkAdditionResponseFDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- RADIO LINK ADDITION RESPONSE TDD
--
-- **************************************************************

RadioLinkAdditionResponseTDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkAdditionResponseTDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkAdditionResponseTDD-
Extensions}}                  OPTIONAL,
    ...
}

RadioLinkAdditionResponseTDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-RL-InformationResponse-RL-AdditionRspTDD        CRITICALITY ignore  TYPE RL-
InformationResponse-RL-AdditionRspTDD   PRESENCE optional   } |
    --Mandatory for 3.84Mcps TDD only
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics
    PRESENCE optional   },
    ...
}
```

********** unaffected parts are omitted **********

```
RadioLinkAdditionResponseTDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-RL-LCR-InformationResponse-RL-AdditionRspTDD    CRITICALITY ignore      EXTENSION   RL-
LCR-InformationResponse-RL-AdditionRspTDD       PRESENCE optional   }|
    --Mandatory for 1.28Mcps TDD only
    { ID id-Active-MBMS-Bearer-ServiceTDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListTDD      PRESENCE optional},...
}

RL-LCR-InformationResponse-RL-AdditionRspTDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    uRA-Information             URA-Information,
    sAI                         SAI,
    gA-Cell                     GA-Cell     OPTIONAL,
    gA-AccessPointPosition      GA-AccessPointPosition  OPTIONAL,
    ul-TimeSlot-ISCP-LCR-Info   UL-TimeSlot-ISCP-LCR-Info,
    maxUL-SIR                   UL-SIR,
    minUL-SIR                   UL-SIR,
    pCCPCH-Power                PCCPCH-Power,
    maximumAllowedULTxPower     MaximumAllowedULTxPower,
    maximumDLTxPower            DL-Power,
    minimumDLTxPower            DL-Power,
    alphaValue                  AlphaValue,
    ul-PhysCH-SF-Variation      UL-PhysCH-SF-Variation,
    synchronisationConfiguration        SynchronisationConfiguration,
    secondary-LCR-CCPCH-Info-TDD        Secondary-LCR-CCPCH-Info-TDD
    OPTIONAL,
    ul-CCTrCH-LCR-Information           UL-CCTrCH-LCR-InformationList-RL-AdditionRspTDD
    OPTIONAL,
    dl-CCTrCH-LCR-Information           DL-CCTrCH-LCR-InformationList-RL-AdditionRspTDD
    OPTIONAL,
    dCH-InformationResponse             DCH-InformationResponseList-RL-AdditionRspTDD
    OPTIONAL,
    dsch-LCR-InformationResponse        DSCH-LCR-InformationResponse-RL-AdditionRspTDD     OPTIONAL,
    usch-LCR-InformationResponse            USCH-LCR-InformationResponse-RL-AdditionRspTDD
OPTIONAL,
    neighbouring-UMTS-CellInformation           Neighbouring-UMTS-CellInformation
OPTIONAL,
    neighbouring-GSM-CellInformation            Neighbouring-GSM-CellInformation
OPTIONAL,
    iE-Extensions                               ProtocolExtensionContainer { { RL-LCR-
InformationResponseList-RL-AdditionRspTDD-ExtIEs} }     OPTIONAL,
    ...
}
```

********** unaffected parts are omitted **********

```
-- **************************************************************
--
-- RADIO LINK ADDITION FAILURE FDD
--
-- **************************************************************

RadioLinkAdditionFailureFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container       {{RadioLinkAdditionFailureFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer {{RadioLinkAdditionFailureFDD-
Extensions}}                  OPTIONAL,
    ...
}
********** unaffected parts are omitted **********

UnsuccessfulRL-InformationResponseList-RL-AdditionFailureFDD ::= SEQUENCE (SIZE (1..maxNrOfRLs-1))
OF ProtocolIE-Single-Container { {UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD-IEs} }

UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD    CRITICALITY ignore  TYPE
UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD        PRESENCE mandatory  }
}

UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD ::= SEQUENCE {
    rL-ID                           RL-ID,
    cause                           Cause,
    iE-Extensions                   ProtocolExtensionContainer { {UnsuccessfulRL-
InformationResponse-RL-AdditionFailureFDD-ExtIEs} } OPTIONAL,
    ...
}

UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
    ...
}

SuccessfulRL-InformationResponseList-RL-AdditionFailureFDD ::= SEQUENCE (SIZE (0..maxNrOfRLs-2)) OF
ProtocolIE-Single-Container { {SuccessfulRL-InformationResponse-RL-AdditionFailureFDD-IEs} }

SuccessfulRL-InformationResponse-RL-AdditionFailureFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-SuccessfulRL-InformationResponse-RL-AdditionFailureFDD      CRITICALITY ignore  TYPE
SuccessfulRL-InformationResponse-RL-AdditionFailureFDD      PRESENCE mandatory  }
}

SuccessfulRL-InformationResponse-RL-AdditionFailureFDD ::= SEQUENCE {
    rL-ID                               RL-ID,
    rL-Set-ID                           RL-Set-ID,
    uRA-Information                     URA-Information     OPTIONAL,
    sAI                                 SAI,
    gA-Cell                             GA-Cell     OPTIONAL,
    gA-AccessPointPosition              GA-AccessPointPosition      OPTIONAL,
    received-total-wide-band-power      Received-total-wide-band-power,
    secondary-CCPCH-Info                Secondary-CCPCH-Info        OPTIONAL,
    dl-CodeInformation                  DL-CodeInformationList-RL-AdditionFailureFDD,
    diversityIndication                 DiversityIndication-RL-AdditionFailureFDD,
    -- This IE represents both the Diversity Indication IE and the choice based on the diversity
indication as described in
    -- the tabular message format in subclause 9.1.
    sSDT-SupportIndicator               SSDT-SupportIndicator,
    minUL-SIR                           UL-SIR,
    maxUL-SIR                           UL-SIR,
    closedlooptimingadjustmentmode      Closedlooptimingadjustmentmode  OPTIONAL,
    maximumAllowedULTxPower             MaximumAllowedULTxPower,
    maximumDLTxPower                    DL-Power,
    minimumDLTxPower                    DL-Power,
    neighbouring-UMTS-CellInformation   Neighbouring-UMTS-CellInformation OPTIONAL,
    neighbouring-GSM-CellInformation    Neighbouring-GSM-CellInformation OPTIONAL,
    primaryCPICH-Power                  PrimaryCPICH-Power,
    pC-Preamble                         PC-Preamble,
    sRB-Delay                           SRB-Delay,
    iE-Extensions                       ProtocolExtensionContainer { {SuccessfulRL-
InformationResponse-RL-AdditionFailureFDD-ExtIEs} } OPTIONAL,
    ...
}

SuccessfulRL-InformationResponse-RL-AdditionFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
```

```
    { ID id-GA-CellAdditionalShapes                 CRITICALITY ignore  EXTENSION   GA-
CellAdditionalShapes        PRESENCE optional }|
    { ID id-DL-PowerBalancing-ActivationIndicator   CRITICALITY ignore  EXTENSION   DL-
PowerBalancing-ActivationIndicator      PRESENCE optional}|
    { ID id-TFCI-PC-SupportIndicator                CRITICALITY ignore  EXTENSION   TFCI-PC-
SupportIndicator        PRESENCE optional }|
    { ID id-HCS-Prio                                CRITICALITY ignore  EXTENSION   HCS-Prio
    PRESENCE optional }|
    { ID id-Primary-CPICH-Usage-For-Channel-Estimation      CRITICALITY ignore  EXTENSION   Primary-
CPICH-Usage-For-Channel-Estimation      PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD     PRESENCE optional},
    ...
}

DL-CodeInformationList-RL-AdditionFailureFDD ::= ProtocolIE-Single-Container {{ DL-
CodeInformationListIEs-RL-AdditionFailureFDD }}

DL-CodeInformationListIEs-RL-AdditionFailureFDD RNSAP-PROTOCOL-IES ::= {
    { ID id-FDD-DL-CodeInformation   CRITICALITY ignore TYPE FDD-DL-CodeInformation     PRESENCE
mandatory }
}

DiversityIndication-RL-AdditionFailureFDD ::= CHOICE {
    combining                       Combining-RL-AdditionFailureFDD,
    nonCombining                    NonCombining-RL-AdditionFailureFDD
}

Combining-RL-AdditionFailureFDD ::= SEQUENCE {
    rL-ID                       RL-ID,
    iE-Extensions               ProtocolExtensionContainer { { CombiningItem-RL-AdditionFailureFDD-
ExtIEs} } OPTIONAL,
    ...
}

CombiningItem-RL-AdditionFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-DCH-InformationResponse         CRITICALITY ignore  EXTENSION DCH-InformationResponse
        PRESENCE optional   },
    ...
}

NonCombining-RL-AdditionFailureFDD ::= SEQUENCE {
    dCH-InformationResponse     DCH-InformationResponse,
    iE-Extensions                               ProtocolExtensionContainer { { NonCombiningItem-RL-
AdditionFailureFDD-ExtIEs} } OPTIONAL,
    ...
}

NonCombiningItem-RL-AdditionFailureFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

RadioLinkAdditionFailureFDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
********** unaffected parts are omitted **********


-- **************************************************************
--
-- UPLINK SIGNALLING TRANSFER INDICATION FDD
--
-- **************************************************************

UplinkSignallingTransferIndicationFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container
{{UplinkSignallingTransferIndicationFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer
{{UplinkSignallingTransferIndicationFDD-Extensions}}                    OPTIONAL,
    ...
}

UplinkSignallingTransferIndicationFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-UC-ID                   CRITICALITY ignore  TYPE UC-ID                  PRESENCE
mandatory   } |
    { ID id-SAI                 CRITICALITY ignore  TYPE SAI                    PRESENCE mandatory
    } |
```

```
    { ID id-GA-Cell             CRITICALITY ignore  TYPE GA-Cell                PRESENCE optional }
|
    { ID id-C-RNTI                  CRITICALITY ignore  TYPE C-RNTI                 PRESENCE
mandatory   } |
    { ID id-S-RNTI                  CRITICALITY ignore  TYPE S-RNTI                 PRESENCE
mandatory   } |
    { ID id-D-RNTI                  CRITICALITY ignore  TYPE D-RNTI                 PRESENCE
optional    } |
    { ID id-PropagationDelay        CRITICALITY ignore  TYPE PropagationDelay       PRESENCE
mandatory   } |
    { ID id-STTD-SupportIndicator               CRITICALITY ignore  TYPE STTD-SupportIndicator
    PRESENCE mandatory } |
    { ID id-ClosedLoopMode1-SupportIndicator    CRITICALITY ignore  TYPE ClosedLoopMode1-
SupportIndicator    PRESENCE mandatory } |
    { ID id-ClosedLoopMode2-SupportIndicator    CRITICALITY ignore  TYPE ClosedLoopMode2-
SupportIndicator    PRESENCE mandatory } |
    { ID id-L3-Information              CRITICALITY ignore  TYPE L3-Information             PRESENCE
mandatory   } |
    { ID id-CN-PS-DomainIdentifier          CRITICALITY ignore  TYPE CN-PS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-CN-CS-DomainIdentifier          CRITICALITY ignore  TYPE CN-CS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-URA-Information                 CRITICALITY ignore  TYPE URA-Information
    PRESENCE optional   },
    ...
}

UplinkSignallingTransferIndicationFDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-GA-CellAdditionalShapes             CRITICALITY ignore  EXTENSION GA-
CellAdditionalShapes                PRESENCE optional }|
    { ID id-DPC-Mode-Change-SupportIndicator    CRITICALITY ignore  EXTENSION DPC-Mode-Change-
SupportIndicator    PRESENCE optional }|
    { ID id-CommonTransportChannelResourcesInitialisationNotRequired    CRITICALITY ignore
    EXTENSION CommonTransportChannelResourcesInitialisationNotRequired  PRESENCE optional }|
    { ID id-CellCapabilityContainer-FDD         CRITICALITY ignore  EXTENSION
CellCapabilityContainer-FDD         PRESENCE optional }|
    { ID id-SNA-Information                     CRITICALITY ignore  EXTENSION SNA-Information
                    PRESENCE optional }|
    { ID id-CellPortionID                       CRITICALITY ignore  EXTENSION CellPortionID
                    PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-Service-UplinkSigTrFDD       CRITICALITY ignore  EXTENSION Active-
MBMS-Bearer-Service-List-UplinkSigTrFDD         PRESENCE optional},
    ...
}

Active-MBMS-Bearer-Service-List-UplinkSigTrFDD  ::= SEQUENCE (SIZE (1..maxNrOfActiveMBMSServices))
OF MBMS-Bearer-ServiceItem-UplinkSigTrFDD

MBMS-Bearer-ServiceItem-UplinkSigTrFDD  ::=SEQUENCE{
    tmgi    TMGI,
    transmissionMode    TransmissionMode,
    iE-Extensions                   ProtocolExtensionContainer { { MBMS-Bearer-ServiceItem-
UplinkSigTrFDD-ExtIEs} } OPTIONAL,
    ...
}
MBMS-Bearer-ServiceItem-UplinkSigTrFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- **************************************************************
--
-- UPLINK SIGNALLING TRANSFER INDICATION TDD
--
-- **************************************************************

UplinkSignallingTransferIndicationTDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container
{{UplinkSignallingTransferIndicationTDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer
{{UplinkSignallingTransferIndicationTDD-Extensions}}                    OPTIONAL,
    ...
}

UplinkSignallingTransferIndicationTDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-UC-ID                   CRITICALITY ignore  TYPE UC-ID                  PRESENCE
mandatory   } |
    { ID id-SAI                 CRITICALITY ignore  TYPE SAI                    PRESENCE mandatory
    } |
```

```
    { ID id-GA-Cell             CRITICALITY ignore  TYPE GA-Cell                PRESENCE optional }
|
    { ID id-C-RNTI                  CRITICALITY ignore  TYPE C-RNTI                 PRESENCE
mandatory   } |
    { ID id-S-RNTI                  CRITICALITY ignore  TYPE S-RNTI                 PRESENCE
mandatory   } |
    { ID id-D-RNTI                  CRITICALITY ignore  TYPE D-RNTI                 PRESENCE
optional    } |
    { ID id-RxTimingDeviationForTA          CRITICALITY ignore  TYPE RxTimingDeviationForTA PRESENCE
mandatory } |
    { ID id-L3-Information               CRITICALITY ignore  TYPE L3-Information             PRESENCE
mandatory   } |
    { ID id-CN-PS-DomainIdentifier          CRITICALITY ignore  TYPE CN-PS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-CN-CS-DomainIdentifier          CRITICALITY ignore  TYPE CN-CS-DomainIdentifier
    PRESENCE optional   } |
    { ID id-URA-Information                 CRITICALITY ignore  TYPE URA-Information
    PRESENCE optional   },
    ...
}

UplinkSignallingTransferIndicationTDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-GA-CellAdditionalShapes         CRITICALITY ignore  EXTENSION   GA-CellAdditionalShapes
        PRESENCE optional   }|
    { ID id-CommonTransportChannelResourcesInitialisationNotRequired    CRITICALITY ignore
    EXTENSION CommonTransportChannelResourcesInitialisationNotRequired      PRESENCE optional   }|
    { ID id-CellCapabilityContainer-TDD     CRITICALITY ignore  EXTENSION   CellCapabilityContainer-
TDD     PRESENCE optional }|
        -- Applicable to 3.84Mcps TDD only
    { ID id-CellCapabilityContainer-TDD-LCR CRITICALITY ignore  EXTENSION   CellCapabilityContainer-
TDD-LCR     PRESENCE optional }|
        -- Applicable to 1.28Mcps TDD only
    { ID id-SNA-Information                 CRITICALITY ignore  EXTENSION   SNA-Information
            PRESENCE optional }|
    { ID id-Active-MBMS-Bearer-Service~~-UplinkSigTr~~TDD       CRITICALITY ignore  EXTENSION Active-
MBMS-Bearer-Service-List~~-UplinkSigTr~~TDD         PRESENCE optional},
    ...

}

~~Active-MBMS-Bearer-Service-List-UplinkSigTrTDD ::= SEQUENCE (SIZE (1..maxNrOfActiveMBMSServices))
OF MBMS-Bearer-ServiceItem-UplinkSigTrTDD~~


~~MBMS-Bearer-ServiceItem-UplinkSigTrTDD ::=SEQUENCE{
    tmgi    TMGI,
    transmissionMode    TransmissionMode,
    iE-Extensions                   ProtocolExtensionContainer { { MBMS-Bearer-ServiceItem-
UplinkSigTrTDD-ExtIEs} } OPTIONAL,
    ...~~
~~}~~

~~MBMS-Bearer-ServiceItem-UplinkSigTrTDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...~~
~~}~~
```

********** unaffected parts are omitted **********

```
-- **************************************************************
--
-- COMMON TRANSPORT CHANNEL RESOURCES RESPONSE FDD
--
-- **************************************************************

CommonTransportChannelResourcesResponseFDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container
{{CommonTransportChannelResourcesResponseFDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer
{{CommonTransportChannelResourcesResponseFDD-Extensions}}           OPTIONAL,
    ...
}

CommonTransportChannelResourcesResponseFDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-S-RNTI                  CRITICALITY ignore  TYPE S-RNTI                 PRESENCE
mandatory   } |
    { ID id-C-RNTI                  CRITICALITY ignore  TYPE C-RNTI                 PRESENCE
optional    } |
```

```
    { ID id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD   CRITICALITY ignore  TYPE FACH-
InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD        PRESENCE mandatory  } |
    { ID id-TransportLayerAddress           CRITICALITY ignore  TYPE TransportLayerAddress
    PRESENCE optional   } |
    { ID id-BindingID               CRITICALITY ignore  TYPE BindingID                  PRESENCE
optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics
    PRESENCE optional   },
    ...
}

FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD ::= SEQUENCE {
    fACH-FlowControlInformation     FACH-FlowControlInformation-CTCH-ResourceRspFDD,
    iE-Extensions                   ProtocolExtensionContainer { {FACH-InfoForUESelectedS-CCPCH-
CTCH-ResourceRspFDD-ExtIEs} } OPTIONAL,
    ...
}

FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

FACH-FlowControlInformation-CTCH-ResourceRspFDD ::= ProtocolIE-Single-Container {{ FACH-
FlowControlInformationIEs-CTCH-ResourceRspFDD }}

FACH-FlowControlInformationIEs-CTCH-ResourceRspFDD RNSAP-PROTOCOL-IES ::= {
    { ID id-FACH-FlowControlInformation CRITICALITY ignore  TYPE    FACH-FlowControlInformation
    PRESENCE mandatory  }
}

CommonTransportChannelResourcesResponseFDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-C-ID                CRITICALITY ignore      EXTENSION   C-ID        PRESENCE mandatory
}|
    { ID id-Active-MBMS-Bearer-ServiceFDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListFDD      PRESENCE optional},
    ...
}

-- **************************************************************
--
-- COMMON TRANSPORT CHANNEL RESOURCES RESPONSE TDD
--
-- **************************************************************

CommonTransportChannelResourcesResponseTDD ::= SEQUENCE {
    protocolIEs                     ProtocolIE-Container
{{CommonTransportChannelResourcesResponseTDD-IEs}},
    protocolExtensions              ProtocolExtensionContainer
{{CommonTransportChannelResourcesResponseTDD-Extensions}}           OPTIONAL,
    ...
}

CommonTransportChannelResourcesResponseTDD-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-S-RNTI                  CRITICALITY ignore  TYPE S-RNTI                 PRESENCE
mandatory   } |
    { ID id-C-RNTI                  CRITICALITY ignore  TYPE C-RNTI                 PRESENCE
optional    } |
    { ID id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD   CRITICALITY ignore  TYPE FACH-
InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD        PRESENCE mandatory  } |
    { ID id-TransportLayerAddress           CRITICALITY ignore  TYPE TransportLayerAddress
    PRESENCE optional   } |
    { ID id-BindingID               CRITICALITY ignore  TYPE BindingID                  PRESENCE
optional    } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics
    PRESENCE optional   },
    ...
}

FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD ::= SEQUENCE {
    fACH-FlowControlInformation     FACH-FlowControlInformation-CTCH-ResourceRspTDD,
    iE-Extensions                   ProtocolExtensionContainer { {FACH-InfoForUESelectedS-CCPCH-
CTCH-ResourceRspTDD-ExtIEs} } OPTIONAL,
    ...
}

FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
FACH-FlowControlInformation-CTCH-ResourceRspTDD ::= ProtocolIE-Single-Container {{ FACH-
FlowControlInformationIEs-CTCH-ResourceRspTDD }}

FACH-FlowControlInformationIEs-CTCH-ResourceRspTDD RNSAP-PROTOCOL-IES ::= {
    { ID id-FACH-FlowControlInformation CRITICALITY ignore  TYPE    FACH-FlowControlInformation
    PRESENCE mandatory  }
}

CommonTransportChannelResourcesResponseTDD-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-C-ID                CRITICALITY ignore      EXTENSION   C-ID         PRESENCE mandatory
}|
    { ID id-Active-MBMS-Bearer-ServiceTDD       CRITICALITY ignore      EXTENSION Active-MBMS-
Bearer-Service-ListTDD      PRESENCE optional},
    ...
}
```

********** unaffected parts are omitted **********

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************
```

********** unaffected parts are omitted **********

```
FROM RNSAP-Containers;

-- A

AccessPointName     ::= OCTET STRING (SIZE (1..100,...))

AckNack-RepetitionFactor ::= INTEGER (1..4,...)
-- Step: 1

Ack-Power-Offset ::= INTEGER (0..8,...)
-- According to mapping in ref. [21] subclause 4.2.1

Active-MBMS-Bearer-Service-ListFDD  ::= SEQUENCE (SIZE (1..maxNrOfActiveMBMSServices)) OF MBMS-
Bearer-ServiceItemFDD

Active-MBMS-Bearer-Service-ListTDD  ::= SEQUENCE (SIZE (1..maxNrOfActiveMBMSServices)) OF MBMS-
Bearer-ServiceItemTDD

Active-Pattern-Sequence-Information ::= SEQUENCE {
    cMConfigurationChangeCFN        CFN,
    transmission-Gap-Pattern-Sequence-Status    Transmission-Gap-Pattern-Sequence-Status-List
    OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { {Active-Pattern-Sequence-Information-ExtIEs} }
OPTIONAL,
    ...
}

Active-Pattern-Sequence-Information-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

********** unaffected parts are omitted **********

```
MBMS-Bearer-Service-List    ::= SEQUENCE (SIZE (1..maxNrOfMBMSServices)) OF TMGI

MBMS-Bearer-ServiceItemFDD  ::=SEQUENCE{
    tmgi    TMGI,
    transmissionMode    TransmissionMode,
    iE-Extensions                   ProtocolExtensionContainer { { MBMS-Bearer-ServiceItemFDD-
ExtIEs} } OPTIONAL,
    ...
}
MBMS-Bearer-ServiceItemFDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
MBMS-Bearer-ServiceItemTDD  ::=SEQUENCE{
    tmgi    TMGI,
    transmissionMode    TransmissionMode,
    iE-Extensions                   ProtocolExtensionContainer { { MBMS-Bearer-ServiceItemTDD-ExtIEs} } OPTIONAL,
    ...
}
MBMS-Bearer-ServiceItemTDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MeasurementFilterCoefficient ::=  ENUMERATED{k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15, k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement
```

********** unaffected parts are omitted **********

9.3.6 Constant Definitions

```
-- **************************************************************
--
-- Constant definitions
--
-- **************************************************************

RNSAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) rnsap (1) version1 (1) rnsap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    ProcedureCode,
    ProtocolIE-ID
FROM RNSAP-CommonDataTypes;
```

********** unaffected parts are omitted **********

```
id-InterfacesToTraceItem                                    ProtocolIE-ID ::= 546
id-ListOfInterfacesToTrace                                  ProtocolIE-ID ::= 547
id-TraceDepth                                               ProtocolIE-ID ::= 548
id-TraceRecordingSessionReference                           ProtocolIE-ID ::= 549
id-TraceReference                                           ProtocolIE-ID ::= 550
id-UEIdentity                                               ProtocolIE-ID ::= 551
id-NACC-Related-Data                                        ProtocolIE-ID ::= 552
id-GSM-Cell-InfEx-Rqst                                      ProtocolIE-ID ::= 553
id-MeasurementRecoveryBehavior                              ProtocolIE-ID ::= 554
id-MeasurementRecoveryReportingIndicator                    ProtocolIE-ID ::= 555
id-MeasurementRecoverySupportIndicator                      ProtocolIE-ID ::= 556
id-MBMS-Bearer-Service-List                                 ProtocolIE-ID ::= 560
id-MBMS-Bearer-Service-List-InfEx-Rsp                       ProtocolIE-ID ::= 561
id-Active-MBMS-Bearer-Service-UplinkSigTrFDD                ProtocolIE-ID ::= 562
id-Active-MBMS-Bearer-Service-UplinkSigTrTDD                ProtocolIE-ID ::= 563
id-Old-URA-ID                                               ProtocolIE-ID ::= 564
id-TMGI                                                     ProtocolIE-ID ::= 565
id-TransmissionMode                                         ProtocolIE-ID ::= 566
id-AffectedUEInformationForMBMS                             ProtocolIE-ID ::= 567
id-UE-State                                                 ProtocolIE-ID ::= 568
id-URA-ID                                                   ProtocolIE-ID ::= 569
id-DRNC-ID                                                  ProtocolIE-ID ::= 570
id-HARQ-Preamble-Mode                                       ProtocolIE-ID ::= 571


END
```

3GPP TSG-RAN WG3 #46 **⌘R3-050363**
Phoenix, USA, 14th February – 18 February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **TS25.423** **CR** **CR1035** ⌘ **rev** **2** ⌘ Current version: **6.4.1** ⌘

*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:	⌘	Correction of MBMS Identifiers Retrieval
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	14/02/2005
Category:	⌘	**F**
Release:	⌘	REL-6

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:
Ph2 (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)
Rel-7 (Release 7)

Reason for change:	⌘	Missing specification text for the exchange of MBMS identifiers and misuse of the information exchange procedure to request data according to given information type. Non alignment of IP and APN addresses.
Summary of change:	⌘	RNSAP is corrected to specify correctly the exchange of MBMS bearer identifiers, to reuse the mechanisms of the information exchange procedure using the information type and the requested data value information elements. Correction of APN and IP addresses. Impact assessment towards the previous version of the specification (same release): This CR has isolated impact towards the previous version of the specification (same release). This CR has an impact under protocol and functional point of view. The impact can be considered isolated because it only affects the Information Exchange Initiation procedure.
Consequences if not approved:	⌘	Bad specification and possible erroneous answer due to lack of specification.

Clauses affected:	⌘	8.5.6, 9.1.50, 9.2.1.31E, 9.2.1.48A, 9.2.1.xx, 9.3.3, 9.3.4, 9.3.6

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

How to create CRs using this form:

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

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

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

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

8.5.6 Information Exchange Initiation

8.5.6.1 General

This procedure is used by an RNC to request the initiation of an information exchange with another RNC.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

8.5.6.2 Successful Operation

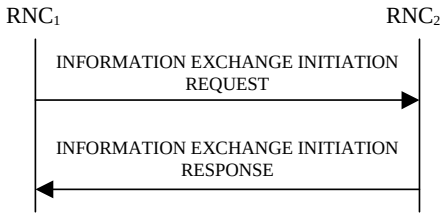

Figure 30F: Information Exchange Initiation procedure, Successful Operation

The procedure is initiated with an INFORMATION EXCHANGE INITIATION REQUEST message sent from RNC_1 to RNC_2.

Upon receipt, the RNC_2 shall provide the requested information according to the parameters given in the request. Unless specified below, the meaning of the parameters are given in other specifications.

If the *Information Exchange Object Type* is set to "MBMS Bearer Service" and ~~,~~ the ~~RNC2 shall ignore the value in~~ *Information Type Item* IE is set to "MBMS Bearer Service Full Address"~~,~~, the RNC_2 shall report for each TMGI included in the received *MBMS Bearer Service Identifiers List* IE, the Access Point Name and the IP Multicast Address corresponding to this TMGI in the *MBMS Bearer Service Identifiers List* IE in the INFORMATION EXCHANGE INITIATION RESPONSE message.

Information Report Characteristics:

The *Information Report Characteristics* IE indicates how the reporting of the information shall be performed.

If the *Information Report Characteristics* IE is set to "On Demand", the RNC_2 shall report the requested information immediately.

If the *Information Report Characteristics* IE is set to "Periodic", the RNC_2 shall report the requested information immediately and then shall periodically initiate the Information Reporting procedure for all the requested information, with the report frequency indicated by the *Information Report Periodicity* IE.

If the *Information Report Characteristics* IE is set to "On Modification", the RNC_2 shall report the requested information immediately if available. If the requested information is not available at the moment of receiving the INFORMATION EXCHANGE INITIATION REQUEST message, but expected to become available after some acquisition time, the RNC_2 shall initiate the Information Reporting procedure when the requested information becomes available. The RNC_2 shall then initiate the Information Reporting procedure in accordance to the following conditions:

- If the *Information Type Item* IE is set to "IPDL Parameters", the RNC_2 shall initiate the Information Reporting procedure when any change in the parameters occurs.
- If the *Information Type Item* IE is set to "DGPS Corrections", the RNC_2 shall initiate the Information Reporting procedure for this specific Information Type when either the PRC has drifted from the previously reported value more than the threshold indicated in the *PRC Deviation* IE in the *Information Threshold* IE or a change has occurred in the IODE.
- If the *Information Type Item* IE is set to "GPS Information" and the *GPS Information Item* IE includes "GPS Navigation Model & Recovery Assistance", the RNC_2 shall initiate the Information Reporting procedure for this

specific GPS Information Item when a change has occurred regarding either the IODC or the list of visible satellites, identified by the *Sat ID* IEs.

- If the *Information Type Item* IE is set to "GPS Information" and the *GPS Information Item* IE includes "GPS Ionospheric Model", the RNC_2 shall initiate the Information Reporting procedure for this specific GPS Information Item when any change has occurred.

- If the *Information Type Item* IE is set to "GPS Information" and the *GPS Information Item* IE includes "GPS UTC Model", the RNC_2 shall initiate the Information Reporting procedure for this specific GPS Information Item when a change has occurred in the t_{ot} or WN_t parameter.

- If the *Information Type Item* IE is set to "GPS Information" and the *GPS Information Item* IE includes "GPS Almanac", the RNC_2 shall initiate the Information Reporting procedure for this specific GPS Information Item when a change in the t_{oa} or WN_a parameter has occurred.

- If the *Information Type Item* IE is set to "GPS Information" and the *GPS Information Item* IE includes "GPS Real-Time Integrity", the RNC_2 shall initiate the Information Reporting procedure for this specific GPS Information Item when any change has occurred.

- If the *Information Type* IE is set to "Cell Capacity Class", the RNC_2 shall initiate the Information Reporting procedure for uplink and downlink cell capacity class when any change has occurred. If either uplink or downlink cell capacity class satisfies the requested report characteristics, the RNC_2 shall report the result of both uplink and downlink cell capacity information.

- If any of the above *Information Type* IEs becomes temporarily unavailable, the RNC_2 shall initiate the Information Reporting procedure for this specific Information Item by indicating "Information Not Available" in the *Requested Data Value Information* IE. If the Information becomes available again, the RNC_2 shall initiate the Information Reporting procedure for this specific Information.

- If the *Information Type* IE is set to "NACC related data", the RNC_2 shall initiate the Information Reporting procedure for NACC related data if any change has occurred.

Response message:

If the RNC_2 is able to determine the information requested by the RNC_1, it shall respond with the INFORMATION EXCHANGE INITIATION RESPONSE message. The message shall include the *Information Exchange ID* IE set to the same value that was included in the INFORMATION EXCHANGE INITIATION REQUEST message. When the *Report Characteristics* IE is set to or "On Modification" or "Periodic", the INFORMATION EXCHANGE INITIATION RESPONSE message shall contain the *Requested Data Value* IE if the data are available. When the *Report Characteristics* IE is set to "On Demand", the INFORMATION EXCHANGE INITIATION RESPONSE message shall contain the *Requested Data Value* IE.

8.5.6.2.1 Successful Operation for Iur-g

The procedure is initiated with an INFORMATION EXCHANGE INITIATION REQUEST message sent from BSS_1 to BSS_2/RNC_2 or by RNC_1 to BSS_2.

Upon receipt, the BSS_2/RNC_2 shall provide the requested information according to the parameters given in the request. Unless specified below, the meaning of the parameters are given in other specifications.

Information Report Characteristics on Iur-g:

If the *Information Type Item* IE is set to "Cell Capacity Class", the RNC_2/BSS_2 shall initiate measurements and report results as described in section 8.5.6.2.

The *Information Report Characteristics* IE indicates how the reporting of the information shall be performed. This IE is used as described in section 8.5.6.2.

8.5.6.3 Unsuccessful Operation

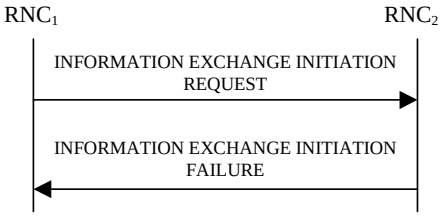

Figure 30G: Information Exchange Initiation procedure, Unsuccessful Operation

If the requested Information Type received in the *Information Type* IE indicates a type of information that RNC_2 cannot provide, the RNC_2 shall reject the Information Exchange Initiation procedure.

If the requested information provision cannot be accessed, the RNC_2 shall reject the procedure and shall send the INFORMATION EXCHANGE INITIATION FAILURE message.

The message shall include the *Information Exchange ID* IE set to the same value that was used in the INFORMATION EXCHANGE INITIATION REQUEST message and the *Cause* IE set to an appropriate value.

Typical cause values are as follows:

Radio Network Layer Cause:

- Information temporarily not available.
- Information Provision not supported for the object.

8.5.6.4 Abnormal Conditions

If the *Information Report Characteristics* IE is set to "On Modification", and the *Information Type Item* IE is set to "DGPS Corrections", but the *Information Threshold* IE is not received in the INFORMATION EXCHANGE INITIATION REQUEST message, the RNC_2 shall reject the Information Exchange Initiation procedure and shall send the INFORMATION EXCHANGE INITIATION FAILURE message.

If the *Information Exchange Object Type* IE is set to a value other than "GSM Cell" and the *Information Type Item* IE set to "NACC related data" the RNC_2 shall reject the Information Exchange Initiation procedure and shall send the INFORMATION EXCHANGE INITIATION FAILURE message.

If the ~~*Information Exchange Object Type* IE is set to "MBMS Bearer Service" and the *Information Report Characteristics* IE is set to value other than "On Demand"~~ *Information Type Item* IE is set to the value "MBMS Bearer Service Full Address" and the *Information Exchange Object Type* IE is not set to "MBMS Bearer Service", the RNC_2 shall reject the Information Exchange Initiation procedure and shall send the INFORMATION EXCHANGE INITIATION FAILURE message.

The allowed combinations of the Information type and Information Report Characteristics type are shown in the table below marked with "X". For not allowed combinations, the RNC_2 shall reject the Information Exchange Initiation procedure using the INFORMATION EXCHANGE INITIATION FAILURE message.

Table 6a: Allowed Information Type and Information Report Characteristics type combinations

Type	Information Report Characteristics Type		
	On Demand	Periodic	On Modification
UTRAN Access Point Position with Altitude Information	X		
UTRAN Access Point Position	X		
IPDL Parameters	X	X	X
GPS Information	X	X	X
DGPS Corrections	X	X	X
GPS RX Pos	X		
SFN-SFN Measurement Reference Point Position	X		
Cell Capacity Class	X		X
NACC related data	X		X
MBMS Bearer Service Full Address	X		

9.1.50 INFORMATION EXCHANGE INITIATION RESPONSE

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
Information Exchange ID	M		9.2.1.31A		YES	ignore
CHOICE *Information Exchange Object Type*	O				YES	ignore
>Cell					-	
>>Requested Data Value	M		9.2.1.48A		-	
>Additional Information Exchange Object Types					–	
>>~~MBMS~~ *MBMS Bearer Service*					–	
>>>**MBMS Bearer Service List**		*1..<maxnoofMBMS>*			GLOBAL	ignore
>>>>TMGI	M		9.2.1.80		–	
>>>>Requested Data Value	M		9.2.1.48A		–	
~~>>>>Access Point Name~~	~~M~~		~~9.2.1.82~~		~~–~~	
~~>>>>IP Multicast Address~~	~~M~~		~~9.2.1.83~~		~~–~~	
Criticality Diagnostics	O		9.2.1.13		YES	ignore

Range bound	Explanation
maxnoofMBMS	Maximum number of MBMS bearer services that a UE can join.

9.2.1.31E Information Type

The Information Type indicates which kind of information the RNS shall provide.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Information Type Item	M		ENUMERATED (UTRAN Access Point Position with Altitude, UTRAN Access Point Position, IPDL Parameters, GPS Information, DGPS Corrections, GPS RX Pos, SFN-SFN Measurement Reference Point Position,…, Cell Capacity Class, NACC Related Data, MBMS Bearer Service Full Address)	For information exchange on the Iur-g interface, only the Cell Capacity Class is used.
GPS Information	C-GPS	*1..<maxnoofGPSTypes>*		
>GPS Information Item			ENUMERATED (GPS Navigation Model and Time Recovery, GPS Ionospheric Model, GPS UTC Model, GPS Almanac, GPS Real-Time Integrity, …)	

Condition	Explanation
GPS	This IE shall be present if the *Information Type Item* IE indicates "GPS Information".

Range Bound	Explanation
maxnoofGPSTypes	Maximum number of GPS Information Types supported in one Information Exchange.

9.2.1.48A Requested Data Value

The Requested Data Value contains the relevant data concerned the ongoing information exchange. *Requested Data Value* IE shall include at least one of the following IE.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
UTRAN Access Point Position with Altitude	O		9.2.1.75		-	
IPDL Parameters	O		9.2.1.31F		-	
DGPS Corrections	O		9.2.1.19B		-	
GPS Navigation Model and Time Recovery	O		9.2.1.30I		-	
GPS Ionospheric Model	O		9.2.1.30H		-	
GPS UTC Model	O		9.2.1.30L		-	
GPS Almanac	O		9.2.1.30G		-	
GPS Real-Time Integrity	O		9.2.1.30J		-	
GPS RX Pos	O		9.2.1.30K		-	
SFN-SFN Measurement Reference Point Position	O		9.2.1.74		-	
Cell Capacity Class Value	O		9.2.1.5C		YES	ignore
NACC Related Data	O		9.2.1.41a		YES	ignore
MBMS Bearer Service Full Address	O		9.2.1.xx		YES	ignore

9.2.1.xx MBMS Bearer Service Full Address

This IE provides the full address of an MBMS Bearer Service otherwise identified by its TMGI.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Access Point Name	M		9.2.1.82	
IP Multicast Address	M		9.2.1.83	

9.2.1.82 Access Point Name

The APN and IP Multicast Address uniquely identify an MBMS bearer service.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
APN	M		OCTET STRING (1..255~~100,...~~)	

9.2.1.83 IP Multicast Address

The APN and IP Multicast Address uniquely identify an MBMS bearer service.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
IP Multicast Address	M		OCTET~~BIT~~ STRING (4..16~~128~~)	

9.3.3 PDU Definitions

```
-- **************************************************************
--
-- PDU definitions for RNSAP.
--
-- **************************************************************

RNSAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) rnsap (1) version1 (1) rnsap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    Active-Pattern-Sequence-Information,
~~AccessPointName,~~
    AllocationRetentionPriority,
    AllowedQueuingTime,
    Allowed-Rate-Information,
    AlphaValue,
    AntennaColocationIndicator,
    BLER,
    SCTD-Indicator,
    BindingID,
    C-ID,
    C-RNTI,
    CCTrCH-ID,
    CFN,
    CGI,
    ClosedLoopMode1-SupportIndicator,
    ClosedLoopMode2-SupportIndicator,
    Closedlooptimingadjustmentmode,
    CN-CS-DomainIdentifier,
    CN-PS-DomainIdentifier,
    CNDomainType,
    Cause,
    CellCapabilityContainer-FDD,
    CellCapabilityContainer-TDD,
    CellCapabilityContainer-TDD-LCR,
    CellParameterID,
    CellPortionID,
    ChipOffset,
    CommonMeasurementAccuracy,
    CommonMeasurementType,
    CommonMeasurementValue,
    CommonMeasurementValueInformation,
    CommonTransportChannelResourcesInitialisationNotRequired,
    CongestionCause,
    CoverageIndicator,
    CriticalityDiagnostics,
    D-RNTI,
    D-RNTI-ReleaseIndication,
    DCH-FDD-Information,
    DCH-ID,
    DCH-InformationResponse,
    DCH-TDD-Information,
    DL-DPCH-SlotFormat,
    DL-TimeslotISCP,
    DL-Power,
    DL-PowerBalancing-Information,
    DL-PowerBalancing-ActivationIndicator,
    DL-PowerBalancing-UpdatedIndicator,
    DL-ReferencePowerInformation,
    DL-ScramblingCode,
    DL-Timeslot-Information,
    DL-TimeslotLCR-Information,
    DL-TimeSlot-ISCP-Info,
    DL-TimeSlot-ISCP-LCR-Information,
```

```
    DPC-Mode,
    DPC-Mode-Change-SupportIndicator,
    DPCH-ID,
    DL-DPCH-TimingAdjustment,
    DRACControl,
    DRXCycleLengthCoefficient,
    DedicatedMeasurementType,
    DedicatedMeasurementValue,
    DedicatedMeasurementValueInformation,
    DelayedActivation,
    DelayedActivationUpdate,
    DiversityControlField,
    DiversityMode,
    DSCH-FDD-Information,
    DSCH-FDD-InformationResponse,
    DSCH-FlowControlInformation,
    DSCH-FlowControlItem,
    DSCH-TDD-Information,
    DSCH-ID,
    DSCH-RNTI,
    SchedulingPriorityIndicator,
    EnhancedDSCHPC,
    EnhancedDSCHPCCounter,
    EnhancedDSCHPCIndicator,
    EnhancedDSCHPCWnd,
    EnhancedDSCHPowerOffset,
    Enhanced-PrimaryCPICH-EcNo,
    FACH-FlowControlInformation,
    FDD-DCHs-to-Modify,
    FDD-DL-ChannelisationCodeNumber,
    FDD-DL-CodeInformation,
    FDD-S-CCPCH-Offset,
    FDD-TPC-DownlinkStepSize,
    FirstRLS-Indicator,
    FNReportingIndicator,
    FrameHandlingPriority,
    FrameOffset,
    GA-AccessPointPosition,
    GA-Cell,
    GA-CellAdditionalShapes,
    HCS-Prio,
    HSDSCH-FDD-Information,
    HSDSCH-FDD-Information-Response,
    HSDSCH-FDD-Update-Information,
    HSDSCH-TDD-Update-Information,
    HSDSCH-Information-to-Modify,
    HSDSCH-Information-to-Modify-Unsynchronised,
    HSDSCH-MACdFlow-ID,
    HSDSCH-MACdFlows-Information,
    HSDSCH-MACdFlows-to-Delete,
    HSDSCH-RNTI,
    HSDSCH-TDD-Information,
    HSDSCH-TDD-Information-Response,
    HS-SICH-ID,
    IMSI,
    InformationExchangeID,
    InformationReportCharacteristics,
    InformationType,
    InnerLoopDLPCStatus,
    IPMulticastAddress,
    L3-Information,
    SplitType,
    LengthOfTFCI2,
    LimitedPowerIncrease,
    MaximumAllowedULTxPower,
    MaxNrDLPhysicalchannels,
    MaxNrDLPhysicalchannelsTS,
    MaxNrOfUL-DPCHs,
    MaxNrTimeslots,
    MaxNrULPhysicalchannels,
    MeasurementFilterCoefficient,
    MeasurementID,
    MeasurementRecoveryBehavior,
    MeasurementRecoveryReportingIndicator,
    MeasurementRecoverySupportIndicator,
    MBMS-Bearer-Service-List,
    MidambleAllocationMode,
    MidambleShiftAndBurstType,
```

```
    MidambleShiftLCR,
    MinimumSpreadingFactor,
    MinUL-ChannelisationCodeLength,
    MultiplexingPosition,
    NeighbouringFDDCellMeasurementInformation,
    NeighbouringTDDCellMeasurementInformation,
    Neighbouring-GSM-CellInformation,
    Neighbouring-UMTS-CellInformation,
    NeighbouringTDDCellMeasurementInformationLCR,
    NrOfDLchannelisationcodes,
    PagingCause,
    PagingRecordType,
    PartialReportingIndicator,
    PDSCHCodeMapping,
    PayloadCRC-PresenceIndicator,
    PCCPCH-Power,
    PC-Preamble,
    Permanent-NAS-UE-Identity,
    Phase-Reference-Update-Indicator,
    PowerAdjustmentType,
    PowerOffset,
    PrimaryCCPCH-RSCP,
    PrimaryCPICH-EcNo,
    PrimaryCPICH-Power,
    Primary-CPICH-Usage-For-Channel-Estimation,
    PrimaryScramblingCode,
    PropagationDelay,
    PunctureLimit,
    QE-Selector,
    Qth-Parameter,
    RANAP-RelocationInformation,
    RB-Info,
    RL-ID,
    RL-Set-ID,
    RNC-ID,
    RepetitionLength,
    RepetitionPeriod,
    ReportCharacteristics,
    Received-total-wide-band-power,
    RequestedDataValue,
    RequestedDataValueInformation,
    RL-Specific-DCH-Info,
    RxTimingDeviationForTA,
    S-FieldLength,
    S-RNTI,
    S-RNTI-Group,
    SCH-TimeSlot,
    SAI,
    SFN,
    Secondary-CCPCH-Info,
    Secondary-CCPCH-Info-TDD,
    Secondary-CPICH-Information,
    Secondary-CPICH-Information-Change,
    Secondary-LCR-CCPCH-Info-TDD,
    SNA-Information,
    SpecialBurstScheduling,
    SSDT-CellID,
    SSDT-CellID-Length,
    SSDT-Indication,
    SSDT-SupportIndicator,
    STTD-Indicator,
    STTD-SupportIndicator,
    AdjustmentPeriod,
    ScaledAdjustmentRatio,
    MaxAdjustmentStep,
    SecondaryCCPCH-SlotFormat,
    SRB-Delay,
    Support-8PSK,
    SyncCase,
    SynchronisationConfiguration,
    TDD-ChannelisationCode,
    TDD-DCHs-to-Modify,
    TDD-DL-Code-Information,
    TDD-DPCHOffset,
    TDD-PhysicalChannelOffset,
    TDD-TPC-DownlinkStepSize,
    TDD-ChannelisationCodeLCR,
    TDD-DL-Code-LCR-Information,
```

```
    TDD-UL-Code-Information,
    TDD-UL-Code-LCR-Information,
    TFCI-Coding,
    TFCI-PC-SupportIndicator,
    TFCI-Presence,
    TFCI-SignallingMode,
    TimeSlot,
    TimeSlotLCR,
    TimingAdvanceApplied,
    TMGI,
    TnlQos,
    ToAWE,
    ToAWS,
    TraceDepth,
    TraceRecordingSessionReference,
    TraceReference,
    TrafficClass,
    TransmitDiversityIndicator,
    TransportBearerID,
    TransportBearerRequestIndicator,
    TFCS,
    Transmission-Gap-Pattern-Sequence-Information,
    TransmissionMode,
    TransportFormatManagement,
    TransportFormatSet,
    TransportLayerAddress,
    TrCH-SrcStatisticsDescr,
    TSTD-Indicator,
    TSTD-Support-Indicator,
    UARFCN,
    UC-ID,
    UEIdentity,
    UEMeasurementType,
    UEMeasurementTimeslotInfoHCR,
    UEMeasurementTimeslotInfoLCR,
    UEMeasurementReportCharacteristics,
    UEMeasurementParameterModAllow,
    UEMeasurementValueInformation,
    UE-State,
    UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation,
    UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation-Of-HS-DSCH,
    UL-DPCCH-SlotFormat,
    UL-SIR,
    UL-FP-Mode,
    UL-PhysCH-SF-Variation,
    UL-ScramblingCode,
    UL-Timeslot-Information,
    UL-TimeslotLCR-Information,
    UL-TimeSlot-ISCP-Info,
    UL-TimeSlot-ISCP-LCR-Info,
    URA-ID,
    URA-Information,
    USCH-ID,
    USCH-Information,
    UL-Synchronisation-Parameters-LCR,
    TDD-DL-DPCH-TimeSlotFormat-LCR,
    TDD-UL-DPCH-TimeSlotFormat-LCR,
    MAChs-ResetIndicator,
    UL-TimingAdvanceCtrl-LCR,
    TDD-TPC-UplinkStepSize-LCR,
    PrimaryCCPCH-RSCP-Delta
FROM RNSAP-IEs
    PrivateIE-Container{},
    ProtocolExtensionContainer{},
    ProtocolIE-ContainerList{},
    ProtocolIE-ContainerPair{},
    ProtocolIE-ContainerPairList{},
    ProtocolIE-Container{},
    ProtocolIE-Single-Container{},
    RNSAP-PRIVATE-IES,
    RNSAP-PROTOCOL-EXTENSION,
    RNSAP-PROTOCOL-IES,
    RNSAP-PROTOCOL-IES-PAIR
FROM RNSAP-Containers

    maxNoOfDSCHs,
    maxNoOfUSCHs,
    maxNrOfCCTrCHs,
```

```
    maxNrOfDCHs,
    maxNrOfTS,
    maxNrOfDPCHs,
    maxNrOfInterfaces,
    maxNrOfRLs,
    maxNrOfRLSets,
    maxNrOfRLSets-1,
    maxNrOfRLs-1,
    maxNrOfRLs-2,
    maxNrOfULTs,
    maxNrOfDLTs,
    maxResetContext,
    maxResetContextGroup,
    maxNoOfDSCHsLCR,
    maxNoOfUSCHsLCR,
    maxNrOfCCTrCHsLCR,
    maxNrOfTsLCR,
    maxNrOfDLTsLCR,
    maxNrOfULTsLCR,
    maxNrOfDPCHsLCR,
    maxNrOfLCRTDDNeighboursPerRNC,
    maxNrOfMeasNCell,
    maxNrOfMACdFlows,
    maxNrOfHSSICHs,
    maxNrOfActiveMBMSServices,
    maxNrOfMBMSServices,
    maxNrOfUEs,

    id-Active-MBMS-Bearer-Service-UplinkSigTrFDD,
    id-Active-MBMS-Bearer-Service-UplinkSigTrTDD,
    id-Active-Pattern-Sequence-Information,
    id-AdjustmentRatio,
    id-AffectedUEInformationForMBMS,
    id-AllowedQueuingTime,
    id-AntennaColocationIndicator,
    id-BindingID,
    id-C-ID,
    id-C-RNTI,
    id-CFN,
    id-CFNReportingIndicator,
    id-CN-CS-DomainIdentifier,
    id-CN-PS-DomainIdentifier,
    id-Cause,
    id-CauseLevel-RL-AdditionFailureFDD,
    id-CauseLevel-RL-AdditionFailureTDD,
    id-CauseLevel-RL-ReconfFailure,
    id-CauseLevel-RL-SetupFailureFDD,
    id-CauseLevel-RL-SetupFailureTDD,
    id-CCTrCH-InformationItem-RL-FailureInd,
    id-CCTrCH-InformationItem-RL-RestoreInd,
    id-CellCapabilityContainer-FDD,
    id-CellCapabilityContainer-TDD,
    id-CellCapabilityContainer-TDD-LCR,
    id-CellPortionID,
    id-ClosedLoopMode1-SupportIndicator,
    id-ClosedLoopMode2-SupportIndicator,
    id-CNOriginatedPage-PagingRqst,
    id-CommonMeasurementAccuracy,
    id-CommonMeasurementObjectType-CM-Rprt,
    id-CommonMeasurementObjectType-CM-Rqst,
    id-CommonMeasurementObjectType-CM-Rsp,
    id-CommonMeasurementType,
    id-CommonTransportChannelResourcesInitialisationNotRequired,
    id-CongestionCause,
    id-CoverageIndicator,
    id-CriticalityDiagnostics,
    id-D-RNTI,
    id-D-RNTI-ReleaseIndication,
    id-DCHs-to-Add-FDD,
    id-DCHs-to-Add-TDD,
    id-DCH-DeleteList-RL-ReconfPrepFDD,
    id-DCH-DeleteList-RL-ReconfPrepTDD,
    id-DCH-DeleteList-RL-ReconfRqstFDD,
    id-DCH-DeleteList-RL-ReconfRqstTDD,
    id-DCH-FDD-Information,
    id-DCH-TDD-Information,
    id-FDD-DCHs-to-Modify,
    id-TDD-DCHs-to-Modify,
    id-DCH-InformationResponse,
```

```
    id-DCH-Rate-InformationItem-RL-CongestInd,
    id-DL-CCTrCH-InformationAddItem-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationDeleteItem-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationModifyItem-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationListIE-RL-ReconfReadyTDD,
    id-DL-CCTrCH-InformationModifyItem-RL-ReconfRqstTDD,
    id-DL-CCTrCH-InformationDeleteItem-RL-ReconfRqstTDD,
    id-DL-CCTrCH-InformationItem-RL-SetupRqstTDD,
    id-DL-CCTrCH-InformationListIE-PhyChReconfRqstTDD,
    id-DL-CCTrCH-InformationListIE-RL-AdditionRspTDD,
    id-DL-CCTrCH-InformationListIE-RL-SetupRspTDD,
    id-DL-CCTrCH-InformationAddList-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationDeleteList-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationModifyList-RL-ReconfPrepTDD,
    id-DL-CCTrCH-InformationDeleteList-RL-ReconfRqstTDD,
    id-DL-CCTrCH-InformationModifyList-RL-ReconfRqstTDD,
    id-DL-CCTrCH-InformationList-RL-SetupRqstTDD,
    id-FDD-DL-CodeInformation,
    id-DL-DPCH-Information-RL-ReconfPrepFDD,
    id-DL-DPCH-Information-RL-SetupRqstFDD,
    id-DL-DPCH-Information-RL-ReconfRqstFDD,
    id-DL-DPCH-InformationItem-PhyChReconfRqstTDD,
    id-DL-DPCH-InformationItem-RL-AdditionRspTDD,
    id-DL-DPCH-InformationItem-RL-SetupRspTDD,
    id-DL-DPCH-InformationAddListIE-RL-ReconfReadyTDD,
    id-DL-DPCH-InformationDeleteListIE-RL-ReconfReadyTDD,
    id-DL-DPCH-InformationModifyListIE-RL-ReconfReadyTDD,
    id-DL-DPCH-TimingAdjustment,
    id-DL-Physical-Channel-Information-RL-SetupRqstTDD,
    id-DL-PowerBalancing-Information,
    id-DL-PowerBalancing-ActivationIndicator,
    id-DL-PowerBalancing-UpdatedIndicator,
    id-DL-ReferencePowerInformation,
    id-DLReferencePower,
    id-DLReferencePowerList-DL-PC-Rqst,
    id-DL-ReferencePowerInformation-DL-PC-Rqst,
    id-DRXCycleLengthCoefficient,
    id-DedicatedMeasurementObjectType-DM-Fail,
    id-DedicatedMeasurementObjectType-DM-Fail-Ind,
    id-DedicatedMeasurementObjectType-DM-Rprt,
    id-DedicatedMeasurementObjectType-DM-Rqst,
    id-DedicatedMeasurementObjectType-DM-Rsp,
    id-DedicatedMeasurementType,
    id-DelayedActivation,
    id-DelayedActivationList-RL-ActivationCmdFDD,
    id-DelayedActivationList-RL-ActivationCmdTDD,
    id-DelayedActivationInformation-RL-ActivationCmdFDD,
    id-DelayedActivationInformation-RL-ActivationCmdTDD,
    id-DPC-Mode,
    id-DPC-Mode-Change-SupportIndicator,
    id-DRNC-ID,
    id-DSCHs-to-Add-FDD,
    id-DSCHs-to-Add-TDD,
    id-DSCH-DeleteList-RL-ReconfPrepTDD,
    id-DSCH-Delete-RL-ReconfPrepFDD,
    id-DSCH-FDD-Information,
    id-DSCH-InformationListIE-RL-AdditionRspTDD,
    id-DSCH-InformationListIEs-RL-SetupRspTDD,
    id-DSCH-TDD-Information,
    id-DSCH-FDD-InformationResponse,
    id-DSCH-ModifyList-RL-ReconfPrepTDD,
    id-DSCH-Modify-RL-ReconfPrepFDD,
    id-DSCH-RNTI,
    id-DSCHsToBeAddedOrModified-FDD,
    id-DSCHToBeAddedOrModifiedList-RL-ReconfReadyTDD,
    id-EnhancedDSCHPC,
    id-EnhancedDSCHPCIndicator,
    id-Enhanced-PrimaryCPICH-EcNo,
    id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD,
    id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD,
    id-GA-Cell,
    id-GA-CellAdditionalShapes,
    id-GSM-Cell-InfEx-Rqst,
    id-HCS-Prio,
    id-HSDSCH-FDD-Information,
    id-HSDSCH-FDD-Information-Response,
    id-HSDSCH-FDD-Update-Information,
    id-HSDSCH-TDD-Update-Information,
```

```
    id-HSDSCH-Information-to-Modify,
    id-HSDSCH-Information-to-Modify-Unsynchronised,
    id-HSDSCH-MACdFlows-to-Add,
    id-HSDSCH-MACdFlows-to-Delete,
    id-HSDSCHMacdFlowSpecificInformationList-RL-PreemptRequiredInd,
    id-HSDSCHMacdFlowSpecificInformationItem-RL-PreemptRequiredInd,
    id-HSDSCH-RNTI,
    id-HSDSCH-TDD-Information,
    id-HSDSCH-TDD-Information-Response,
    id-HSPDSCH-RL-ID,
    id-HSPDSCH-Timeslot-InformationList-PhyChReconfRqstTDD,
    id-HSPDSCH-Timeslot-InformationListLCR-PhyChReconfRqstTDD,
    id-HSSICH-Info-DM-Rprt,
    id-HSSICH-Info-DM-Rqst,
    id-HSSICH-Info-DM,
    id-IMSI,
    id-InformationExchangeID,
    id-InformationExchangeObjectType-InfEx-Rprt,
    id-InformationExchangeObjectType-InfEx-Rqst,
    id-InformationExchangeObjectType-InfEx-Rsp,
    id-InformationReportCharacteristics,
    id-InformationType,
    id-InnerLoopDLPCStatus,
    id-InterfacesToTraceItem,
    id-SplitType,
    id-LengthOfTFCI2,
    id-L3-Information,
    id-AdjustmentPeriod,
    id-ListOfInterfacesToTrace,
    id-MaxAdjustmentStep,
    id-MBMS-Bearer-Service-List,
    id-MBMS-Bearer-Service-List-InfEx-Rsp,
    id-MeasurementFilterCoefficient,
    id-MeasurementID,
    id-MeasurementRecoveryBehavior,
    id-MeasurementRecoveryReportingIndicator,
    id-MeasurementRecoverySupportIndicator,
    id-Multiple-RL-InformationResponse-RL-ReconfReadyTDD,
    id-NACC-Related-Data,
    id-Old-URA-ID,
    id-PagingArea-PagingRqst,
    id-PartialReportingIndicator,
    id-PDSCH-RL-ID,
    id-Permanent-NAS-UE-Identity,
    id-Phase-Reference-Update-Indicator,
    id-FACH-FlowControlInformation,
    id-PowerAdjustmentType,
    id-PrimCCPCH-RSCP-DL-PC-RqstTDD,
    id-Primary-CPICH-Usage-For-Channel-Estimation,
    id-PropagationDelay,
    id-Qth-Parameter,
    id-RANAP-RelocationInformation,
    id-ResetIndicator,
    id-RL-Information-PhyChReconfRqstFDD,
    id-RL-Information-PhyChReconfRqstTDD,
    id-RL-Information-RL-AdditionRqstFDD,
    id-RL-Information-RL-AdditionRqstTDD,
    id-RL-Information-RL-DeletionRqst,
    id-RL-Information-RL-FailureInd,
    id-RL-Information-RL-ReconfPrepFDD,
    id-RL-Information-RL-ReconfPrepTDD,
    id-RL-Information-RL-RestoreInd,
    id-RL-Information-RL-SetupRqstFDD,
    id-RL-Information-RL-SetupRqstTDD,
    id-RL-InformationItem-RL-CongestInd,
    id-RL-InformationItem-DM-Rprt,
    id-RL-InformationItem-DM-Rqst,
    id-RL-InformationItem-DM-Rsp,
    id-RL-InformationItem-RL-PreemptRequiredInd,
    id-RL-InformationItem-RL-SetupRqstFDD,
    id-RL-InformationList-RL-CongestInd,
    id-RL-InformationList-RL-AdditionRqstFDD,
    id-RL-InformationList-RL-DeletionRqst,
    id-RL-InformationList-RL-PreemptRequiredInd,
    id-RL-InformationList-RL-ReconfPrepFDD,
    id-RL-InformationResponse-RL-AdditionRspTDD,
    id-RL-InformationResponse-RL-ReconfReadyTDD,
    id-RL-InformationResponse-RL-ReconfRspTDD,
```

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id-RL-InformationResponse-RL-SetupRspTDD,
id-RL-InformationResponseItem-RL-AdditionRspFDD,
id-RL-InformationResponseItem-RL-ReconfReadyFDD,
id-RL-InformationResponseItem-RL-ReconfRspFDD,
id-RL-InformationResponseItem-RL-SetupRspFDD,
id-RL-InformationResponseList-RL-AdditionRspFDD,
id-RL-InformationResponseList-RL-ReconfReadyFDD,
id-RL-InformationResponseList-RL-ReconfRspFDD,
id-RL-InformationResponseList-RL-SetupRspFDD,
id-RL-ParameterUpdateIndicationFDD-RL-Information-Item,
id-RL-ParameterUpdateIndicationFDD-RL-InformationList,
id-RL-ReconfigurationFailure-RL-ReconfFail,
id-RL-ReconfigurationRequestFDD-RL-InformationList,
id-RL-ReconfigurationRequestFDD-RL-Information-IEs,
id-RL-ReconfigurationRequestTDD-RL-Information,
id-RL-ReconfigurationResponseTDD-RL-Information,
id-RL-Specific-DCH-Info,
id-RL-Set-InformationItem-DM-Rprt,
id-RL-Set-InformationItem-DM-Rqst,
id-RL-Set-InformationItem-DM-Rsp,
id-RL-Set-Information-RL-FailureInd,
id-RL-Set-Information-RL-RestoreInd,
id-RL-Set-Successful-InformationItem-DM-Fail,
id-RL-Set-Unsuccessful-InformationItem-DM-Fail,
id-RL-Set-Unsuccessful-InformationItem-DM-Fail-Ind,
id-RL-Successful-InformationItem-DM-Fail,
id-RL-Unsuccessful-InformationItem-DM-Fail,
id-RL-Unsuccessful-InformationItem-DM-Fail-Ind,
id-ReportCharacteristics,
id-Reporting-Object-RL-FailureInd,
id-Reporing-Object-RL-RestoreInd,
id-RNC-ID,
id-RxTimingDeviationForTA,
id-S-RNTI,
id-SAI,
id-Secondary-CPICH-Information,
id-Secondary-CPICH-Information-Change,
id-SFN,
id-SFNReportingIndicator,
id-SNA-Information,
id-SRNC-ID,
id-SSDT-CellIDforEDSCHPC,
id-STTD-SupportIndicator,
id-SuccessfulRL-InformationResponse-RL-AdditionFailureFDD,
id-SuccessfulRL-InformationResponse-RL-SetupFailureFDD,
id-TDD-maxNrDLPhysicalchannels,
id-TDD-Support-8PSK,
id-TFCI-PC-SupportIndicator,
id-timeSlot-ISCP,
id-TimeSlot-RL-SetupRspTDD,
id-TMGI,
id-TnlQos,
id-TraceDepth,
id-TraceRecordingSessionReference,
id-TraceReference,
id-TransmissionMode,
id-TransportBearerID,
id-TransportBearerRequestIndicator,
id-TransportLayerAddress,
id-UC-ID,
id-ContextInfoItem-Reset,
id-ContextGroupInfoItem-Reset,
id-Transmission-Gap-Pattern-Sequence-Information,
id-UEIdentity,
id-UEMeasurementType,
id-UEMeasurementTimeslotInfoHCR,
id-UEMeasurementTimeslotInfoLCR,
id-UEMeasurementReportCharacteristics,
id-UEMeasurementParameterModAllow,
id-UEMeasurementValueInformation,
id-UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation,
id-UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation-Of-HS-DSCH,
id-UE-State,
id-UL-CCTrCH-AddInformation-RL-ReconfPrepTDD,
id-UL-CCTrCH-DeleteInformation-RL-ReconfPrepTDD,
id-UL-CCTrCH-ModifyInformation-RL-ReconfPrepTDD,
id-UL-CCTrCH-InformationDeleteItem-RL-ReconfRqstTDD,
id-UL-CCTrCH-InformationModifyItem-RL-ReconfRqstTDD,
```

```
id-UL-CCTrCH-InformationAddList-RL-ReconfPrepTDD,
id-UL-CCTrCH-InformationDeleteList-RL-ReconfPrepTDD,
id-UL-CCTrCH-InformationModifyList-RL-ReconfPrepTDD,
id-UL-CCTrCH-InformationDeleteList-RL-ReconfRqstTDD,
id-UL-CCTrCH-InformationModifyList-RL-ReconfRqstTDD,
id-UL-CCTrCH-InformationItem-RL-SetupRqstTDD,
id-UL-CCTrCH-InformationList-RL-SetupRqstTDD,
id-UL-CCTrCH-InformationListIE-PhyChReconfRqstTDD,
id-UL-CCTrCH-InformationListIE-RL-AdditionRspTDD,
id-UL-CCTrCH-InformationListIE-RL-ReconfReadyTDD,
id-UL-CCTrCH-InformationListIE-RL-SetupRspTDD,
id-UL-DPCH-Information-RL-ReconfPrepFDD,
id-UL-DPCH-Information-RL-ReconfRqstFDD,
id-UL-DPCH-Information-RL-SetupRqstFDD,
id-UL-DPCH-InformationItem-PhyChReconfRqstTDD,
id-UL-DPCH-InformationItem-RL-AdditionRspTDD,
id-UL-DPCH-InformationItem-RL-SetupRspTDD,
id-UL-DPCH-InformationAddListIE-RL-ReconfReadyTDD,
id-UL-DPCH-InformationDeleteListIE-RL-ReconfReadyTDD,
id-UL-DPCH-InformationModifyListIE-RL-ReconfReadyTDD,
id-UL-Physical-Channel-Information-RL-SetupRqstTDD,
id-UL-SIRTarget,
id-URA-ID,
id-URA-Information,
id-UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD,
id-UnsuccessfulRL-InformationResponse-RL-AdditionFailureTDD,
id-UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD,
id-UnsuccessfulRL-InformationResponse-RL-SetupFailureTDD,
id-USCHs-to-Add,
id-USCH-DeleteList-RL-ReconfPrepTDD,
id-USCH-InformationListIE-RL-AdditionRspTDD,
id-USCH-InformationListIEs-RL-SetupRspTDD,
id-USCH-Information,
id-USCH-ModifyList-RL-ReconfPrepTDD,
id-USCHToBeAddedOrModifiedList-RL-ReconfReadyTDD,
id-DL-Timeslot-ISCP-LCR-Information-RL-SetupRqstTDD,
id-RL-LCR-InformationResponse-RL-SetupRspTDD,
id-UL-CCTrCH-LCR-InformationListIE-RL-SetupRspTDD,
id-UL-DPCH-LCR-InformationItem-RL-SetupRspTDD,
id-DL-CCTrCH-LCR-InformationListIE-RL-SetupRspTDD,
id-DL-DPCH-LCR-InformationItem-RL-SetupRspTDD,
id-DSCH-LCR-InformationListIEs-RL-SetupRspTDD,
id-USCH-LCR-InformationListIEs-RL-SetupRspTDD,
id-DL-Timeslot-ISCP-LCR-Information-RL-AdditionRqstTDD,
id-RL-LCR-InformationResponse-RL-AdditionRspTDD,
id-UL-CCTrCH-LCR-InformationListIE-RL-AdditionRspTDD,
id-UL-DPCH-LCR-InformationItem-RL-AdditionRspTDD,
id-DL-CCTrCH-LCR-InformationListIE-RL-AdditionRspTDD,
id-DL-DPCH-LCR-InformationItem-RL-AdditionRspTDD,
id-DSCH-LCR-InformationListIEs-RL-AdditionRspTDD,
id-USCH-LCR-InformationListIEs-RL-AdditionRspTDD,
id-UL-DPCH-LCR-InformationAddListIE-RL-ReconfReadyTDD,
id-UL-Timeslot-LCR-InformationModifyList-RL-ReconfReadyTDD,
id-DL-DPCH-LCR-InformationAddListIE-RL-ReconfReadyTDD,
id-DL-Timeslot-LCR-InformationModifyList-RL-ReconfReadyTDD,
id-UL-Timeslot-LCR-InformationList-PhyChReconfRqstTDD,
id-DL-Timeslot-LCR-InformationList-PhyChReconfRqstTDD,
id-timeSlot-ISCP-LCR-List-DL-PC-Rqst-TDD,
id-TSTD-Support-Indicator-RL-SetupRqstTDD,
id-PrimaryCCPCH-RSCP-RL-ReconfPrepTDD,
id-DL-TimeSlot-ISCP-Info-RL-ReconfPrepTDD,
id-DL-Timeslot-ISCP-LCR-Information-RL-ReconfPrepTDD,
id-neighbouringTDDCellMeasurementInformationLCR,
id-UL-SIR-Target-CCTrCH-InformationItem-RL-SetupRspTDD,
id-UL-SIR-Target-CCTrCH-LCR-InformationItem-RL-SetupRspTDD,
id-TrafficClass,
id-UL-Synchronisation-Parameters-LCR,
id-TDD-DL-DPCH-TimeSlotFormatModifyItem-LCR-RL-ReconfReadyTDD,
id-TDD-UL-DPCH-TimeSlotFormatModifyItem-LCR-RL-ReconfReadyTDD,
id-MAChs-ResetIndicator,
id-UL-TimingAdvanceCtrl-LCR,
id-CCTrCH-Maximum-DL-Power-RL-SetupRspTDD,
id-CCTrCH-Minimum-DL-Power-RL-SetupRspTDD,
id-CCTrCH-Maximum-DL-Power-RL-AdditionRspTDD,
id-CCTrCH-Minimum-DL-Power-RL-AdditionRspTDD,
id-CCTrCH-Maximum-DL-Power-RL-ReconfReadyTDD,
id-CCTrCH-Minimum-DL-Power-RL-ReconfReadyTDD,
id-Maximum-DL-Power-TimeslotLCR-InformationModifyItem-RL-ReconfReadyTDD,
```

```
    id-Minimum-DL-Power-TimeslotLCR-InformationModifyItem-RL-ReconfReadyTDD,
    id-DL-CCTrCH-InformationList-RL-ReconfRspTDD,
    id-DL-DPCH-InformationModifyItem-LCR-RL-ReconfRspTDD,
    id-TDD-TPC-UplinkStepSize-LCR-RL-SetupRqstTDD,
    id-UL-CCTrCH-InformationList-RL-AdditionRqstTDD,
    id-UL-CCTrCH-InformationItem-RL-AdditionRqstTDD,
    id-DL-CCTrCH-InformationList-RL-AdditionRqstTDD,
    id-DL-CCTrCH-InformationItem-RL-AdditionRqstTDD,
    id-TDD-TPC-UplinkStepSize-InformationAdd-LCR-RL-ReconfPrepTDD,
    id-TDD-TPC-UplinkStepSize-InformationModify-LCR-RL-ReconfPrepTDD,
    id-TDD-TPC-DownlinkStepSize-InformationAdd-RL-ReconfPrepTDD,
    id-TDD-TPC-DownlinkStepSize-InformationModify-RL-ReconfPrepTDD,
    id-PrimaryCCPCH-RSCP-Delta

FROM RNSAP-Constants;
```

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

```
-- **************************************************************
--
-- INFORMATION EXCHANGE INITIATION REQUEST
--
-- **************************************************************

InformationExchangeInitiationRequest ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container    {{InformationExchangeInitiationRequest-IEs}},
    protocolExtensions      ProtocolExtensionContainer  {{InformationExchangeInitiationRequest-
Extensions}}        OPTIONAL,
    ...
}

InformationExchangeInitiationRequest-IEs RNSAP-PROTOCOL-IES ::= {
    { ID    id-InformationExchangeID                        CRITICALITY reject      TYPE
    InformationExchangeID                   PRESENCE    mandatory   }|
    { ID    id-InformationExchangeObjectType-InfEx-Rqst     CRITICALITY reject      TYPE
    InformationExchangeObjectType-InfEx-Rqst        PRESENCE    mandatory   }|

    { ID    id-InformationType                              CRITICALITY reject      TYPE
    InformationType                         PRESENCE    mandatory   }|
    { ID    id-InformationReportCharacteristics             CRITICALITY reject      TYPE
    InformationReportCharacteristics        PRESENCE    mandatory   },
    ...
}

InformationExchangeInitiationRequest-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

InformationExchangeObjectType-InfEx-Rqst ::= CHOICE {
    cell                                                    Cell-InfEx-Rqst,
    ...,
    extension-InformationExchangeObjectType-InfEx-Rqst      Extension-InformationExchangeObjectType-
InfEx-Rqst

}

Cell-InfEx-Rqst ::= SEQUENCE {
    c-ID                            C-ID, --May be a GERAN cell identifier
    iE-Extensions                   ProtocolExtensionContainer  { { CellItem-InfEx-Rqst-ExtIEs} }
    OPTIONAL,
    ...
}

CellItem-InfEx-Rqst-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

Extension-InformationExchangeObjectType-InfEx-Rqst  ::= ProtocolIE-Single-Container {{ Extension-
InformationExchangeObjectType-InfEx-RqstIE }}

Extension-InformationExchangeObjectType-InfEx-RqstIE RNSAP-PROTOCOL-IES ::= {
    { ID id-GSM-Cell-InfEx-Rqst CRITICALITY reject  TYPE GSM-Cell-InfEx-Rqst    PRESENCE mandatory
}|
    { ID id-MBMS-Bearer-Service-List        CRITICALITY     reject      TYPE    MBMS-Bearer-Service-
List        PRESENCE    mandatory}
```

```
}

GSM-Cell-InfEx-Rqst ::= SEQUENCE {
    cGI                             CGI,
    iE-Extensions                   ProtocolExtensionContainer  { { GSMCellItem-InfEx-Rqst-ExtIEs} }
        OPTIONAL,
    ...
}

GSMCellItem-InfEx-Rqst-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}


-- **************************************************************
--
-- INFORMATION EXCHANGE INITIATION RESPONSE
--
-- **************************************************************

InformationExchangeInitiationResponse ::= SEQUENCE {
    protocolIEs             ProtocolIE-Container    {{InformationExchangeInitiationResponse-IEs}},
    protocolExtensions      ProtocolExtensionContainer  {{InformationExchangeInitiationResponse-
Extensions}}        OPTIONAL,
    ...
}

InformationExchangeInitiationResponse-IEs RNSAP-PROTOCOL-IES ::= {
    { ID    id-InformationExchangeID                        CRITICALITY ignore          TYPE
    InformationExchangeID                   PRESENCE    mandatory   }|
    { ID    id-InformationExchangeObjectType-InfEx-Rsp      CRITICALITY ignore          TYPE
    InformationExchangeObjectType-InfEx-Rsp     PRESENCE    optional    }|
    { ID    id-CriticalityDiagnostics                       CRITICALITY ignore          TYPE
    CriticalityDiagnostics                  PRESENCE    optional    },
    ...
}

InformationExchangeInitiationResponse-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

InformationExchangeObjectType-InfEx-Rsp ::= CHOICE {
    cell                        Cell-InfEx-Rsp,
    ...,
    extension-InformationExchangeObjectType-InfEx-Rsp       Extension-InformationExchangeObjectType-
InfEx-Rsp
}

Cell-InfEx-Rsp ::= SEQUENCE {
    requestedDataValue              RequestedDataValue,
    iE-Extensions                   ProtocolExtensionContainer  { { CellItem-InfEx-Rsp-ExtIEs} }
    OPTIONAL,
    ...
}

CellItem-InfEx-Rsp-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}


Extension-InformationExchangeObjectType-InfEx-Rsp   ::= ProtocolIE-Single-Container {{ Extension-
InformationExchangeObjectType-InfEx-RspIE }}

Extension-InformationExchangeObjectType-InfEx-RspIE RNSAP-PROTOCOL-IES ::= {
    { ID id-MBMS-Bearer-Service-List-InfEx-Rsp  CRITICALITY     ignore      TYPE    MBMS-Bearer-
Service-List-InfEx-Rsp      PRESENCE    mandatory}
}

MBMS-Bearer-Service-List-InfEx-Rsp  ::= SEQUENCE (SIZE (1..maxNrOfMBMSServices)) OF MBMS-Bearer-
ServiceItemIEs-InfEx-Rsp



MBMS-Bearer-ServiceItemIEs-InfEx-Rsp    ::=SEQUENCE{
    tmgi    TMGI,
    requestedDataValue      RequestedDataValue,
apn     AccessPointName,
```

```
    iPMulticastAdress    IPMulticastAddress,
    iE-Extensions                    ProtocolExtensionContainer { { MBMS-Bearer-ServiceItem-InfEx-
Rsp-ExtIEs} } OPTIONAL,
    ...
}

MBMS-Bearer-ServiceItem-InfEx-Rsp-ExtIEs    RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
-- **************************************************************
```

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RNSAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) rnsap (1) version1 (1) rnsap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxCodeNumComp-1,
    maxNrOfFACHs,
    maxFACHCountPlus1,
    maxIBSEG,
    maxNoOfDSCHs,
    maxNoOfDSCHs-1,
    maxNoOfUSCHs,
    maxNoTFCIGroups,
    maxNoCodeGroups,
    maxNrOfDCHs,
    maxNrOfDL-Codes,
    maxNrOfDLTs,
    maxNrOfDLTsLCR,
    maxNrOfDPCHs,
    maxNrOfDPCHsLCR,
    maxNrOfErrors,
    maxNrOfFDDNeighboursPerRNC,
    maxNrOfMACcshSDU-Length,
    maxNrOfNeighbouringRNCs,
    maxNrOfTDDNeighboursPerRNC,
    maxNrOfLCRTDDNeighboursPerRNC,
    maxNrOfTS,
    maxNrOfTsLCR,
    maxNrOfULTs,
    maxNrOfULTsLCR,
    maxNrOfGSMNeighboursPerRNC,
    maxRateMatching,
    maxNrOfPoints,
    maxNoOfRB,
    maxNrOfRLs,
    maxNrOfTFCs,
    maxNrOfTFs,
    maxCTFC,
    maxRNCinURA-1,
    maxNrOfSCCPCHs,
    maxTFCI1Combs,
    maxTFCI2Combs,
    maxTFCI2Combs-1,
    maxTGPS,
    maxTTI-Count,
    maxNoGPSTypes,
    maxNoSat,
    maxNrOfSNAs,
    maxNrOfHARQProc,
    maxNrOfHSSCCHCodes,
    maxNrOfMACdFlows,
    maxNrOfMACdFlows-1,
    maxNrOfMBMSServices,
    maxNrOfPDUIndexes,
    maxNrOfPDUIndexes-1,
    maxNrOfPrioQueues,
    maxNrOfPrioQueues-1,
    maxNrOfSatAlmanac-maxNoSat,
    maxNrOfGERANSI,

    id-Allowed-Rate-Information,
    id-AntennaColocationIndicator,
    id-BindingID,
    id-Cell-Capacity-Class-Value,
```

```
    id-CellCapabilityContainer-FDD,
    id-CellCapabilityContainer-TDD,
    id-CellCapabilityContainer-TDD-LCR,
    id-CoverageIndicator,
    id-DPC-Mode-Change-SupportIndicator,
    id-DSCH-Specific-FDD-Additional-List,
    id-GERAN-Cell-Capability,
    id-GERAN-Classmark,
    id-Guaranteed-Rate-Information,
    id-HCS-Prio,
    id-Load-Value,
    id-Load-Value-IncrDecrThres,
    id-Neighbouring-GSM-CellInformation,
    id-Neighbouring-UMTS-CellInformationItem,
    id-neighbouring-LCR-TDD-CellInformation,
    id-NRT-Load-Information-Value,
    id-NRT-Load-Information-Value-IncrDecrThres,
    id-OnModification,
    id-Received-Total-Wideband-Power-Value,
    id-Received-Total-Wideband-Power-Value-IncrDecrThres,
    id-RT-Load-Value,
    id-RT-Load-Value-IncrDecrThres,
    id-SFNSFNMeasurementThresholdInformation,
    id-SNA-Information,
    id-TrafficClass,
    id-Transmitted-Carrier-Power-Value,
    id-Transmitted-Carrier-Power-Value-IncrDecrThres,
    id-TUTRANGPSMeasurementThresholdInformation,
    id-UL-Timeslot-ISCP-Value,
    id-UL-Timeslot-ISCP-Value-IncrDecrThres,
    maxNrOfLevels,
    maxNrOfMeasNCell,
    maxNrOfMeasNCell-1,
    id-MessageStructure,
    id-EnhancedDSCHPC,
    id-RestrictionStateIndicator,
    id-Rx-Timing-Deviation-Value-LCR,
    id-TransportLayerAddress,
    id-TypeOfError,
    id-Angle-Of-Arrival-Value-LCR,
    id-IPDL-TDD-ParametersLCR,
    id-DSCH-InitialWindowSize,
    id-Maximum-DL-Power-TimeslotLCR-InformationItem,
    id-MBMS-Bearer-Service-Full-Address,
    id-Minimum-DL-Power-TimeslotLCR-InformationItem,
    id-HS-SICH-Reception-Quality,
    id-HS-SICH-Reception-Quality-Measurement-Value,
    id-ExtendedGSMCellIndividualOffset,
    id-Unidirectional-DCH-Indicator,
    id-RTLoadValue,
    id-NRTLoadInformationValue,
    id-Satellite-Almanac-Information-ExtItem,
    id-TnlQos,
    id-UpPTSInterferenceValue,
    id-NACC-Related-Data,
    id-HARQ-Preamble-Mode

FROM RNSAP-Constants
```

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

```
-- A

AccessPointName     ::= OCTET STRING (SIZE (1..255100,...))

AckNack-RepetitionFactor ::= INTEGER (1..4,...)
-- Step: 1

Ack-Power-Offset ::= INTEGER (0..8,...)
-- According to mapping in ref. [21] subclause 4.2.1

Active-Pattern-Sequence-Information ::= SEQUENCE {
    cMConfigurationChangeCFN        CFN,
    transmission-Gap-Pattern-Sequence-Status    Transmission-Gap-Pattern-Sequence-Status-List
    OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { {Active-Pattern-Sequence-Information-ExtIEs} }
OPTIONAL,
    ...
```

```
}

Active-Pattern-Sequence-Information-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

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

```
-- I

IB-SchedulingInformation::= SEQUENCE {
    iB-SG-Rep                       IB-SG-REP,
    iB-segmentInformationList       IB-SegmentInformationList,
    iE-Extensions                   ProtocolExtensionContainer { { IB-SchedulingInformation-ExtIEs }
} OPTIONAL,
        ...
}

IB-SchedulingInformation-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

IB-SegmentInformationList ::= SEQUENCE (SIZE(1..maxIBSEG)) OF IB-SegmentInformationItem

IB-SegmentInformationItem ::= SEQUENCE {
    iB-SG-POS                       IB-SG-POS,
    iE-Extensions                   ProtocolExtensionContainer { {  IB-SegmentInformationItem-ExtIEs
} } OPTIONAL,
    ...
}

IB-SegmentInformationItem-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

IB-SG-POS   ::= INTEGER (0..4094)
-- Only even positions allowed

IB-SG-REP   ::= ENUMERATED {rep4, rep8, rep16, rep32, rep64, rep128, rep256, rep512, rep1024,
rep2048, rep4096}

IMEI        ::= OCTET STRING (SIZE(8))

IMEISV      ::= OCTET STRING (SIZE(8))

IMSI        ::= OCTET STRING (SIZE(3..8))

InformationAvailable::= SEQUENCE {
    requestedDataValue      RequestedDataValue,
    iE-Extensions           ProtocolExtensionContainer { { InformationAvailable-ExtIEs} }
    OPTIONAL,
    ...
}

InformationAvailable-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

InformationExchangeID ::= INTEGER (0..1048575)

InformationNotAvailable ::= NULL

InformationReportCharacteristics ::= CHOICE {
    onDemand                NULL,
    periodic                PeriodicInformation,
    onModification          OnModificationInformation,
    ...
}

InformationReportPeriodicity ::= CHOICE {
    min             INTEGER (1..60,...),
-- Unit min, Step 1min
    hour            INTEGER (1..24,...),
-- Unit hour, Step 1hour
    ...
```

```
}

InformationThreshold ::= CHOICE {
    dGPSThreshold       DGPSThreshold,
    ...
}


InformationType ::= SEQUENCE {
    informationTypeItem     ENUMERATED {
        gA-AccessPointPositionwithAltitude,
        gA-AccessPointPosition,
        iPDLParameters,
        gPSInformation,
        dGPSCorrections,
        gPS-RX-POS,
        sFNSFN-GA-AccessPointPosition,
        ...,
        cell-Capacity-Class,
        nACC-Related-Data,
        mBMSBearerServiceFullAddress
    },
    gPSInformation              GPSInformation          OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { InformationType-ExtIEs} }
    OPTIONAL,
    ...
}

-- The GPS Information IE shall be present if the Information Exchange Type IE indicates 'GPS
Information'
-- For information exchange on the Iur-g interface, only the Cell Capacity Class is used.

InformationType-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

InnerLoopDLPCStatus     ::= ENUMERATED {active, inactive}

IPDLParameters ::= CHOICE {
    iPDL-FDD-Parameters         IPDL-FDD-Parameters,
    iPDL-TDD-Parameters         IPDL-TDD-Parameters,    --3.84Mcps TDD only
    ...,
    extension-IPDLParameters    Extension-IPDLParameters
}

Extension-IPDLParameters    ::= ProtocolIE-Single-Container {{ Extension-IPDLParametersIE }}

Extension-IPDLParametersIE RNSAP-PROTOCOL-IES ::= {
    { ID id-IPDL-TDD-ParametersLCR  CRITICALITY reject  TYPE IPDL-TDD-ParametersLCR PRESENCE
mandatory },
    ...
}

IPDL-FDD-Parameters ::= SEQUENCE {
    iPSpacingFDD                IPSpacingFDD,
    iPLength                    IPLength,
    iPOffset                    IPOffset,
    seed                        Seed,
    burstModeParameters         BurstModeParameters     OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { IPDL-FDD-Parameters-ExtIEs} }
    OPTIONAL,
    ...
}

IPDL-FDD-Parameters-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

IPDL-TDD-Parameters ::= SEQUENCE {
    iPSpacingTDD                IPSpacingTDD,
    iPStart                     IPStart,
    iPSlot                      IPSlot,
    iP-P-CCPCH                  IP-P-CCPCH,
    burstModeParameters         BurstModeParameters     OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { IPDL-TDD-Parameters-ExtIEs} }
    OPTIONAL,
    ...
}
```

```
-- The BurstModeParameters IE shall be included if the Idle Periods are arranged in Burst Mode.

IPDL-TDD-Parameters-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

IPDL-TDD-ParametersLCR ::= SEQUENCE {
    iPSpacingTDD                IPSpacingTDD,
    iPStart                     IPStart,
    iPSub                       IPSub,
    burstModeParameters         BurstModeParameters     OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { IPDL-TDD-ParametersLCR-ExtIEs} }
    OPTIONAL,
    ...
}

-- The BurstModeParameters IE shall be included if the Idle Periods are arranged in Burst Mode.

IPDL-TDD-ParametersLCR-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

IPLength ::= ENUMERATED {
    ipl5,
    ipl10,
    ...
}

IPMulticastAddress  ::= BITOCTET STRING (SIZE (4..16128))

IPOffset ::= INTEGER (0..9)

IP-P-CCPCH ::= ENUMERATED {
    switchOff-1-Frame,
    switchOff-2-Frames
}

IPSlot ::= INTEGER (0..14)

IPSpacingFDD ::= ENUMERATED {
    ipsF5,
    ipsF7,
    ipsF10,
    ipsF15,
    ipsF20,
    ipsF30,
    ipsF40,
    ipsF50,
    ...
}

IPSpacingTDD ::= ENUMERATED {
    ipsT30,
    ipsT40,
    ipsT50,
    ipsT70,
    ipsT100,
    ...
}

IPStart ::= INTEGER (0..4095)

IPSub ::= ENUMERATED {
    first,
    second,
    both
}

-- J
-- K
-- L

LAC                 ::= OCTET STRING (SIZE (2)) --(EXCEPT ('0000'H|'FFFE'H))

LengthOfTFCI2 ::= INTEGER(1..10)

LimitedPowerIncrease ::= ENUMERATED {
```

```
    used,
    not-used
}

L3-Information              ::= BIT STRING

Load-Value-IncrDecrThres ::= INTEGER(0..100)

Load-Value ::= INTEGER(0..100)

LoadValue ::= SEQUENCE {
        uplinkLoadValue     INTEGER(0..100),
        downlinkLoadValue   INTEGER(0..100)
}

-- M

MaxNrOfUL-DPCHs             ::= INTEGER (1..6)

MAC-c-sh-SDU-Length         ::= INTEGER (1..5000)

MAC-c-sh-SDU-LengthList ::= SEQUENCE(SIZE(1..maxNrOfMACcshSDU-Length)) OF MAC-c-sh-SDU-Length

MACdPDU-Size ::= INTEGER (1..5000,...)

MACdPDU-Size-IndexList ::= SEQUENCE (SIZE (1..maxNrOfPDUIndexes)) OF MACdPDU-Size-IndexItem

MACdPDU-Size-IndexItem ::= SEQUENCE {
    sID                                 SID,
    mACdPDU-Size                        MACdPDU-Size,
    iE-Extensions                       ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-ExtIEs
} }         OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MACdPDU-Size-IndexList-to-Modify ::= SEQUENCE (SIZE (1..maxNrOfPDUIndexes)) OF MACdPDU-Size-
IndexItem-to-Modify

MACdPDU-Size-IndexItem-to-Modify ::= SEQUENCE {
    sID                                 SID,
    mACdPDU-Size                        MACdPDU-Size,
    iE-Extensions                       ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-to-
Modify-ExtIEs } }           OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-to-Modify-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MAChsGuaranteedBitRate ::= INTEGER (0..16777215,...)

MAChsReorderingBufferSize-for-RLC-UM ::= INTEGER (0..300,...)
-- Unit kBytes

MAC-hsWindowSize        ::= ENUMERATED {v4, v6, v8, v12, v16, v24, v32,...}

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

MaxNrDLPhysicalchannels     ::= INTEGER (1..224)
-- 1.28Mcps TDD 97 – 224 are unused

MaxNrDLPhysicalchannelsTS   ::= INTEGER (1..16)

MaxNrTimeslots              ::= INTEGER (1..14)
-- 1.28Mcps values 7-14 are unused

MaxNrULPhysicalchannels     ::= INTEGER (1..2)

MaxTFCIvalue                ::= INTEGER (1..1023)

MBMS-Bearer-Service-Full-Address ::= SEQUENCE {
    accessPointName                     AccessPointName,
    iPMulticastAddress                  IPMulticastAddress,
```

```
    iE-Extensions                       ProtocolExtensionContainer { { MBMS-Bearer-Service-Full-
Address-ExtIEs } }          OPTIONAL,
    ...
}

MBMS-Bearer-Service-Full-Address-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MBMS-Bearer-Service-List    ::= SEQUENCE (SIZE (1..maxNrOfMBMSServices)) OF TMGI

MeasurementFilterCoefficient ::=  ENUMERATED{k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15,
k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement

MeasurementID               ::= INTEGER (0..1048575)

Measurement-Power-Offset ::= INTEGER(-12 .. 26)
-- Actual value = IE value * 0.5

MinimumSpreadingFactor      ::= INTEGER (1..16)

Multi-code-info             ::= INTEGER (1..16)

MultipleURAsIndicator ::= ENUMERATED {
    multiple-URAs-exist,
    single-URA-exists
}

MaxAdjustmentStep           ::= INTEGER(1..10)
-- Unit Slot

MeasurementChangeTime       ::= INTEGER (1..6000,...)
-- The MeasurementChangeTime  gives the MeasurementChangeTime
-- in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10 ms


MeasurementHysteresisTime       ::= INTEGER (1..6000,...)
-- The MeasurementHysteresisTime  gives the
-- MeasurementHysteresisTime in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10ms

MeasurementIncreaseDecreaseThreshold        ::= CHOICE {
    sir                             SIR-Value-IncrDecrThres,
    sir-error                       SIR-Error-Value-IncrDecrThres,
    transmitted-code-power          Transmitted-Code-Power-Value-IncrDecrThres,
    rscp                            RSCP-Value-IncrDecrThres,
    round-trip-time                 Round-Trip-Time-IncrDecrThres,
    ...,
    extension-MeasurementIncreaseDecreaseThreshold      Extension-
MeasurementIncreaseDecreaseThreshold
}

Extension-MeasurementIncreaseDecreaseThreshold  ::= ProtocolIE-Single-Container {{ Extension-
MeasurementIncreaseDecreaseThresholdIE }}

Extension-MeasurementIncreaseDecreaseThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-Load-Value-IncrDecrThres    CRITICALITY reject  TYPE Load-Value-IncrDecrThres   PRESENCE
mandatory }|
    { ID id-Transmitted-Carrier-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Transmitted-
Carrier-Power-Value-IncrDecrThres       PRESENCE mandatory }|
    { ID id-Received-Total-Wideband-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Received-
Total-Wideband-Power-Value-IncrDecrThres        PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value-IncrDecrThres    CRITICALITY reject  TYPE UL-Timeslot-ISCP-Value-
IncrDecrThres   PRESENCE mandatory }|
    { ID id-RT-Load-Value-IncrDecrThres CRITICALITY reject  TYPE RT-Load-Value-IncrDecrThres
    PRESENCE mandatory }|
    { ID id-NRT-Load-Information-Value-IncrDecrThres    CRITICALITY reject  TYPE NRT-Load-
Information-Value-IncrDecrThres PRESENCE mandatory }|
    { ID id-UpPTSInterferenceValue      CRITICALITY reject  TYPE    UpPTSInterferenceValue
    PRESENCE mandatory }
}

MeasurementRecoveryBehavior ::= NULL
```

```
MeasurementRecoveryReportingIndicator ::= NULL

MeasurementRecoverySupportIndicator ::= NULL

MeasurementThreshold            ::= CHOICE {
    sir                             SIR-Value,
    sir-error                       SIR-Error-Value,
    transmitted-code-power          Transmitted-Code-Power-Value,
    rscp                            RSCP-Value,
    rx-timing-deviation             Rx-Timing-Deviation-Value,
    round-trip-time                 Round-Trip-Time-Value,
    ...,
    extension-MeasurementThreshold  Extension-MeasurementThreshold
}

Extension-MeasurementThreshold  ::= ProtocolIE-Single-Container {{ Extension-MeasurementThresholdIE
}}

Extension-MeasurementThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-TUTRANGPSMeasurementThresholdInformation    CRITICALITY reject  TYPE
TUTRANGPSMeasurementThresholdInformation        PRESENCE mandatory }|
    { ID id-SFNSFNMeasurementThresholdInformation       CRITICALITY reject  TYPE
SFNSFNMeasurementThresholdInformation           PRESENCE mandatory }|
    { ID id-Load-Value                                  CRITICALITY reject  TYPE Load-Value
                                    PRESENCE mandatory }|
    { ID id-Transmitted-Carrier-Power-Value             CRITICALITY reject  TYPE Transmitted-
Carrier-Power-Value                 PRESENCE mandatory }|
    { ID id-Received-Total-Wideband-Power-Value         CRITICALITY reject  TYPE Received-Total-
Wideband-Power-Value            PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value                      CRITICALITY reject  TYPE UL-Timeslot-ISCP-
Value                               PRESENCE mandatory }|
    { ID id-RT-Load-Value                               CRITICALITY reject  TYPE RT-Load-Value
                                    PRESENCE mandatory }|
    { ID id-NRT-Load-Information-Value                  CRITICALITY reject  TYPE NRT-Load-
Information-Value                       PRESENCE mandatory }|
    { ID id-Rx-Timing-Deviation-Value-LCR               CRITICALITY reject  TYPE Rx-Timing-
Deviation-Value-LCR                 PRESENCE mandatory}|
    { ID id-HS-SICH-Reception-Quality-Measurement-Value CRITICALITY reject  TYPE HS-SICH-Reception-
Quality-Measurement-Value   PRESENCE mandatory}|
    { ID id-UpPTSInterferenceValue                      CRITICALITY reject  TYPE
UpPTSInterferenceValue                              PRESENCE mandatory }
}

MidambleConfigurationBurstType1And3 ::=     ENUMERATED {v4, v8, v16}
```

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

```
ReportPeriodicity ::= CHOICE {
    ten-msec                INTEGER (1..6000,...),
-- The Report Periodicity gives the reporting periodicity in number of 10 ms periods.
-- E.g. value 6000 means 60000ms (i.e. 1min)
-- Unit ms, Step 10ms
    min             INTEGER (1..60,...),
-- Unit min, Step 1min
    ...
}

RequestedDataValue ::= SEQUENCE {
    gA-AccessPointPositionwithAltitude          GA-AccessPointPositionwithOptionalAltitude
    OPTIONAL,
    iPDLParameters                              IPDLParameters
    OPTIONAL,
    dGPSCorrections                             DGPSCorrections
    OPTIONAL,
    gPS-NavigationModel-and-TimeRecovery        GPS-NavigationModel-and-TimeRecovery
    OPTIONAL,
    gPS-Ionospheric-Model                       GPS-Ionospheric-Model
    OPTIONAL,
    gPS-UTC-Model                               GPS-UTC-Model
    OPTIONAL,
    gPS-Almanac                                 GPS-Almanac
    OPTIONAL,
```

```
    gPS-RealTime-Integrity                      GPS-RealTime-Integrity
    OPTIONAL,
    gPS-RX-POS                                  GPS-RX-POS
    OPTIONAL,
    sFNSFN-GA-AccessPointPosition               GA-AccessPointPositionwithOptionalAltitude
    OPTIONAL,
    iE-Extensions                               ProtocolExtensionContainer { { RequestedDataValue-
ExtIEs} }       OPTIONAL,
    ...
}

RequestedDataValue-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    { ID id-Cell-Capacity-Class-Value   CRITICALITY ignore  EXTENSION Cell-Capacity-Class-Value
    PRESENCE mandatory }|
    { ID id-NACC-Related-Data           CRITICALITY ignore  EXTENSION NACC-Related-Data
    PRESENCE optional }|
    { ID id-MBMS-Bearer-Service-Full-Address            CRITICALITY ignore  EXTENSION MBMS-Bearer-
Service-Full-Address            PRESENCE optional },
    ...
}

RequestedDataValueInformation ::= CHOICE {
    informationAvailable        InformationAvailable,
    informationNotAvailable     InformationNotAvailable
}

RestrictionStateIndicator   ::= ENUMERATED {
    cellNotResevedForOperatorUse,
    cellResevedForOperatorUse,
    ...
}

RL-ID                   ::= INTEGER (0..31)

RL-Set-ID               ::= INTEGER (0..31)
```

9.3.6 Constant Definitions

```
-- **************************************************************
--
-- Constant definitions
--
-- **************************************************************

RNSAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) rnsap (1) version1 (1) rnsap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    ProcedureCode,
    ProtocolIE-ID
FROM RNSAP-CommonDataTypes;

-- **************************************************************
--
-- Elementary Procedures
--
-- **************************************************************

id-commonTransportChannelResourcesInitialisation           ProcedureCode ::= 0
id-commonTransportChannelResourcesRelease                  ProcedureCode ::= 1
id-compressedModeCommand                                   ProcedureCode ::= 2
id-downlinkPowerControl                                    ProcedureCode ::= 3
id-downlinkPowerTimeslotControl                            ProcedureCode ::= 4
id-downlinkSignallingTransfer                              ProcedureCode ::= 5
id-errorIndication                                         ProcedureCode ::= 6
id-dedicatedMeasurementFailure                             ProcedureCode ::= 7
id-dedicatedMeasurementInitiation                          ProcedureCode ::= 8
id-dedicatedMeasurementReporting                           ProcedureCode ::= 9
id-dedicatedMeasurementTermination                         ProcedureCode ::= 10
id-paging                                                  ProcedureCode ::= 11
id-physicalChannelReconfiguration                          ProcedureCode ::= 12
id-privateMessage                                          ProcedureCode ::= 13
id-radioLinkAddition                                       ProcedureCode ::= 14
id-radioLinkCongestion                                     ProcedureCode ::= 34
id-radioLinkDeletion                                       ProcedureCode ::= 15
id-radioLinkFailure                                        ProcedureCode ::= 16
id-radioLinkPreemption                                     ProcedureCode ::= 17
id-radioLinkRestoration                                    ProcedureCode ::= 18
id-radioLinkSetup                                          ProcedureCode ::= 19
id-relocationCommit                                        ProcedureCode ::= 20
id-synchronisedRadioLinkReconfigurationCancellation        ProcedureCode ::= 21
id-synchronisedRadioLinkReconfigurationCommit              ProcedureCode ::= 22
id-synchronisedRadioLinkReconfigurationPreparation         ProcedureCode ::= 23
id-unSynchronisedRadioLinkReconfiguration                  ProcedureCode ::= 24
id-uplinkSignallingTransfer                                ProcedureCode ::= 25
id-commonMeasurementFailure                                ProcedureCode ::= 26
id-commonMeasurementInitiation                             ProcedureCode ::= 27
id-commonMeasurementReporting                              ProcedureCode ::= 28
id-commonMeasurementTermination                            ProcedureCode ::= 29
id-informationExchangeFailure                              ProcedureCode ::= 30
id-informationExchangeInitiation                           ProcedureCode ::= 31
id-informationReporting                                    ProcedureCode ::= 32
id-informationExchangeTermination                          ProcedureCode ::= 33
id-reset                                                   ProcedureCode ::= 35
id-radioLinkActivation                                     ProcedureCode ::= 36
id-gERANuplinkSignallingTransfer                           ProcedureCode ::= 37
id-radioLinkParameterUpdate                                ProcedureCode ::= 38
id-uEMeasurementFailure                                    ProcedureCode ::= 39
id-uEMeasurementInitiation                                 ProcedureCode ::= 40
id-uEMeasurementReporting                                  ProcedureCode ::= 41
id-uEMeasurementTermination                                ProcedureCode ::= 42
id-iurDeactivateTrace                                      ProcedureCode ::= 43
id-iurInvokeTrace                                          ProcedureCode ::= 44
id-mBMSAttach                                              ProcedureCode ::= 45
id-mBMSDetach                                              ProcedureCode ::= 46
id-mBMSChannelTypeReconfiguration                          ProcedureCode ::= 47
```

```
-- **************************************************************
--
-- Lists
--
-- **************************************************************

maxCodeNumComp-1                        INTEGER ::= 255
maxRateMatching                         INTEGER ::= 256
maxNoCodeGroups                         INTEGER ::= 256
maxNoOfDSCHs                            INTEGER ::= 10
maxNoOfDSCHsLCR                         INTEGER ::= 10
maxNoOfRB                               INTEGER ::= 32
maxNoOfUSCHs                            INTEGER ::= 10
maxNoOfUSCHsLCR                         INTEGER ::= 10
maxNoTFCIGroups                         INTEGER ::= 256
maxNrOfTFCs                             INTEGER ::= 1024
maxNrOfTFs                              INTEGER ::= 32
maxNrOfCCTrCHs                          INTEGER ::= 16
maxNrOfCCTrCHsLCR                       INTEGER ::= 16
maxNrOfDCHs                             INTEGER ::= 128
maxNrOfDL-Codes                         INTEGER ::= 8
maxNrOfDPCHs                            INTEGER ::= 240
maxNrOfDPCHsLCR                         INTEGER ::= 240
maxNrOfErrors                           INTEGER ::= 256
maxNrOfMACcshSDU-Length                 INTEGER ::= 16
maxNrOfMBMSServices                     INTEGER ::= 128
maxNrOfActiveMBMSServices               INTEGER ::= 256
maxNrOfPoints                           INTEGER ::= 15
maxNrOfRLs                              INTEGER ::= 16
maxNrOfRLSets                           INTEGER ::= maxNrOfRLs
maxNrOfRLSets-1                         INTEGER ::= 15  -- maxNrOfRLSets - 1
maxNrOfRLs-1                            INTEGER ::= 15  -- maxNrOfRLs – 1
maxNrOfRLs-2                            INTEGER ::= 14  -- maxNrOfRLs – 2
maxNrOfUEs                              INTEGER ::= 16
maxNrOfULTs                             INTEGER ::= 15
maxNrOfULTsLCR                          INTEGER ::= 6
maxNrOfDLTs                             INTEGER ::= 15
maxNrOfDLTsLCR                          INTEGER ::= 6
maxRNCinURA-1                           INTEGER ::= 15
maxTTI-Count                            INTEGER ::= 4
maxCTFC                                 INTEGER ::= 16777215
maxNrOfNeighbouringRNCs                 INTEGER ::= 10
maxNrOfFDDNeighboursPerRNC              INTEGER ::= 256
maxNrOfGSMNeighboursPerRNC              INTEGER ::= 256
maxNrOfTDDNeighboursPerRNC              INTEGER ::= 256
maxNrOfFACHs                            INTEGER ::= 8
maxNrOfLCRTDDNeighboursPerRNC           INTEGER ::= 256
maxFACHCountPlus1                       INTEGER ::= 10
maxIBSEG                                INTEGER ::= 16
maxNrOfSCCPCHs                          INTEGER ::= 8
maxTFCI1Combs                           INTEGER ::= 512
maxTFCI2Combs                           INTEGER ::= 1024
maxTFCI2Combs-1                         INTEGER ::= 1023
maxTGPS                                 INTEGER ::= 6
maxNrOfTS                               INTEGER ::= 15
maxNrOfLevels                           INTEGER ::= 256
maxNoOfDSCHs-1                          INTEGER ::= 9
maxNrOfTsLCR                            INTEGER ::= 6
maxNoSat                                INTEGER ::= 16
maxNoGPSTypes                           INTEGER ::= 8
maxNrOfMeasNCell                        INTEGER ::= 96
maxNrOfMeasNCell-1                      INTEGER ::= 95  -- maxNrOfMeasNCell – 1
maxResetContext                         INTEGER ::= 250
maxResetContextGroup                    INTEGER ::= 32
maxNrOfHARQProc                         INTEGER ::= 8
maxNrOfHSSCCHCodes                      INTEGER ::= 4
maxNrOfHSSICHs                          INTEGER ::= 4
maxNrOfMACdFlows                        INTEGER ::= 8
maxNrOfMACdFlows-1                      INTEGER ::= 7   -- maxNrOfMACdFlows - 1
maxNrOfPDUIndexes                       INTEGER ::= 8
maxNrOfPDUIndexes-1                     INTEGER ::= 7   -- maxNrOfPDUIndexes - 1
maxNrOfPrioQueues                       INTEGER ::= 8
maxNrOfPrioQueues-1                     INTEGER ::= 7   -- maxNrOfPrioQueues - 1
maxNrOfSNAs                             INTEGER ::= 65536
maxNrOfSatAlmanac-maxNoSat              INTEGER ::= 16
maxNrOfGERANSI                          INTEGER ::= 8
maxNrOfInterfaces                       INTEGER ::= 16
```

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-- **************************************************************
--
-- IEs
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-- **************************************************************

id-AllowedQueuingTime                                                    ProtocolIE-ID ::= 4
id-Allowed-Rate-Information                                              ProtocolIE-ID ::= 42
id-AntennaColocationIndicator                                            ProtocolIE-ID ::= 309
id-BindingID                                                             ProtocolIE-ID ::= 5
id-C-ID                                                                  ProtocolIE-ID ::= 6
id-C-RNTI                                                                ProtocolIE-ID ::= 7
id-Cell-Capacity-Class-Value                                             ProtocolIE-ID ::= 303
id-CFN                                                                   ProtocolIE-ID ::= 8
id-CN-CS-DomainIdentifier                                                ProtocolIE-ID ::= 9
id-CN-PS-DomainIdentifier                                                ProtocolIE-ID ::= 10
id-Cause                                                                 ProtocolIE-ID ::= 11
id-CoverageIndicator                                                     ProtocolIE-ID ::= 310
id-CriticalityDiagnostics                                                ProtocolIE-ID ::= 20
id-ContextInfoItem-Reset                                                 ProtocolIE-ID ::= 211
id-ContextGroupInfoItem-Reset                                            ProtocolIE-ID ::= 515
id-D-RNTI                                                                ProtocolIE-ID ::= 21
id-D-RNTI-ReleaseIndication                                              ProtocolIE-ID ::= 22
id-DCHs-to-Add-FDD                                                       ProtocolIE-ID ::= 26
id-DCHs-to-Add-TDD                                                       ProtocolIE-ID ::= 27
id-DCH-DeleteList-RL-ReconfPrepFDD                                       ProtocolIE-ID ::= 30
id-DCH-DeleteList-RL-ReconfPrepTDD                                       ProtocolIE-ID ::= 31
id-DCH-DeleteList-RL-ReconfRqstFDD                                       ProtocolIE-ID ::= 32
id-DCH-DeleteList-RL-ReconfRqstTDD                                       ProtocolIE-ID ::= 33
id-DCH-FDD-Information                                                   ProtocolIE-ID ::= 34
id-DCH-TDD-Information                                                   ProtocolIE-ID ::= 35
id-FDD-DCHs-to-Modify                                                    ProtocolIE-ID ::= 39
id-TDD-DCHs-to-Modify                                                    ProtocolIE-ID ::= 40
id-DCH-InformationResponse                                               ProtocolIE-ID ::= 43
id-DCH-Rate-InformationItem-RL-CongestInd                                ProtocolIE-ID ::= 38
id-DL-CCTrCH-InformationAddItem-RL-ReconfPrepTDD                         ProtocolIE-ID ::= 44
id-DL-CCTrCH-InformationListIE-RL-ReconfReadyTDD                         ProtocolIE-ID ::= 45
id-DL-CCTrCH-InformationDeleteItem-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 46
id-DL-CCTrCH-InformationItem-RL-SetupRqstTDD                             ProtocolIE-ID ::= 47
id-DL-CCTrCH-InformationListIE-PhyChReconfRqstTDD                        ProtocolIE-ID ::= 48
id-DL-CCTrCH-InformationListIE-RL-AdditionRspTDD                         ProtocolIE-ID ::= 49
id-DL-CCTrCH-InformationListIE-RL-SetupRspTDD                            ProtocolIE-ID ::= 50
id-DL-CCTrCH-InformationAddList-RL-ReconfPrepTDD                         ProtocolIE-ID ::= 51
id-DL-CCTrCH-InformationDeleteList-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 52
id-DL-CCTrCH-InformationList-RL-SetupRqstTDD                             ProtocolIE-ID ::= 53
id-FDD-DL-CodeInformation                                                ProtocolIE-ID ::= 54
id-DL-DPCH-Information-RL-ReconfPrepFDD                                  ProtocolIE-ID ::= 59
id-DL-DPCH-Information-RL-SetupRqstFDD                                   ProtocolIE-ID ::= 60
id-DL-DPCH-Information-RL-ReconfRqstFDD                                  ProtocolIE-ID ::= 61
id-DL-DPCH-InformationItem-PhyChReconfRqstTDD                            ProtocolIE-ID ::= 62
id-DL-DPCH-InformationItem-RL-AdditionRspTDD                             ProtocolIE-ID ::= 63
id-DL-DPCH-InformationItem-RL-SetupRspTDD                                ProtocolIE-ID ::= 64
id-DL-DPCH-TimingAdjustment                                              ProtocolIE-ID ::= 278
id-DLReferencePower                                                      ProtocolIE-ID ::= 67
id-DLReferencePowerList-DL-PC-Rqst                                       ProtocolIE-ID ::= 68
id-DL-ReferencePowerInformation-DL-PC-Rqst                               ProtocolIE-ID ::= 69
id-DPC-Mode                                                              ProtocolIE-ID ::= 12
id-DRXCycleLengthCoefficient                                             ProtocolIE-ID ::= 70
id-DedicatedMeasurementObjectType-DM-Fail-Ind                            ProtocolIE-ID ::= 470
id-DedicatedMeasurementObjectType-DM-Fail                                ProtocolIE-ID ::= 471
id-DedicatedMeasurementObjectType-DM-Rprt                                ProtocolIE-ID ::= 71
id-DedicatedMeasurementObjectType-DM-Rqst                                ProtocolIE-ID ::= 72
id-DedicatedMeasurementObjectType-DM-Rsp                                 ProtocolIE-ID ::= 73
id-DedicatedMeasurementType                                              ProtocolIE-ID ::= 74
id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspFDD                     ProtocolIE-ID ::= 82
id-FACH-InfoForUESelectedS-CCPCH-CTCH-ResourceRspTDD                     ProtocolIE-ID ::= 83
id-Guaranteed-Rate-Information                                           ProtocolIE-ID ::= 41
id-IMSI                                                                  ProtocolIE-ID ::= 84
id-HCS-Prio                                                              ProtocolIE-ID ::= 311
id-L3-Information                                                        ProtocolIE-ID ::= 85
id-AdjustmentPeriod                                                      ProtocolIE-ID ::= 90
id-MaxAdjustmentStep                                                     ProtocolIE-ID ::= 91
id-MeasurementFilterCoefficient                                          ProtocolIE-ID ::= 92
id-MessageStructure                                                      ProtocolIE-ID ::= 57
id-MeasurementID                                                         ProtocolIE-ID ::= 93
id-Neighbouring-GSM-CellInformation                                      ProtocolIE-ID ::= 13
id-Neighbouring-UMTS-CellInformationItem                                 ProtocolIE-ID ::= 95
id-NRT-Load-Information-Value                                            ProtocolIE-ID ::= 305
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id-NRT-Load-Information-Value-IncrDecrThres                                  ProtocolIE-ID ::= 306
id-PagingArea-PagingRqst                                                     ProtocolIE-ID ::= 102
id-FACH-FlowControlInformation                                               ProtocolIE-ID ::= 103
id-PartialReportingIndicator                                                 ProtocolIE-ID ::= 472
id-Permanent-NAS-UE-Identity                                                 ProtocolIE-ID ::= 17
id-PowerAdjustmentType                                                       ProtocolIE-ID ::= 107
id-RANAP-RelocationInformation                                               ProtocolIE-ID ::= 109
id-RL-Information-PhyChReconfRqstFDD                                         ProtocolIE-ID ::= 110
id-RL-Information-PhyChReconfRqstTDD                                         ProtocolIE-ID ::= 111
id-RL-Information-RL-AdditionRqstFDD                                         ProtocolIE-ID ::= 112
id-RL-Information-RL-AdditionRqstTDD                                         ProtocolIE-ID ::= 113
id-RL-Information-RL-DeletionRqst                                            ProtocolIE-ID ::= 114
id-RL-Information-RL-FailureInd                                              ProtocolIE-ID ::= 115
id-RL-Information-RL-ReconfPrepFDD                                           ProtocolIE-ID ::= 116
id-RL-Information-RL-RestoreInd                                              ProtocolIE-ID ::= 117
id-RL-Information-RL-SetupRqstFDD                                            ProtocolIE-ID ::= 118
id-RL-Information-RL-SetupRqstTDD                                            ProtocolIE-ID ::= 119
id-RL-InformationItem-RL-CongestInd                                          ProtocolIE-ID ::= 55
id-RL-InformationItem-DM-Rprt                                                ProtocolIE-ID ::= 120
id-RL-InformationItem-DM-Rqst                                                ProtocolIE-ID ::= 121
id-RL-InformationItem-DM-Rsp                                                 ProtocolIE-ID ::= 122
id-RL-InformationItem-RL-PreemptRequiredInd                                  ProtocolIE-ID ::= 2
id-RL-InformationItem-RL-SetupRqstFDD                                        ProtocolIE-ID ::= 123
id-RL-InformationList-RL-CongestInd                                          ProtocolIE-ID ::= 56
id-RL-InformationList-RL-AdditionRqstFDD                                     ProtocolIE-ID ::= 124
id-RL-InformationList-RL-DeletionRqst                                        ProtocolIE-ID ::= 125
id-RL-InformationList-RL-PreemptRequiredInd                                  ProtocolIE-ID ::= 1
id-RL-InformationList-RL-ReconfPrepFDD                                       ProtocolIE-ID ::= 126
id-RL-InformationResponse-RL-AdditionRspTDD                                  ProtocolIE-ID ::= 127
id-RL-InformationResponse-RL-ReconfReadyTDD                                  ProtocolIE-ID ::= 128
id-RL-InformationResponse-RL-SetupRspTDD                                     ProtocolIE-ID ::= 129
id-RL-InformationResponseItem-RL-AdditionRspFDD                              ProtocolIE-ID ::= 130
id-RL-InformationResponseItem-RL-ReconfReadyFDD                              ProtocolIE-ID ::= 131
id-RL-InformationResponseItem-RL-ReconfRspFDD                                ProtocolIE-ID ::= 132
id-RL-InformationResponseItem-RL-SetupRspFDD                                 ProtocolIE-ID ::= 133
id-RL-InformationResponseList-RL-AdditionRspFDD                              ProtocolIE-ID ::= 134
id-RL-InformationResponseList-RL-ReconfReadyFDD                              ProtocolIE-ID ::= 135
id-RL-InformationResponseList-RL-ReconfRspFDD                                ProtocolIE-ID ::= 136
id-RL-InformationResponse-RL-ReconfRspTDD                                    ProtocolIE-ID ::= 28
id-RL-InformationResponseList-RL-SetupRspFDD                                 ProtocolIE-ID ::= 137
id-RL-ReconfigurationFailure-RL-ReconfFail                                   ProtocolIE-ID ::= 141
id-RL-Set-InformationItem-DM-Rprt                                            ProtocolIE-ID ::= 143
id-RL-Set-InformationItem-DM-Rqst                                            ProtocolIE-ID ::= 144
id-RL-Set-InformationItem-DM-Rsp                                             ProtocolIE-ID ::= 145
id-RL-Set-Information-RL-FailureInd                                          ProtocolIE-ID ::= 146
id-RL-Set-Information-RL-RestoreInd                                          ProtocolIE-ID ::= 147
id-RL-Set-Successful-InformationItem-DM-Fail                                 ProtocolIE-ID ::= 473
id-RL-Set-Unsuccessful-InformationItem-DM-Fail                               ProtocolIE-ID ::= 474
id-RL-Set-Unsuccessful-InformationItem-DM-Fail-Ind                           ProtocolIE-ID ::= 475
id-RL-Successful-InformationItem-DM-Fail                                     ProtocolIE-ID ::= 476
id-RL-Unsuccessful-InformationItem-DM-Fail                                   ProtocolIE-ID ::= 477
id-RL-Unsuccessful-InformationItem-DM-Fail-Ind                               ProtocolIE-ID ::= 478
id-ReportCharacteristics                                                     ProtocolIE-ID ::= 152
id-Reporting-Object-RL-FailureInd                                            ProtocolIE-ID ::= 153
id-Reporing-Object-RL-RestoreInd                                             ProtocolIE-ID ::= 154
id-RT-Load-Value                                                             ProtocolIE-ID ::= 307
id-RT-Load-Value-IncrDecrThres                                               ProtocolIE-ID ::= 308
id-S-RNTI                                                                    ProtocolIE-ID ::= 155
id-ResetIndicator                                                            ProtocolIE-ID ::= 244
id-RNC-ID                                                                    ProtocolIE-ID ::= 245
id-SAI                                                                       ProtocolIE-ID ::= 156
id-SRNC-ID                                                                   ProtocolIE-ID ::= 157
id-SuccessfulRL-InformationResponse-RL-AdditionFailureFDD                    ProtocolIE-ID ::= 159
id-SuccessfulRL-InformationResponse-RL-SetupFailureFDD                       ProtocolIE-ID ::= 160
id-TransportBearerID                                                         ProtocolIE-ID ::= 163
id-TransportBearerRequestIndicator                                           ProtocolIE-ID ::= 164
id-TransportLayerAddress                                                     ProtocolIE-ID ::= 165
id-TypeOfError                                                               ProtocolIE-ID ::= 140
id-UC-ID                                                                     ProtocolIE-ID ::= 166
id-UL-CCTrCH-AddInformation-RL-ReconfPrepTDD                                 ProtocolIE-ID ::= 167
id-UL-CCTrCH-InformationAddList-RL-ReconfPrepTDD                             ProtocolIE-ID ::= 169
id-UL-CCTrCH-InformationItem-RL-SetupRqstTDD                                 ProtocolIE-ID ::= 171
id-UL-CCTrCH-InformationList-RL-SetupRqstTDD                                 ProtocolIE-ID ::= 172
id-UL-CCTrCH-InformationListIE-PhyChReconfRqstTDD                            ProtocolIE-ID ::= 173
id-UL-CCTrCH-InformationListIE-RL-AdditionRspTDD                             ProtocolIE-ID ::= 174
id-UL-CCTrCH-InformationListIE-RL-ReconfReadyTDD                             ProtocolIE-ID ::= 175
id-UL-CCTrCH-InformationListIE-RL-SetupRspTDD                                ProtocolIE-ID ::= 176
id-UL-DPCH-Information-RL-ReconfPrepFDD                                      ProtocolIE-ID ::= 177
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id-UL-DPCH-Information-RL-ReconfRqstFDD                                  ProtocolIE-ID ::= 178
id-UL-DPCH-Information-RL-SetupRqstFDD                                   ProtocolIE-ID ::= 179
id-UL-DPCH-InformationItem-PhyChReconfRqstTDD                            ProtocolIE-ID ::= 180
id-UL-DPCH-InformationItem-RL-AdditionRspTDD                             ProtocolIE-ID ::= 181
id-UL-DPCH-InformationItem-RL-SetupRspTDD                                ProtocolIE-ID ::= 182
id-UL-DPCH-InformationAddListIE-RL-ReconfReadyTDD                        ProtocolIE-ID ::= 183
id-UL-SIRTarget                                                          ProtocolIE-ID ::= 184
id-URA-Information                                                       ProtocolIE-ID ::= 185
id-UnsuccessfulRL-InformationResponse-RL-AdditionFailureFDD              ProtocolIE-ID ::= 188
id-UnsuccessfulRL-InformationResponse-RL-SetupFailureFDD                 ProtocolIE-ID ::= 189
id-UnsuccessfulRL-InformationResponse-RL-SetupFailureTDD                 ProtocolIE-ID ::= 190
id-Active-Pattern-Sequence-Information                                   ProtocolIE-ID ::= 193
id-AdjustmentRatio                                                       ProtocolIE-ID ::= 194
id-CauseLevel-RL-AdditionFailureFDD                                      ProtocolIE-ID ::= 197
id-CauseLevel-RL-AdditionFailureTDD                                      ProtocolIE-ID ::= 198
id-CauseLevel-RL-ReconfFailure                                           ProtocolIE-ID ::= 199
id-CauseLevel-RL-SetupFailureFDD                                         ProtocolIE-ID ::= 200
id-CauseLevel-RL-SetupFailureTDD                                         ProtocolIE-ID ::= 201
id-DL-CCTrCH-InformationDeleteItem-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 205
id-DL-CCTrCH-InformationModifyItem-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 206
id-DL-CCTrCH-InformationModifyItem-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 207
id-DL-CCTrCH-InformationDeleteList-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 208
id-DL-CCTrCH-InformationModifyList-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 209
id-DL-CCTrCH-InformationModifyList-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 210
id-DL-DPCH-InformationAddListIE-RL-ReconfReadyTDD                        ProtocolIE-ID ::= 212
id-DL-DPCH-InformationDeleteListIE-RL-ReconfReadyTDD                     ProtocolIE-ID ::= 213
id-DL-DPCH-InformationModifyListIE-RL-ReconfReadyTDD                     ProtocolIE-ID ::= 214
id-DSCHs-to-Add-TDD                                                      ProtocolIE-ID ::= 215
id-DSCHs-to-Add-FDD                                                      ProtocolIE-ID ::= 216
id-DSCH-DeleteList-RL-ReconfPrepTDD                                      ProtocolIE-ID ::= 217
id-DSCH-Delete-RL-ReconfPrepFDD                                          ProtocolIE-ID ::= 218
id-DSCH-FDD-Information                                                  ProtocolIE-ID ::= 219
id-DSCH-InformationListIE-RL-AdditionRspTDD                              ProtocolIE-ID ::= 220
id-DSCH-InformationListIEs-RL-SetupRspTDD                                ProtocolIE-ID ::= 221
id-DSCH-TDD-Information                                                  ProtocolIE-ID ::= 222
id-DSCH-FDD-InformationResponse                                          ProtocolIE-ID ::= 223
id-DSCH-Information-RL-SetupRqstFDD                                      ProtocolIE-ID ::= 226
id-DSCH-ModifyList-RL-ReconfPrepTDD                                      ProtocolIE-ID ::= 227
id-DSCH-Modify-RL-ReconfPrepFDD                                          ProtocolIE-ID ::= 228
id-DSCH-Specific-FDD-Additional-List                                     ProtocolIE-ID ::= 324
id-DSCHsToBeAddedOrModified-FDD                                          ProtocolIE-ID ::= 229
id-DSCHToBeAddedOrModifiedList-RL-ReconfReadyTDD                         ProtocolIE-ID ::= 230
id-EnhancedDSCHPC                                                        ProtocolIE-ID ::= 29
id-EnhancedDSCHPCIndicator                                               ProtocolIE-ID ::= 225
id-GA-Cell                                                               ProtocolIE-ID ::= 232
id-GA-CellAdditionalShapes                                               ProtocolIE-ID ::= 3
id-SSDT-CellIDforEDSCHPC                                                 ProtocolIE-ID ::= 246
id-Transmission-Gap-Pattern-Sequence-Information                         ProtocolIE-ID ::= 255
id-UL-CCTrCH-DeleteInformation-RL-ReconfPrepTDD                          ProtocolIE-ID ::= 256
id-UL-CCTrCH-ModifyInformation-RL-ReconfPrepTDD                          ProtocolIE-ID ::= 257
id-UL-CCTrCH-InformationModifyItem-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 258
id-UL-CCTrCH-InformationDeleteList-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 259
id-UL-CCTrCH-InformationModifyList-RL-ReconfPrepTDD                      ProtocolIE-ID ::= 260
id-UL-CCTrCH-InformationModifyList-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 261
id-UL-CCTrCH-InformationDeleteItem-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 262
id-UL-CCTrCH-InformationDeleteList-RL-ReconfRqstTDD                      ProtocolIE-ID ::= 263
id-UL-DPCH-InformationDeleteListIE-RL-ReconfReadyTDD                     ProtocolIE-ID ::= 264
id-UL-DPCH-InformationModifyListIE-RL-ReconfReadyTDD                     ProtocolIE-ID ::= 265
id-UnsuccessfulRL-InformationResponse-RL-AdditionFailureTDD              ProtocolIE-ID ::= 266
id-USCHs-to-Add                                                          ProtocolIE-ID ::= 267
id-USCH-DeleteList-RL-ReconfPrepTDD                                      ProtocolIE-ID ::= 268
id-USCH-InformationListIE-RL-AdditionRspTDD                              ProtocolIE-ID ::= 269
id-USCH-InformationListIEs-RL-SetupRspTDD                                ProtocolIE-ID ::= 270
id-USCH-Information                                                      ProtocolIE-ID ::= 271
id-USCH-ModifyList-RL-ReconfPrepTDD                                      ProtocolIE-ID ::= 272
id-USCHToBeAddedOrModifiedList-RL-ReconfReadyTDD                         ProtocolIE-ID ::= 273
id-DL-Physical-Channel-Information-RL-SetupRqstTDD                       ProtocolIE-ID ::= 274
id-UL-Physical-Channel-Information-RL-SetupRqstTDD                       ProtocolIE-ID ::= 275
id-ClosedLoopMode1-SupportIndicator                                      ProtocolIE-ID ::= 276
id-ClosedLoopMode2-SupportIndicator                                      ProtocolIE-ID ::= 277
id-STTD-SupportIndicator                                                 ProtocolIE-ID ::= 279
id-CFNReportingIndicator                                                 ProtocolIE-ID ::= 14
id-CNOriginatedPage-PagingRqst                                           ProtocolIE-ID ::= 23
id-InnerLoopDLPCStatus                                                   ProtocolIE-ID ::= 24
id-PropagationDelay                                                      ProtocolIE-ID ::= 25
id-RxTimingDeviationForTA                                                ProtocolIE-ID ::= 36
id-timeSlot-ISCP                                                         ProtocolIE-ID ::= 37
id-CCTrCH-InformationItem-RL-FailureInd                                  ProtocolIE-ID ::= 15
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id-CCTrCH-InformationItem-RL-RestoreInd                                  ProtocolIE-ID ::= 16
id-CommonMeasurementAccuracy                                             ProtocolIE-ID ::= 280
id-CommonMeasurementObjectType-CM-Rprt                                   ProtocolIE-ID ::= 281
id-CommonMeasurementObjectType-CM-Rqst                                   ProtocolIE-ID ::= 282
id-CommonMeasurementObjectType-CM-Rsp                                    ProtocolIE-ID ::= 283
id-CommonMeasurementType                                                 ProtocolIE-ID ::= 284
id-CongestionCause                                                       ProtocolIE-ID ::= 18
id-SFN                                                                   ProtocolIE-ID ::= 285
id-SFNReportingIndicator                                                 ProtocolIE-ID ::= 286
id-InformationExchangeID                                                 ProtocolIE-ID ::= 287
id-InformationExchangeObjectType-InfEx-Rprt                              ProtocolIE-ID ::= 288
id-InformationExchangeObjectType-InfEx-Rqst                              ProtocolIE-ID ::= 289
id-InformationExchangeObjectType-InfEx-Rsp                               ProtocolIE-ID ::= 290
id-InformationReportCharacteristics                                      ProtocolIE-ID ::= 291
id-InformationType                                                       ProtocolIE-ID ::= 292
id-neighbouring-LCR-TDD-CellInformation                                  ProtocolIE-ID ::= 58
id-DL-Timeslot-ISCP-LCR-Information-RL-SetupRqstTDD                      ProtocolIE-ID ::= 65
id-RL-LCR-InformationResponse-RL-SetupRspTDD                             ProtocolIE-ID ::= 66
id-UL-CCTrCH-LCR-InformationListIE-RL-SetupRspTDD                        ProtocolIE-ID ::= 75
id-UL-DPCH-LCR-InformationItem-RL-SetupRspTDD                            ProtocolIE-ID ::= 76
id-DL-CCTrCH-LCR-InformationListIE-RL-SetupRspTDD                        ProtocolIE-ID ::= 77
id-DL-DPCH-LCR-InformationItem-RL-SetupRspTDD                            ProtocolIE-ID ::= 78
id-DSCH-LCR-InformationListIEs-RL-SetupRspTDD                            ProtocolIE-ID ::= 79
id-USCH-LCR-InformationListIEs-RL-SetupRspTDD                            ProtocolIE-ID ::= 80
id-DL-Timeslot-ISCP-LCR-Information-RL-AdditionRqstTDD                   ProtocolIE-ID ::= 81
id-RL-LCR-InformationResponse-RL-AdditionRspTDD                          ProtocolIE-ID ::= 86
id-UL-CCTrCH-LCR-InformationListIE-RL-AdditionRspTDD                     ProtocolIE-ID ::= 87
id-UL-DPCH-LCR-InformationItem-RL-AdditionRspTDD                         ProtocolIE-ID ::= 88
id-DL-CCTrCH-LCR-InformationListIE-RL-AdditionRspTDD                     ProtocolIE-ID ::= 89
id-DL-DPCH-LCR-InformationItem-RL-AdditionRspTDD                         ProtocolIE-ID ::= 94
id-DSCH-LCR-InformationListIEs-RL-AdditionRspTDD                         ProtocolIE-ID ::= 96
id-USCH-LCR-InformationListIEs-RL-AdditionRspTDD                         ProtocolIE-ID ::= 97
id-UL-DPCH-LCR-InformationAddListIE-RL-ReconfReadyTDD                    ProtocolIE-ID ::= 98
id-UL-Timeslot-LCR-InformationModifyList-RL-ReconfReadyTDD               ProtocolIE-ID ::= 100
id-DL-DPCH-LCR-InformationAddListIE-RL-ReconfReadyTDD                    ProtocolIE-ID ::= 101
id-DL-Timeslot-LCR-InformationModifyList-RL-ReconfReadyTDD               ProtocolIE-ID ::= 104
id-UL-Timeslot-LCR-InformationList-PhyChReconfRqstTDD                    ProtocolIE-ID ::= 105
id-DL-Timeslot-LCR-InformationList-PhyChReconfRqstTDD                    ProtocolIE-ID ::= 106
id-timeSlot-ISCP-LCR-List-DL-PC-Rqst-TDD                                 ProtocolIE-ID ::= 138
id-TSTD-Support-Indicator-RL-SetupRqstTDD                                ProtocolIE-ID ::= 139
id-RestrictionStateIndicator                                             ProtocolIE-ID ::= 142
id-Load-Value                                                            ProtocolIE-ID ::= 233
id-Load-Value-IncrDecrThres                                              ProtocolIE-ID ::= 234
id-OnModification                                                        ProtocolIE-ID ::= 235
id-Received-Total-Wideband-Power-Value                                   ProtocolIE-ID ::= 236
id-Received-Total-Wideband-Power-Value-IncrDecrThres                     ProtocolIE-ID ::= 237
id-SFNSFNMeasurementThresholdInformation                                 ProtocolIE-ID ::= 238
id-Transmitted-Carrier-Power-Value                                       ProtocolIE-ID ::= 239
id-Transmitted-Carrier-Power-Value-IncrDecrThres                         ProtocolIE-ID ::= 240
id-TUTRANGPSMeasurementThresholdInformation                              ProtocolIE-ID ::= 241
id-UL-Timeslot-ISCP-Value                                                ProtocolIE-ID ::= 242
id-UL-Timeslot-ISCP-Value-IncrDecrThres                                  ProtocolIE-ID ::= 243
id-Rx-Timing-Deviation-Value-LCR                                         ProtocolIE-ID ::= 293
id-DPC-Mode-Change-SupportIndicator                                      ProtocolIE-ID ::= 19
id-SplitType                                                             ProtocolIE-ID ::= 247
id-LengthOfTFCI2                                                         ProtocolIE-ID ::= 295
id-PrimaryCCPCH-RSCP-RL-ReconfPrepTDD                                    ProtocolIE-ID ::= 202
id-DL-TimeSlot-ISCP-Info-RL-ReconfPrepTDD                                ProtocolIE-ID ::= 203
id-DL-Timeslot-ISCP-LCR-Information-RL-ReconfPrepTDD                     ProtocolIE-ID ::= 204
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id-DL-PowerBalancing-Information                                         ProtocolIE-ID ::= 296
id-DL-PowerBalancing-ActivationIndicator                                 ProtocolIE-ID ::= 297
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id-DelayedActivationList-RL-ActivationCmdFDD                             ProtocolIE-ID ::= 313
id-DelayedActivationInformation-RL-ActivationCmdFDD                      ProtocolIE-ID ::= 314
id-DelayedActivationList-RL-ActivationCmdTDD                             ProtocolIE-ID ::= 315
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id-DelayedActivationInformation-RL-ActivationCmdTDD                          ProtocolIE-ID ::= 316
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id-UL-SIR-Target-CCTrCH-InformationItem-RL-SetupRspTDD                       ProtocolIE-ID ::= 150
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id-HSDSCH-FDD-Information                                                    ProtocolIE-ID ::= 452
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id-HSDSCHMacdFlowSpecificInformationList-RL-PreemptRequiredInd               ProtocolIE-ID ::= 516
id-HSDSCHMacdFlowSpecificInformationItem-RL-PreemptRequiredInd               ProtocolIE-ID ::= 517
id-HSDSCH-RNTI                                                               ProtocolIE-ID ::= 457
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id-HSDSCH-TDD-Information-Response                                           ProtocolIE-ID ::= 459
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id-MAChs-ResetIndicator                                                      ProtocolIE-ID ::= 465
id-TDD-DL-DPCH-TimeSlotFormatModifyItem-LCR-RL-ReconfReadyTDD                ProtocolIE-ID ::= 481
id-TDD-UL-DPCH-TimeSlotFormatModifyItem-LCR-RL-ReconfReadyTDD                ProtocolIE-ID ::= 482
id-TDD-TPC-UplinkStepSize-LCR-RL-SetupRqstTDD                                ProtocolIE-ID ::= 483
id-UL-CCTrCH-InformationList-RL-AdditionRqstTDD                              ProtocolIE-ID ::= 484
id-UL-CCTrCH-InformationItem-RL-AdditionRqstTDD                              ProtocolIE-ID ::= 485
id-DL-CCTrCH-InformationList-RL-AdditionRqstTDD                              ProtocolIE-ID ::= 486
id-DL-CCTrCH-InformationItem-RL-AdditionRqstTDD                              ProtocolIE-ID ::= 487
id-TDD-TPC-UplinkStepSize-InformationAdd-LCR-RL-ReconfPrepTDD                ProtocolIE-ID ::= 488
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id-TDD-TPC-DownlinkStepSize-InformationAdd-RL-ReconfPrepTDD                  ProtocolIE-ID ::= 490
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id-DL-DPCH-InformationModifyItem-LCR-RL-ReconfRspTDD                         ProtocolIE-ID ::= 509
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id-Phase-Reference-Update-Indicator                                          ProtocolIE-ID ::= 525
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id-RL-Information-RL-ReconfPrepTDD                                           ProtocolIE-ID ::= 527
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END
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3GPP TSG RAN WG3 Meeting #46 R3-050284
Scottsdale, USA, 14 - 18 February 2005

CR-Form-v7

CHANGE REQUEST

⌘ 25.931 CR 25 ⌘rev 1 ⌘ Current version: 6.0.0 ⌘

*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 X Core Network X

Title:	⌘	Introduction of MBMS scenarios
Source:	⌘	RAN3
Work item code:	⌘	MBMS-RAN
Date:	⌘	09/02/2005
Category:	⌘	B
Release:	⌘	Rel-6

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:	⌘	Include MBMS scenarios.
Summary of change:	⌘	R1: Updated channel type indication as piggybacked in RNSAP messages Updated other parameter list. R0: Added MBMS signalling examples. Added MBMS signalling examples. Impact assessment towards the previous version of the specification (same release): There is no impact due to MBMS being a new feature.
Consequences if not approved:	⌘	MBMS signalling examples will not be covered.

Clauses affected:	⌘	2, 3.2, 4.2, 4.4, 4.7, 7.xx (new)

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		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.

Foreword

This Technical Report (TR) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document describes the UTRAN functions by means of signalling procedure examples (Message Sequence Charts). The signalling procedure examples show the interaction between the UE, the different UTRAN nodes and the CN to perform system functions. This gives an overall understanding of how the UTRAN works in example scenarios.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] TR 25.990: "Vocabulary".

[2] TS 25.401: "UTRAN Overall Description".

[3] TS 25.413: "UTRAN Iu Interface RANAP Signalling".

[4] TS 25.423: "UTRAN Iur Interface RNSAP Signalling".

[5] TS 25.433: "UTRAN Iub Interface NBAP Signalling".

[6] TR 25.832: "Manifestations of Handover and SRNS Relocation".

[7] TS 25.301: "Radio Interface Protocol Architecture".

[8] TS 25.331: "RRC Protocol Specification".

[9] TS 25.419: "UTRAN Iu Interface: Service Area Broadcast Protocol SABP".

[10] TS 25.324: "Radio Interface for Broadcast/Multicast Services".

[11] TR 25.925: "Radio Interface for Broadcast/Multicast Services".

[12] TS 23.041: "Technical realisation of Cell Broadcast Service (CBS)".

[13] TS 25.425: "UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams".

[14] TS 25.435: "UTRAN Iub Interface User Plane Protocols for Common Transport Channel Data Streams".

[15] TS 25.427: "UTRAN Iub/Iur Interface User Plane Protocol for DCH Data Streams".

[x] TS 25.346: "Introduction of the Multimedia Broadcast Multicast Service".

3 Definitions, abbreviations and notation

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1], [2] and [4] apply.

3.2 Abbreviations

For the purposes of the present document the following abbreviations apply:

NOTE: More extensive abbreviations on UMTS are provided in [1].

AAL2	ATM Adaptation Layer type 2
ACK	Acknowledgement
AICH	Acquisition Indicator Channel
ALCAP	Access Link Control Application Part
AM	Acknowledged Mode
APN	Access Point Name
AS	Access Stratum
ATM	Asynchronous Transfer Mode
BCCH	Broadcast Control Channel
BCFE	Broadcast Control Functional Entity
BER	Bit Error Rate
BLER	Block Error Rate
BMC	Broadcast/Multicast Control
BSS	Base Station Sub-system
BSSMAP	Base Station System Management Application Part
CCCH	Common Control Channel
CCPCH	Common Control Physical Channel
CFN	Connection Frame Number
CM	Connection Management
CN	Core Network
CPCH	Common Packet CHannel
CPICH	Common Pilot Channel
CRNC	Controlling RNC
C-RNTI	Cell RNTI
CS	Circuit Switched
DCA	Dynamic Channel Allocation
DCCH	Dedicated Control Channel
DCFE	Dedicated Control Functional Entity
DCH	Dedicated Channel
DC-SAP	Dedicated Control-SAP
DL	Downlink
DPCCH	Dedicated Physical Control Channel
DPCH	Dedicated Physical Channel
DRAC	Dynamic Resource Allocation Control
DRNC	Drift RNC
DRNS	Drift RNS
DRX	Discontinuous Reception
DSCH	Downlink Shared Channel
DTCH	Dedicated Traffic Channel
EP	Elementary Procedure
FACH	Forward Access Channel
FAUSCH	Fast Uplink Signalling Channel
FDD	Frequency Division Duplex
FFS	For Further Study
FN	Frame Number
FP	Frame Protocol
HS-DSCH	High Speed Downlink Shared Channel
HS-PDSCH	High Speed Physical Downlink Shared Channel
HS-SCCH	High Speed Shared Control Channel
ID	Identifier
IE	Information Element
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
ISCP	Interference on Signal Code Power
L1	Layer 1

L2	Layer 2
L3	Layer 3
LAI	Location Area Identity
MAC	Medium Access Control
MAC-hs	Medium Access Control for HS-DSCH
MBMS	Multimedia Broadcast Multicast Service
MCC	Mobile Country Code
MCCH	Multicast Control Channel
MM	Mobility Management
MNC	Mobile Network Code
MS	Mobile Station
MSC	Mobile services Switching Center
NAS	Non Access Stratum
NBAP	Node B Application Protocol
Nt-SAP	Notification SAP
NW	Network
O	Optional
ODMA	Opportunity Driven Multiple Access
PCCH	Paging Control Channel
PCH	Paging Channel
PDCP	Packet Data Convergence Protocol
PDSCH	Physical Downlink Shared Channel
PDU	Protocol Data Unit
PLMN	Public Land Mobile Network
PNFE	Paging and Notification control Functional Entity
PRACH	Physical Random Access CHannel
PS	Packet Switched
PSCH	Physical Synchronisation Channel
P-T-M	Point To Multipoint
P-TMSI	Packet Temporary Mobile Subscriber Identity
P-T-P	Point To Point
PUSCH	Physical Uplink Shared Channel
QoS	Quality of Service
RAB	Radio Access Bearer
RACH	Random Access CHannel
RAI	Routing Area Identity
RANAP	Radio Access Network Application Part
RB	Radio Bearer
RFE	Routing Functional Entity
RL	Radio Link
RLC	Radio Link Control
RNC	Radio Network Controller
RNS	Radio Network Subsystem
RNSAP	Radio Network Subsystem Application Part
RNTI	Radio Network Temporary Identifier
RRC	Radio Resource Control
RSCP	Received Signal Code Power
RSSI	Received Signal Strength Indicator
SAI	Service Area Identifier
SAP	Service Access Point
SCCP	Signalling Connection Control Part
SCFE	Shared Control Function Entity
SF	Spreading Factor
SFN	System Frame Number
SGSN	Serving GPRS Support Node
SHCCH	Shared Control Channel
SIR	Signal to Interference Ratio
SRNC	Serving RNC
SRNS	Serving RNS
S-RNTI	SRNC - RNTI
SSDT	Site Selection Diversity Transmission
TDD	Time Division Duplex

TEID	Tunnel Endpoint Identifier
TF	Transport Format
TFCI	Transport Format Combination Indicator
TFCS	Transport Format Combination Set
TFS	Transport Format Set
TME	Transfer Mode Entity
TMGI	Temporary Multicast Group Identifier
TMSI	Temporary Mobile Subscriber Identity
Tr	Transparent
Tx	Transmission
UARFCN	UMTS Absolute Radio Frequency Channel Number
UE	User Equipment
UL	Uplink
UM	Unacknowledged Mode
UMTS	Universal Mobile Telecommunication System
UNACK	Unacknowledgement
URA	UTRAN Registration Area
U-RNTI	UTRAN-RNTI
USCH	Uplink Shared Channel
UTRAN	UMTS Terrestrial Radio Access Network

3.3 Notation for the signalling procedures

Complex signalling procedures may involve several protocols in different nodes.

In order to facilitate the understanding of these procedures, the following rules in the drawing of Message Sequence Chart (MSC) are applied:

- Messages are always exchanged between nodes, i.e. the sender and the receiver of a message are nodes and not single protocol entities;
- The protocol entity inside a node that is sending/receiving a message is represented by means of an ellipse, containing the protocol entity name;
- Each message is numbered, so that a numbered list with explanations can be added below the figure;
- Message parameters may be specified as shown in Figure 1 only when required for a clear understanding of the procedures;
- Explicit signalling is represented by means of continuos arrows;
- Inband signalling is represented by means of dotted arrows;
- A description of the relevant actions may be included as shown in Figure 1;
- The Setup and Release of Iub/Iur and Iu Data Transport Bearer with the ALCAP protocol is represented as shown in Figure 1;
- The transport channel used by the MAC protocol or the logical channel used by the RLC and RRC protocols may be indicated before the message name as shown in figure 1

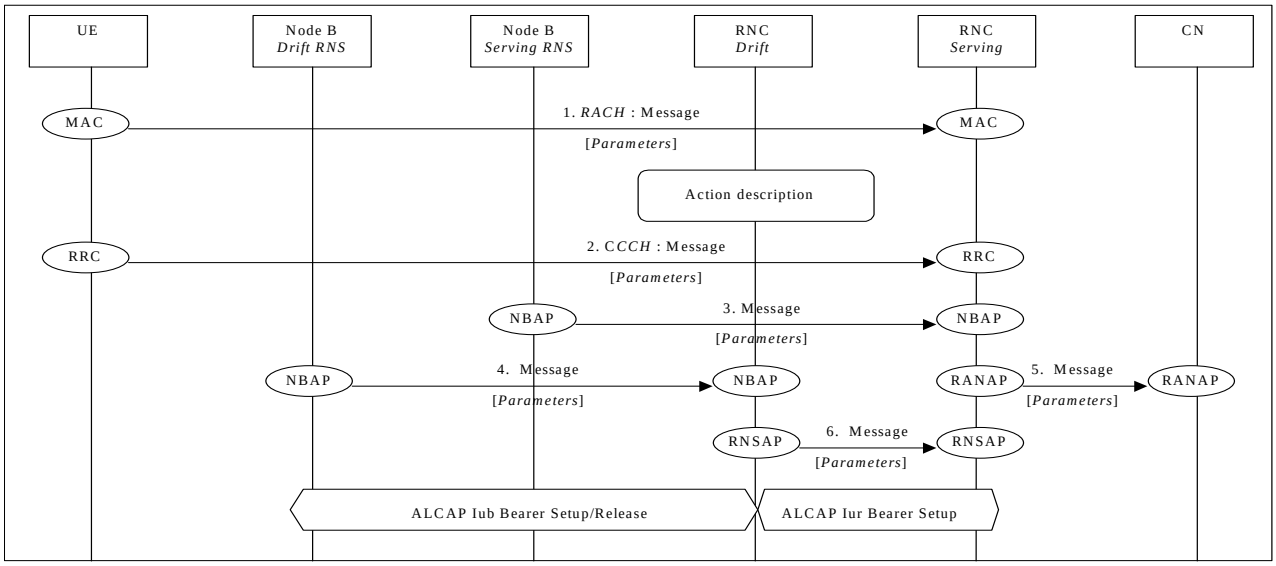

Figure 1: Example of signalling procedure notation

4 UTRAN and UE protocol Architecture

4.1 Protocol Architecture

For a detailed description of the Protocol Architecture and the Radio Protocol Architecture for the UTRAN and the UE refer to [2] and [7] respectively.

4.2 RANAP Procedures & Messages

For a detailed description of RANAP procedures and messages refer to [3]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 1

Message Name	UTRAN Procedure	Direction
Direct Transfer	Uplink Direct Transfer Downlink Direct Transfer	RNC ⇒ CN CN ⇒ RNC
Initial UE Message	NAS Signalling Connection Establishment	RNC ⇒ CN
Iu Release Command	RRC Connection Release Hard HO with switching in the CN SRNS Relocation UTRAN ⇒ GSM/BSS handover	CN ⇒ RNC CN ⇒ RNC CN ⇒ RNC CN ⇒ RNC
Iu Release Complete	RRC Connection Release Hard HO with switching in the CN SRNS Relocation UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
Paging	Paging for a UE in RRC Idle Mode Paging for a UE in RRC Connected Mode	CN ⇒ RNC CN ⇒ RNC
Radio Access Bearer Assignment Request	Radio Access Bearer Establishment Radio Access Bearer Release Radio Access Bearer Modification	CN ⇒ RNC CN ⇒ RNC CN ⇒ RNC
Radio Access Bearer Assignment Response	Radio Access Bearer Establishment Radio Access Bearer Release Radio Access Bearer Modification	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
Relocation Command	Hard HO with switching in the CN SRNS Relocation UTRAN ⇒ GSM/BSS handover	CN ⇒ RNC CN ⇒ RNC CN ⇒ RNC
Relocation Complete	Hard HO with switching in the CN SRNS Relocation GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
Relocation Detect	Hard HO with switching in the CN SRNS Relocation GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
Relocation Failure	SRNS Relocation	RNC ⇒ CN
Relocation Request	Hard HO with switching in the CN SRNS Relocation GSM/BSS handover ⇒ UTRAN	CN ⇒ RNC CN ⇒ RNC CN ⇒ RNC
Relocation Request Acknowledge	Hard HO with switching in the CN SRNS Relocation GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
Relocation Required	Hard HO with switching in the CN SRNS Relocation UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN RNC ⇒ CN RNC ⇒ CN
RAB Release Request	RRC Connection Establishment	RNC ⇒ CN
MBMS Session Start	MBMS Session Start and RAB Establishment MBMS Session Start and RAB Release	CN ⇒ RNC CN ⇒ RNC
MBMS Session Start Response	MBMS Session Start and RAB Establishment MBMS Session Start and RAB Release	RNC ⇒ CN RNC ⇒ CN
MBMS Session Update	MBMS Update RA list and RAB establishment	CN ⇒ RNC
MBMS Session Update Response	MBMS Update RA list and RAB establishment	RNC ⇒ CN
MBMS Session Stop	MBMS Session end MBMS service termination	CN ⇒ RNC CN ⇒ RNC
MBMS Session Stop Response	MBMS Session end MBMS service termination	RNC ⇒ CN RNC ⇒ CN
MBMS UE linking Request	MBMS UE linking MBMS UE De-linking	CN ⇒ RNC CN ⇒ RNC
MBMS UE linking Response	MBMS UE linking MBMS UE De-linking	RNC ⇒ CN RNC ⇒ CN
MBMS Registration Request	MBMS RAN Registration MBMS RAN De-registration	RNC ⇒ CN RNC ⇒ CN
MBMS Registration Response	MBMS RAN Registration MBMS RAN De-registration	CN ⇒ RNC CN ⇒ RNC
CN MBMS DeRegistration Request	MBMS Service termination	CN ⇒ RNC
CN MBMS Registration Response	MBMS Service termination	RNC ⇒ CN

Message Name	UTRAN Procedure	Direction
Uplink Information Exchange Request	Trace Information UE linking MBMS Multicast IP address and APN enquiry	RNC ⇒ CN RNC ⇒ CN
Uplink Information Exchange Response	Trace Information UE linking MBMS Multicast IP address and APN enquiry	CN ⇒ RNC CN ⇒ RNC
MBMS RAB establishment Indication	MBMS RAB establishment	RNC ⇒ CN

4.3 SABP Procedures & Messages

For a detailed description of SABP procedures and messages refer to [9]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 2

Message Name	UTRAN Procedure	Direction
Write-replace	Service Area Broadcast	CN ⇒ RNC
Write-replace Complete	Service Area Broadcast	RNC ⇒ CN
Write-Replace Failure	Service Area Broadcast	RNC ⇒ CN

4.4 RNSAP Procedures & Messages

For a detailed description of RNSAP procedures and messages refer to [4]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 3

Message Name	UTRAN Procedure	Direction
Common Transport Channel Resources Release	Cell Update	SRNC ⇒ DRNC
Common Transport Channel Resources Initialisation Request	Cell Update MBMS UE linking/De-linking	SRNC ⇒ DRNC SRNC ⇒ DRNC
Common Transport Channel Resources Initialisation Response	Cell Update MBMS Channel Type Indication	DRNC ⇒ SRNC
DL Power Control Request	Downlink Power Control	SRNC ⇒ DRNC
Downlink Signalling Transfer Request	RRC Connection Re-establishment URA Update MBMS UE linking/De-linking MBMS URA linking/De-linking	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Deletion Request	RRC Connection Re-establishment Soft Handover Hard Handover	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Deletion Response	RRC Connection Re-establishment Soft Handover Hard Handover	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Radio Link Failure Indication	Hard Handover	DRNC ⇒ SRNC
Radio Link Reconfiguration Request	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Reconfiguration Commit	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Reconfiguration Prepare	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Reconfiguration Ready	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Radio Link Reconfiguration Response	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Radio Link Restore Indication	Soft Handover Hard Handover Channel and Mobile State Switching on Iur	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Radio Link Setup Request	RRC Connection Re-establishment Hard Handover USCH/DSCH Configuration and Capacity Allocation [TDD] MBMS UE Linking/De-linking	SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC
Radio Link Setup Response	RRC Connection Re-establishment Hard Handover USCH/DSCH Configuration and Capacity Allocation [TDD] MBMS Channel Type Indication	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Relocation Commit	SRNS Relocation URA Update	Source RNC ⇒ Target RNC
Uplink Signalling Transfer Indication	RRC Connection Re-establishment URA Update MBMS Channel Type Indication	DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC
Information Exchange Initiation Request	MBMS IP Multicast address and APN enquiry	DRNC ⇒ SRNC
Information Exchange Initiation	MBMS IP Multicast address and APN enquiry	SRNC ⇒ DRNC

Message Name	UTRAN Procedure	Direction
Response		
MBMS Attach Command	MBMS UE linking MBMS URA linking	SRNC ⇒ DRNC SRNC ⇒ DRNC
MBMS Detach Command	MBMS UE De-linking MBMS URA De-linking	SRNC ⇒ DRNC SRNC ⇒ DRNC
MBMS Channel Type Reconfiguration Indication	MBMS Channel Type Indication	DRNC ⇒ SRNC

4.5 NBAP Procedures & Messages

For a detailed description of NBAP procedures and messages refer to [5]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 4

Message Name	UTRAN Procedure	Direction
DL Power Control Request	Downlink Power Control	RNC ⇒ Node B
Physical Shared Channel Reconfiguration Request	USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ Node B
Physical Shared Channel Reconfiguration Response	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node B ⇒ RNC
Radio Link Deletion	RRC Connection Release RRC Connection Re-establishment Hard Handover Soft Handover	RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B
Radio Link Deletion Response	RRC Connection Release RRC Connection Re-establishment Hard Handover Soft Handover	Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC
Radio Link Failure Indication	Hard Handover	Node B ⇒ RNC
Radio Link Reconfiguration Commit	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B
Radio Link Reconfiguration Prepare	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B
Radio Link Reconfiguration Ready	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration Radio Access Bearer Modification	Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC
Radio Link Reconfiguration Request	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration	RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B
Radio Link Reconfiguration Response	Radio Access Bearer Establishment Radio Access Bearer Release Physical Channel Reconfiguration Transport Channel Reconfiguration	Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC
Radio Link Restore Indication	RRC Connection Establishment RRC Connection Re-establishment Soft Handover Hard Handover Channel and Mobile State Switching on Iur	Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC
Radio Link Setup Request	RRC Connection Establishment RRC Connection Re-establishment Hard Handover Soft Handover USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B RNC ⇒ Node B
Radio Link Setup Response	RRC Connection Establishment RRC Connection Re-establishment Hard Handover Soft Handover USCH/DSCH Configuration and Capacity Allocation [TDD]	Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC Node B ⇒ RNC
System Information Update Request	System Information Broadcasting Service Area Broadcast	RNC ⇒ Node B RNC ⇒ Node B
System Information Update Response	System Information Broadcasting Service Area Broadcast	Node B ⇒ RNC Node B ⇒ RNC
Radio Link Preemption Required Indication	RRC Connection Establishment	Node B ⇒ RNC
MBMS Notification Update	MBMS Notification	RNC ⇒ Node B

4.6 ALCAP

ALCAP is a generic name to indicate the protocol(s) used to establish data transport bearers on the Iu, Iur and Iub interfaces. Q.2630.2 (Q AAL2) is one of the selected protocols to be used as ALCAP. Q.2630.2 adds new optional capabilities to Q.2630.1.

The following should be noted:

- data transport bearers may be dynamically established using ALCAP or preconfigured;
- transport bearers may be established before or after allocation of radio resources.

4.6.1 Q2630.2 (Q.AAL 2)

The following figure is showing an example of use of Q.2630.2 in the UTRAN context, for the different interfaces.

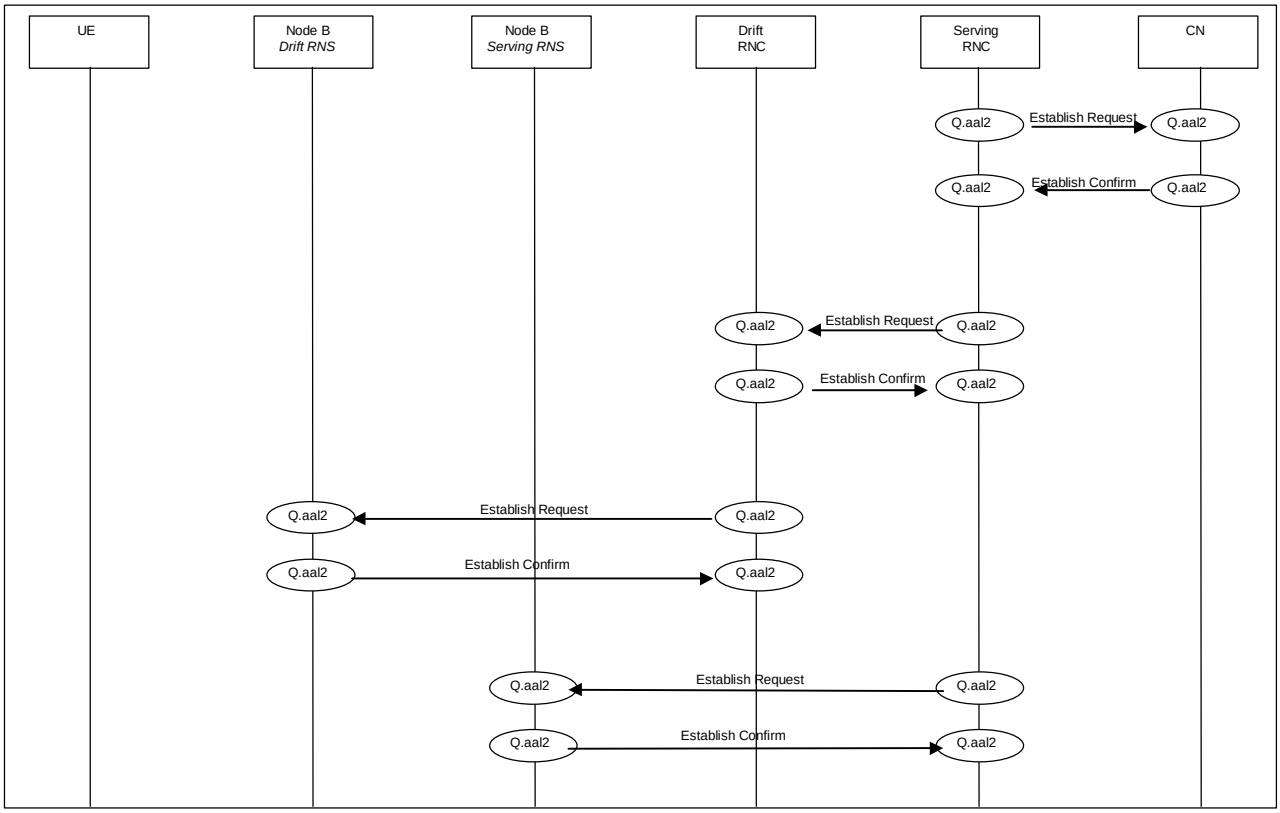

Figure 2: Example on Q.2630.2

4.7 RRC Procedures & Messages

For a detailed description of RRC procedures and messages refer to [8]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 5

Message Name	UTRAN Procedure	Direction
Active Set Update	Soft Handover	RNC ⇒ UE
Active Set Update Complete	Soft Handover	UE ⇒ RNC
Cell Update	RRC Connection Re-establishment Cell Update	UE ⇒ RNC UE ⇒ RNC
Cell Update Confirm	RRC Connection Re-establishment Cell Update	RNC ⇒ UE RNC ⇒ UE
Direct Transfer	NAS Signalling Conn. Establishment	UE ⇔ RNC
Downlink Direct Transfer	Downlink Direct Transfer	RNC ⇒ UE
Initial Direct Transfer	NAS Signalling Connection Establishment	UE ⇒ RNC
Measurement Control	Downlink Power Control	RNC ⇒ UE
Measurement Report	Downlink Power Control	UE ⇒ RNC
Paging Type 1	Paging for a UE in RRC Idle Mode and RRC connected mode (CELL_PCH and URA_PCH states)Paging for a UE in RRC Connected Mode	RNC ⇒ UE
Paging Type 2	Paging for a UE in RRC Connected Mode (CELL_DCH and CELL_FACH states)	RNC ⇒ UE
Physical Channel Reconfiguration	Physical Channel Reconfiguration Hard Handover	RNC ⇒ UE RNC ⇒ UE
Physical Channel Reconfiguration Allocation	USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ UE
Physical Channel Reconfiguration Complete	Physical Channel Reconfiguration Hard Handover	UE ⇒ RNC UE ⇒ RNC
PUSCH Capacity Request	USCH/DSCH Configuration and Capacity Allocation [TDD]	UE ⇒ RNC
RB Reconfiguration	USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ UE
RB Reconfiguration Complete	USCH/DSCH Configuration and Capacity Allocation [TDD]	UE ⇒ RNC
RB Release	Radio Access Bearer Release	RNC ⇒ UE
RB Release Complete	Radio Access Bearer Release	UE ⇒ RNC
RB Setup	Radio Access Bearer Establishment	RNC ⇒ UE
RB Setup Complete	Radio Access Bearer Establishment	UE ⇒ RNC
RRC Connection Release	RRC Connection Release	RNC ⇒ UE
RRC Connection Release Complete	RRC Connection Release	UE ⇒ RNC
RRC Connection Request	RRC Connection Establishment.	UE ⇒ RNC
RRC Connection Setup	RRC Connection Establishment	RNC ⇒ UE
RRC Connection Setup Complete	RRC Connection Establishment	UE ⇒ RNC
System Information	System Information Broadcasting	Node B ⇒ UE
Transport Channel Reconfiguration	Physical Channel Reconfiguration	RNC ⇒ UE
Transport Channel Reconfiguration Complete	Physical Channel Reconfiguration	UE ⇒ RNC
UE Capability Information	NAS Signalling Conn. Establishment.	UE ⇒ RNC
Uplink Direct Transfer	Uplink Direct Transfer	UE ⇒ RNC
URA Update	Cell Update	UE ⇒ RNC
URA Update Confirm	Cell Update	RNC ⇒ UE
UTRAN Mobility Information Confirm	RRC Connection Re-establishment Cell Update URA Update	UE ⇒ RNC UE ⇒ RNC UE ⇒ RNC
Handover from UTRAN Command	UTRAN to GSM/BSS handover	RNC ⇒ UE
Handover to UTRAN Complete	GSM /BSS to UTRAN handover	UE ⇒ RNC
Cell Change Order from UTRAN	UMTS to GPRS Cell Reselection	RNC ⇒ UE
MBMS Modified Services Info	MBMS Notification (MCCH) MBMS Notification (DCCH)	RNC ⇒ UE
MBMS Unmodified Services Info	MBMS Notification	RNC ⇒ UE
MBMS Access Info	MBMS counting	RNC ⇒ UE
MBMS Common P-T-M RB info	MBMS P-T-M RB establishment	RNC ⇒ UE
MBMS Current Cell P-T-M RB Info	MBMS P-T-M RB establishment	RNC ⇒ UE
MBMS Neighbouring cell P-T-M RB Info	MBMS P-T-M RB establishment	RNC ⇒ UE
MBMS Modification Request	UE MBMS prioritisation	UE ⇒ RNC

4.8 BMC Procedures & Messages

For a detailed description of BMC procedures and messages refer to [11] and [12]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 6

Message Name	UTRAN Procedure	Direction
CBS Message	Service Area Broadcast	Node B ⇒ UE

4.9 DCH Frame Protocol Messages

For a detailed description of DCH Frame protocol messages refer to [15]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 7

Message Name	UTRAN Procedure	Direction
Downlink Synchronisation	RRC Connection Establishment Radio Access Bearer Establishment Soft Handover	SRNC ⇒ Node B SRNC ⇒ Node B SRNC ⇒ Node B
Uplink Synchronisation	RRC Connection Establishment Radio Access Bearer Establishment Soft Handover	Node B ⇒ SRNC Node B ⇒ SRNC Node B ⇒ SRNC

4.10 DSCH Frame Protocol Messages

For a detailed description of DSCH Frame protocol messages refer to [13]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 8

Message Name	UTRAN Procedure	Direction
DSCH Capacity Allocation	USCH/DSCH Configuration and Capacity Allocation [TDD]	DRNC ⇒ SRNC
DSCH Capacity Request	USCH/DSCH Configuration and Capacity Allocation [TDD]	SRNC ⇒ DRNC

4.11 USCH Frame Protocol Messages

For a detailed description of DSCH Frame protocol messages refer to [14]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 9

Message Name	UTRAN Procedure	Direction
Dynamic PUSCH Assign	USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ Node B

5 UTRAN Signalling Procedures

The signalling procedures shown in the following sections do not represent the complete set of possibilities, nor do they mandate this kind of operation. The standard will specify a set of elementary procedures for each interface, which may

be combined in different ways in an implementation. Therefore these sequences are merely examples of a typical implementation.

The list of parameters is not be complete, but should only be seen as help for the understanding of the examples.

6 Procedures not related to a specific UE (global procedures)

This clause presents some signalling procedures not related to a specific UE.

6.1 System Information Broadcasting

This example shows an example of System Information broadcasting.

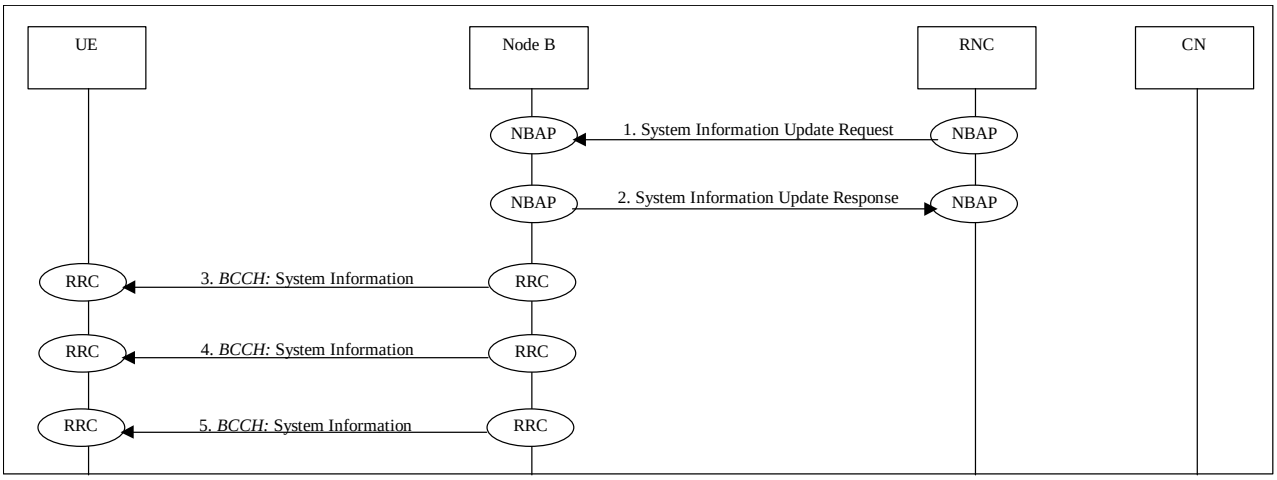

Figure 3: System Information Broadcasting

1. The RNC forwards the request to the pertinent node(s) B for via NBAP message **System Information Update Request**.
   Parameters: Master/Segment Information Block(s) (System information to be broadcasted), BCCH modification time.

2. The Node B confirms the ability to broadcast the information sending **System Information Update Response** message to the RNC via NBAP. (If the Node B can not Broadcast the information as requested, System Information Update Failure is return to the RNC).

3./4./5.The information is broadcasted on the air interface by RRC message **System Information**.
   Parameters: Master/Segment Information Block(s) (System information).

6.2 Service Area Broadcast

This example shows an example of broadcasting of Cell Information. UTRAN transports this broadcast information transparently.

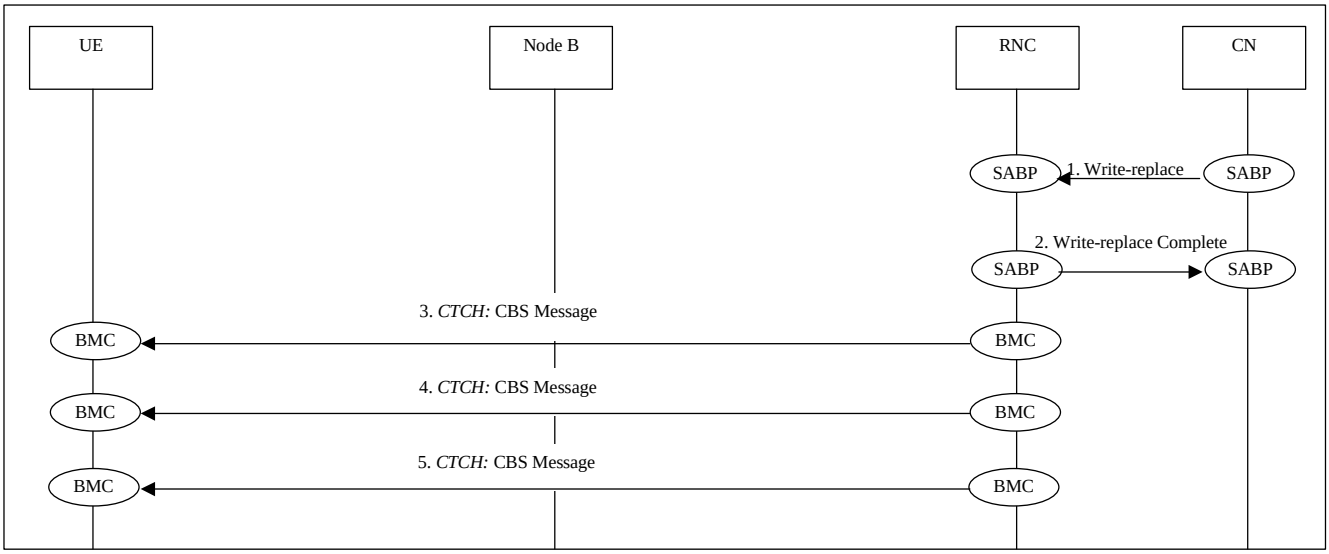

Figure 4: Service Area Broadcast

1. The CN asks the RNC for an information Broadcast via SABP message **Write-replace**.
   Parameters: Broadcast-Message-Content, Service-Area-List.

2. The RNC confirm the ability to broadcast the information sending **Write-Replace Complete** message to the CN via SABP. (If the RNC can not Broadcast the information as requested, Write-replace Failure message is return to the CN).

3./4./5. The information is broadcasted on the air interface by BMC message **CBS Message**. carried over CTCH channel.
   Parameters: Message ID, CB Data.

Note that the Node B is transparent to this messaging because (as mentioned in [10],[11] and [12]) the BMC protocol is terminated in RNC (see also [7])..

7.xx MBMS Specific Procedures

7.xx.1 MBMS Service Activation

The following scenario gives an example message flow for UE joining an MBMS service. The example chosen is the one where the UE is in DRNC in state Cell-DCH receiving possible other services. This is the first UE joining the MBMS service in SRNC and DRNC.

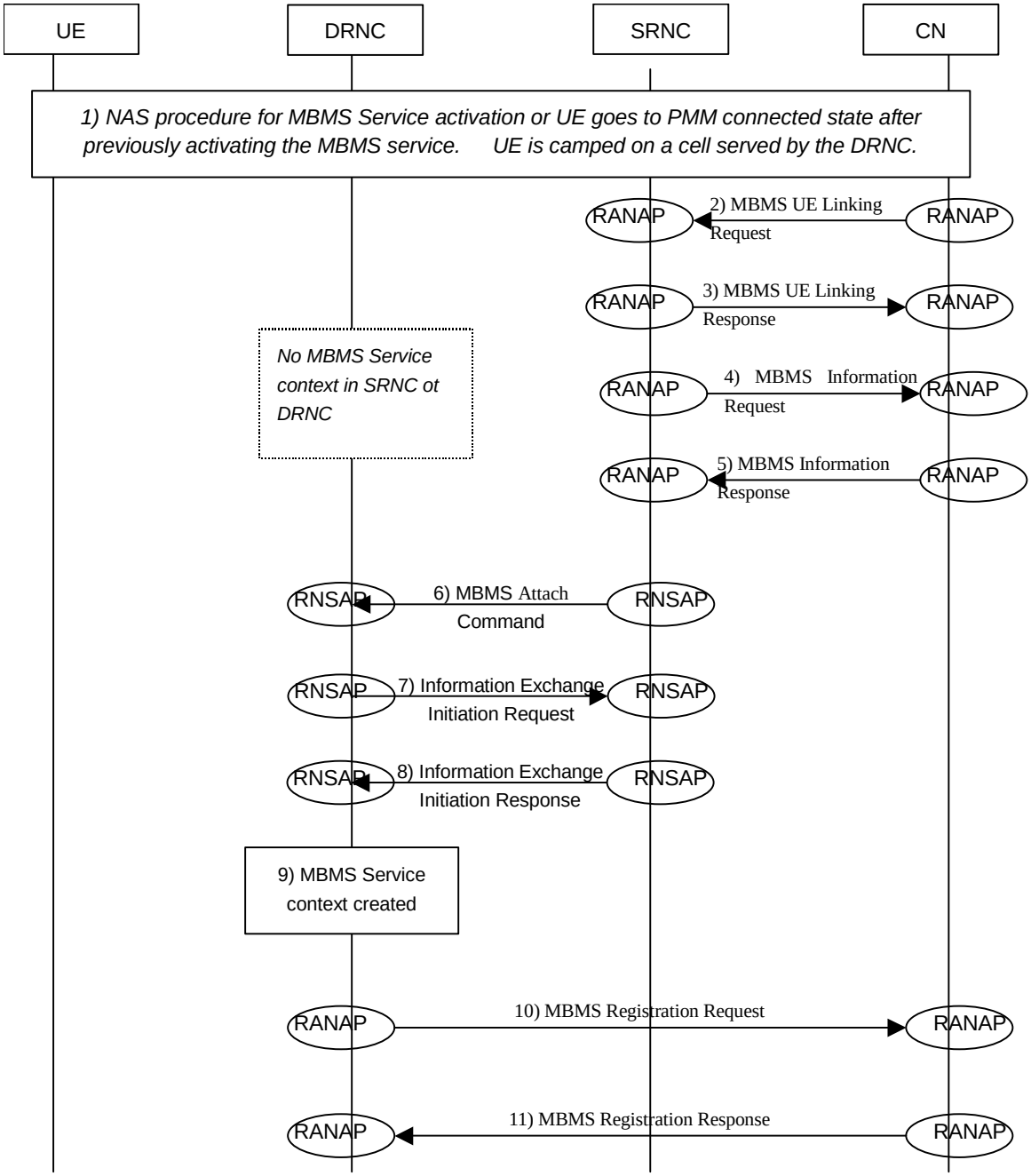

Figure f1: MBMS Service Activation

1. UE performs NAS procedure for MBMS Service Activation or having activated the service previously goes into PMM connected state. UE is in a cell in the DRNC. There is no MBMS context for this service in the DRNC.

2. The Core Network initiates the MBMS UE Linking procedure by sending RANAP **MBMS UE Linking Request** message to provide the SRNC with the list of MBMS Service Ids activated by this UE.
Parameters: TMGIs, PTP RB id

3. RNC sends an RANAP **MBMS UE Linking Response** message to Core Network after RNC updates the MBMS Service Context.

4. As the SRNC has no MBMS context for this service, it does not know the IP Multicast address or APN for this service. The SRNC request these from the SGSN using the connectionless RANAP **Uplink Information Exchange Request** message.
Parameters: TMGI.

5. SGSN responds with RANAP **Uplink Information Exchange Response** message.
   Parameters: TMGI, IP Multicast Address and APN.

6. UE linking in the DRNC is performed using the RNSAP **MBMS Attach Command** message over the Iur interface.
   Parameters: TMGIs

7. As the DRNC has no MBMS context for this service, it does not know the IP Multicast Address and APN for this service. The DRNC request these from the SRNC using the connectionless RNSAP **Information Exchange Initiation Request** message.
   Parameters: MBMS Bearer Service List

8. SRNC responds with RNSAP **Information Exchange Initiation Response** message
   Parameters: TMGI, IP Multicast Address and APN

9. An MBMS Service Context for the service is created in the DRNC.

10. The DRNC informs the Core Network that it would like to receive MBMS Session Start Request messages by sending an RANAP **MBMS Registration Request** message.
    Parameters: Registration Request type, TMGI, IP Multicast Address, APN, Global RNC id.

11. Core Network replies with an RANAP **MBMS Registration Response** message.

7.xx.2 MBMS Session Start

The following is an example scenario for an MBMS Session Start. The RNC decides to perform counting and offer the service over PTM bearer. The UE is receiving a lower priority MBMS service over a PTP bearer. The UE capability does not allow reception of PTP and PTM bearers simultaneously.

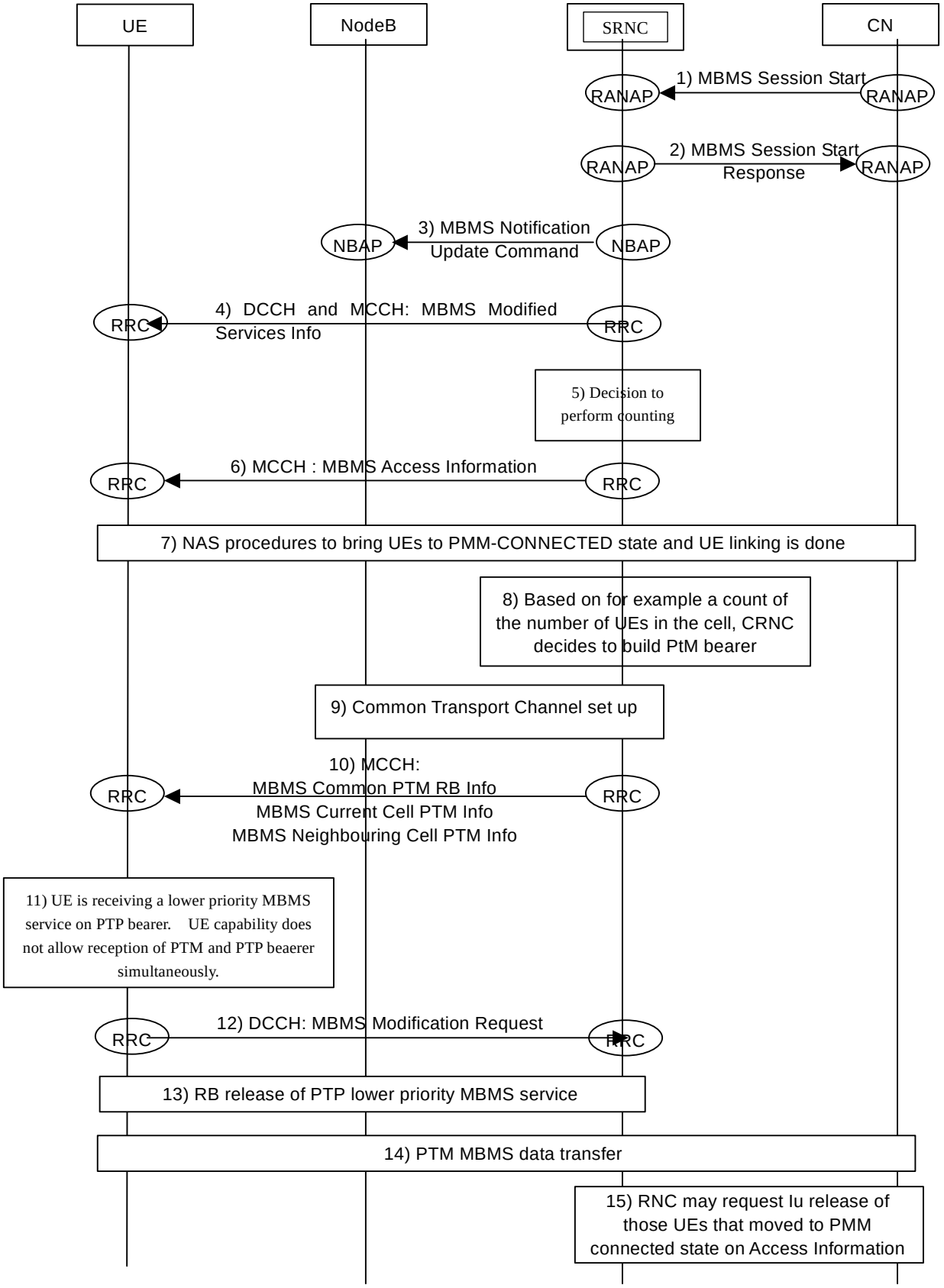

Figure f2: MBMS Session Start

1. When the MBMS session starts the SGSN informs all registered RNCs of the availability of data and requests the establishment of the User plane bearer using RANAP **MBMS Session Start** message . This also establishes the SCCP connection for the MBMS service.
Parameters**:** TMGI, Session id, Repetition number, Bearer Service type, Iu signaling connection id, RAB

parameters, PDP type, Session Duration, Service Area, Frequency layer convergence flag, RA list of idle mode UEs, Global CN-id

2. The RNC responds with an RANAP **MBMS Session Start Response** message. Since there are UEs in this RNC that have joined the service, it sets up the RAB for the MBMS service.
Parameters: Iu transport layer information

3. CRNC updates the MICH using NBAP **MBMS Notificaiton Update Command**. This message is updated for every change in MICH.
Parameters: C-ID, Common Physical Channel ID, Modification Period, MICH CFN, NI Information.

4. RNC is in the Service Area for the service. The RNC notifies the UE(s) about the start of the MBMS service by updating the RRC **MBMS Modified Services Info** message on the MCCH. This is sent on DCCH for UEs in Cell-DCH and on MCCH for other UEs.
Parameters: TMGI, Session id, UE action required, MBMS preferred frequency, Continued MCCH reading

5. RNC takes a decision to perform UE counting in order to evaluate what is the optimal method for MBMS delivery.

6. RNC requests UE to set up PMM connection using RRC **MBMS Access Info** message on MCCH.
Parameters: TMGI and probability factor.

7. A fraction off (or all) UEs who have joined the MBMS service establishes PMM connection towards CN. UE linking is done by the CN when Iu-ps connection is established for these UEs.

8. After counting, CRNC has enough information to make ptp/ptm decision. In this scenario there were enough UEs to exceed the threshold to justify ptm transmission.

9. The CRNC establishes the S-CCPCH and FACH which will carry the MTCH by using the Common Transport Channel Setup procedure.

10. CRNC informs UE of the MTCH channel used for the MBMS service in the cell and its neighbouring cells using the RRC **MBMS Common P-T-M RB Info, MBMS Current Cell P-T-M RB Info, MBMS Neighbouring Cell P-T-M RB Info** messages on MCCH.
Parameters**:** TMGI, MBMS UTRAN Cell Group Identifier, logical channel, transport channel, physical channel information, MSCHInformation per MBMS service.

11. UE is receiving a lower priority MBMS service on a PTP bearer. UE capability does not allow reception of a PTP and PTM bearer simultaneously.

12. UE requests the release of the PTP bearer for the other lower priority service using RRC **MBMS Modification Request** message**.**
Parameters: RB to be released.

13. RNC releases the PTP RB of the other lower priority MBMS service.

14. MBMS data transmission for this service on the PTM bearer.

15. RNC may request the release of the Iu connection for the UEs that were moved to PMM connected state during the counting process.

Editors Note: Session start for PTP case is triggered by UE sending a Cell update. Session Start for Cell-DCH case is FFS – LS to RAN2 on indicating bearer type. Capture both these cases in new message flows.

7.xx.3 MBMS UE Mobility from a PTP to PTM cell

This example shows a UE receiving MBMS service over a PTP bearer in the SRNC moving into DRNC area where the service is available over a PTM bearer.

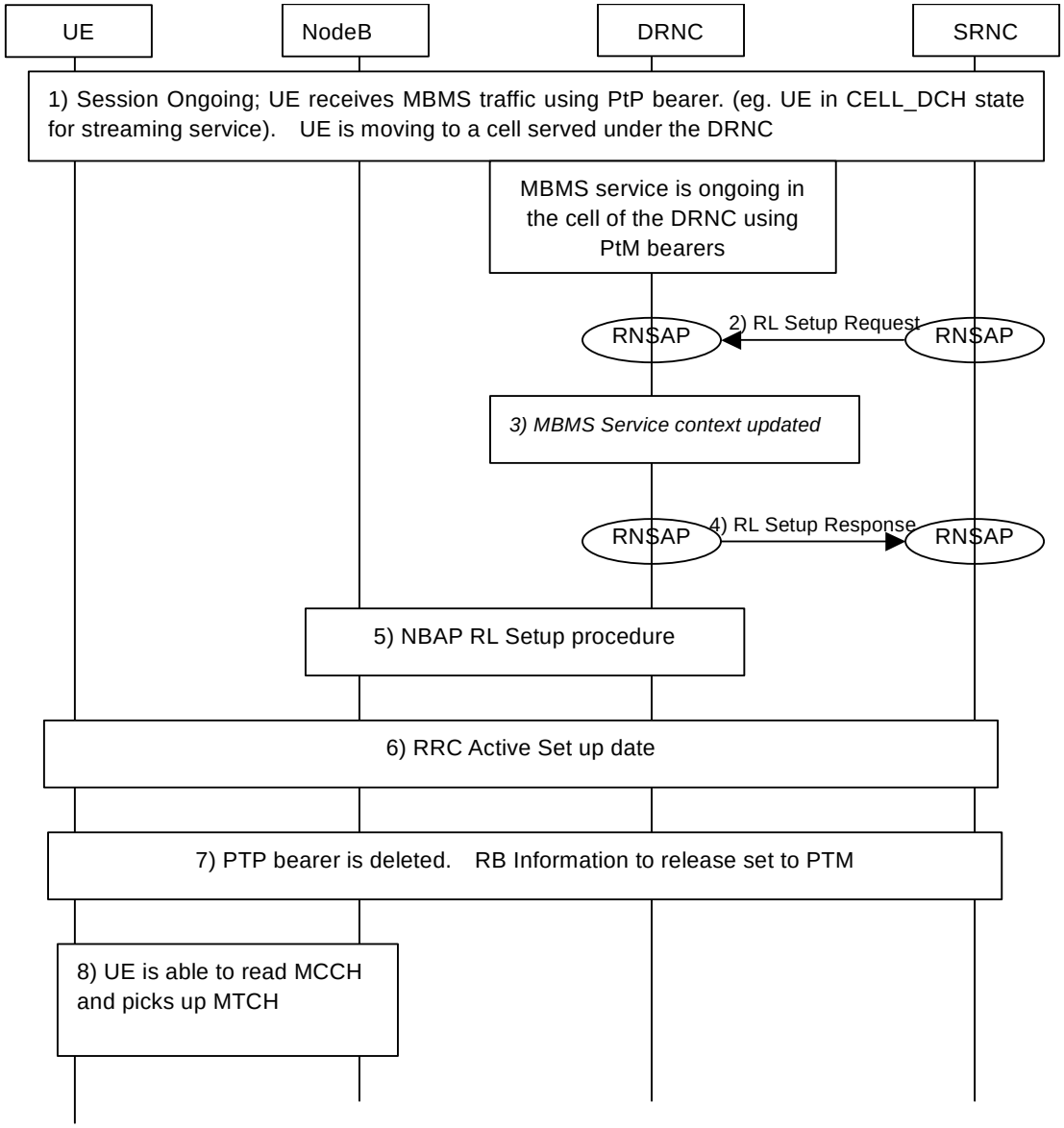

Figure f3: MBMS User mobility from PTP to PTM cell

1. MBMS Service has been activated and is currently ongoing. UE is receiving the MBMS traffic using a PtP bearer. SRNC makes the decision that to add a cell in the DNRC to the active set. The Cell already has ptm bearer for the MBMS service.

2. UE Linking is performed via using RNSAP **Radio Link Setup Request** message to add the radio link in the new cell.
   Parameters: TMGIs,

3. MBMS service context in the DRNC is updated.

4. DRNC responds with RNSAP **RL set up response** message.
   Parameters: MBMS Bearer Service List

5. NBAP RL Set up procedure to set up the RL on the NodeB

6. RRC Active Set Update to the UE to add the PTP radio link on the new cell to the active set.

7. When the cell in the DRNC is good enough to provide MBMS service to UE, the SRNC deletes the PTP radio bearer. The RRC **Radio Bearer Release** message sets the RB Information to release to indicate that the release is due to PTM availability.

Parameters (only MBMS specific ones listed): MBMS FLC capability, MBMS RB list released to change transfer mode

8. UE is able now to read information regarding the MBMS Service on the MCCH and picks up MTCH.

7.xx.4 MBMS UE Mobility from PTM cell to PTP cell

This example shows an example scenario for the case when the UE moves from a cell in the SRNC with PTM bearer for the MBMS service to another cell in the DRNC. The DRNC chooses PTP transmission for the service.

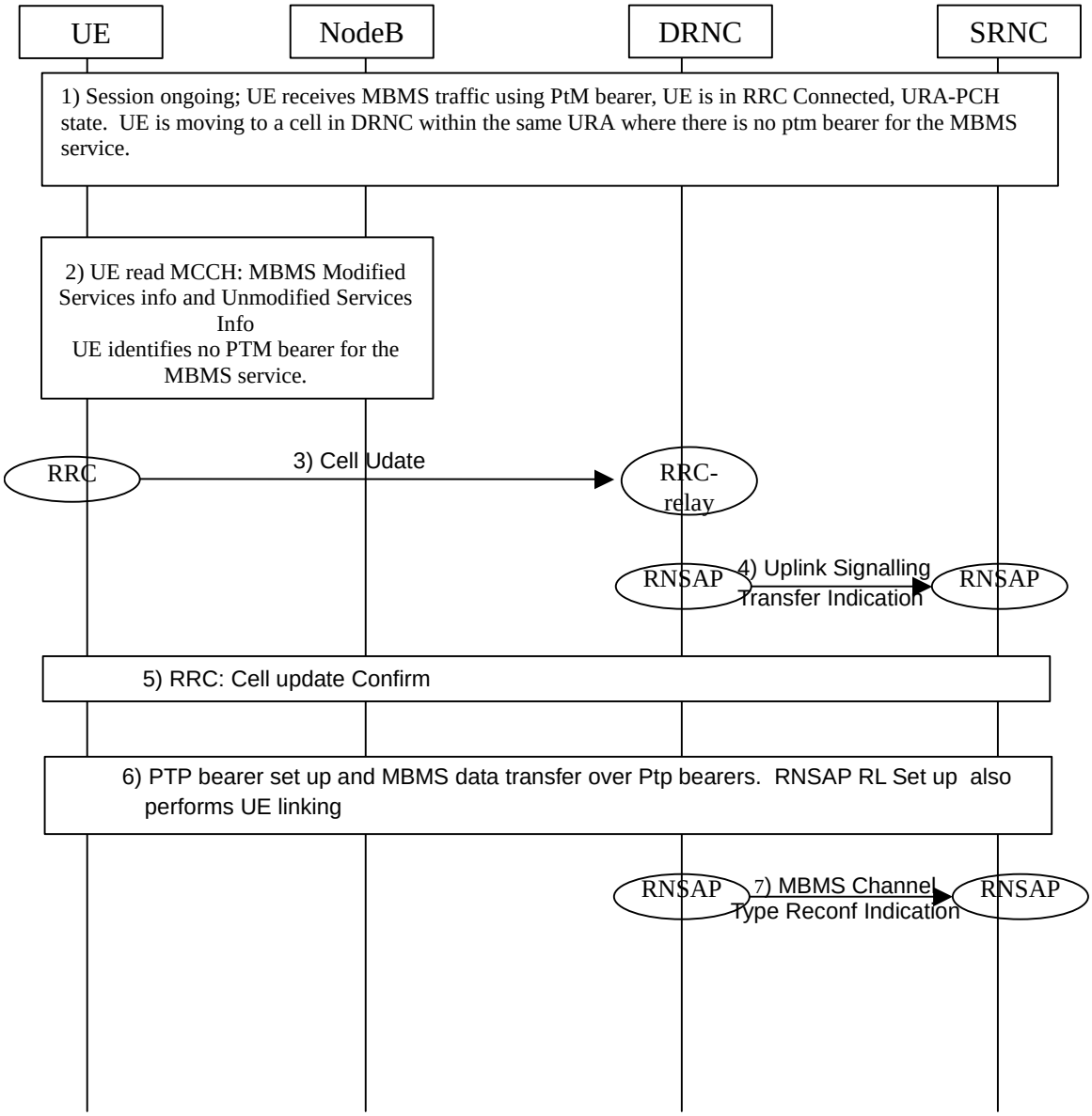

Figure f4: MBMS UE mobility from PTM to PTP cell

1. MBMS Service has been activated and is currently ongoing. UE is in URA-PCH state in the DRNC coverage area and is receiving the MBMS traffic using a ptm bearer. UE performs cell re-selection to a cell where there is no PTM bearer for the MBMS service within the same URA.

2. UE reads the RRC **Modified Services Info** and **Unmodified Services Info** messages on MCCH and identifies that there is no PTM bearer for the service in this cell.

3. UE sends a RRC **Cell Update** message.
   Parameters: FFS

4. DRNC relays the Cell update to the SRNC in RNSAP **Uplink Singalling Transfer Indication** message. Since this is the first access in the DRNC for this UE (UE linking information is not available in the DRNC), the DRNC cannot include the channel type indication to the SRNC.

5. RRC Cell Update Confirm message.

6. SRNC sets up PTP bearer for the service. The RNSAP **RL set up Request** message also performs UE linking. UE starts to receive MBMS service over PTP bearer.

7. DRNC unaware that the RL is for this MBMS service sends the connectionless RNSAP **MBMS Channel Type Reconfiguration Indication** message indicating PTP bearer type.
   Parameters: DRNC-id, C-ID, TMGI, Transmission mode, S-RNTI of affected UE.

7.xx.5 MBMS Session Stop and Service termination

The following example shows a scenario for MBMS session ends followed by a termination of the MBMS service.

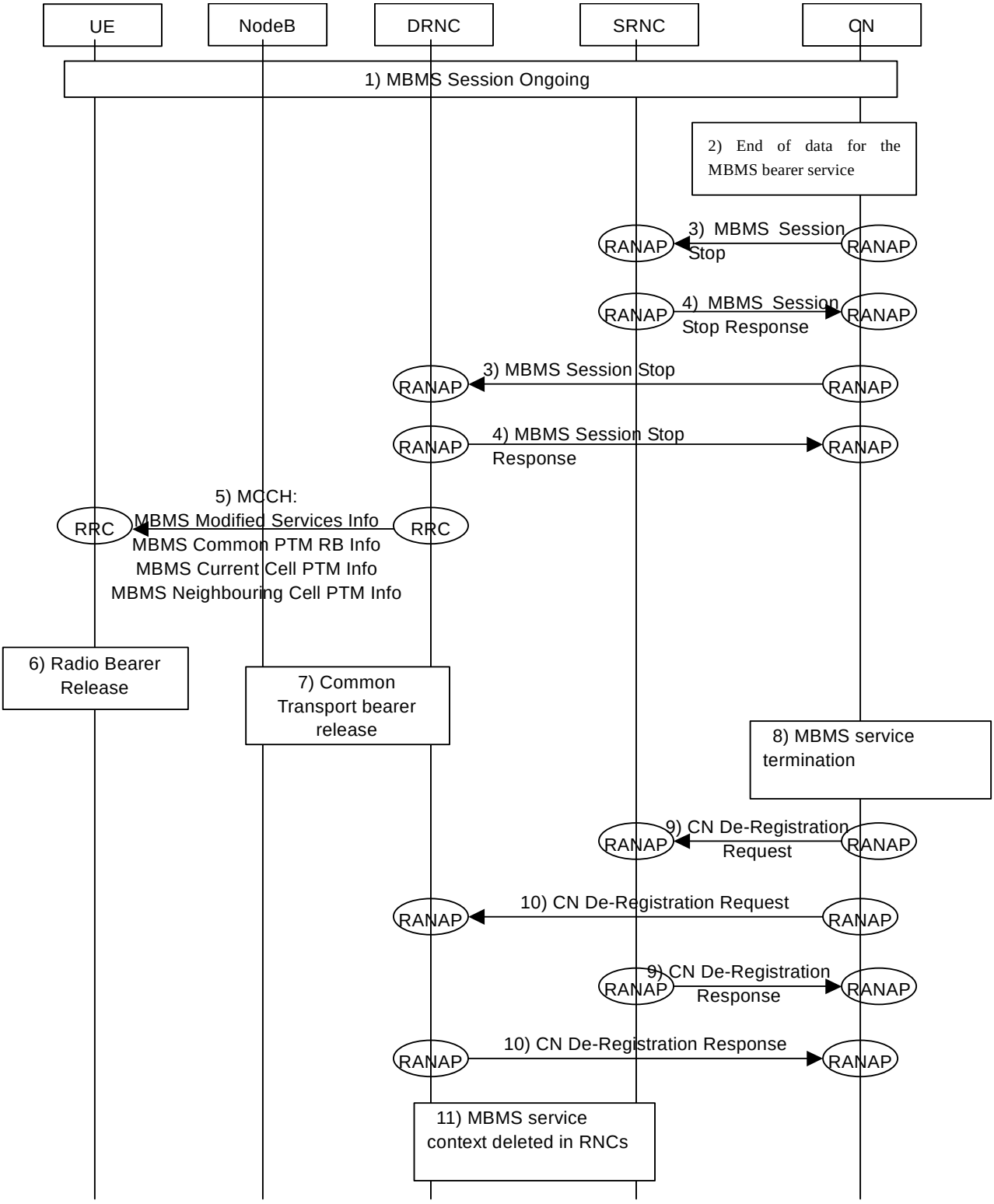

Figure f5: MBMS Session stop and Service termination

1. In this scenario it is assumed that an MBMS Session is ongoing with UE in DRNC receiving MBMS service over PTM bearers.

2. End of MBMS data session;

3. CN invokes RANAP **MBMS Session Stop** message towards all RNC that are explicitly or implicitly registered with the CN. RAB resources and Iu signaling connection are released.
   Parameters: MBMS CN De-registration

4. RNCs send RANAP **MBMS Session Stop Response** messagess back to SGSN.

5. DRNC as CRNC also update and remove all relevant information related to the MBMS Service on the MCCH: RRC **Modified Services Info** message on MCCH. Parameters: TMGI, Release PTM RB; and all RB info on the PTM bearer for the service on RRC .**Common PTM RB Info, Current Cell PTM RB Info, Neighbouring Cell PTM RB Info**

6. UE releases the Radio Bearer for the MBMS service.

7. Iub bearer is released using NBAP Common Transport Bearer release procedure.

8. MBMS services terminates.

9. SGSN sends a RANAP **CN De-Registration Request** message to all RNCs registered with the CN in order to inform the RNC that a certain MBMS Service is no longer available.
   Parameters: TMGI, Global CN-id.

10. RNCs replies with a RANAP **CN De-Registration Response** message back to the SGSN.

11. RNCs removes this MBMS service contexts and De-links all UEs from this service.

7.xx.6 RAU during MBMS Session

The following scenario gives an example message flow for an Idle mode UE receiving MBMS service over PTM bearer crossing an RA boundary and performing a RAU update. The RA filtering option is used in the network.

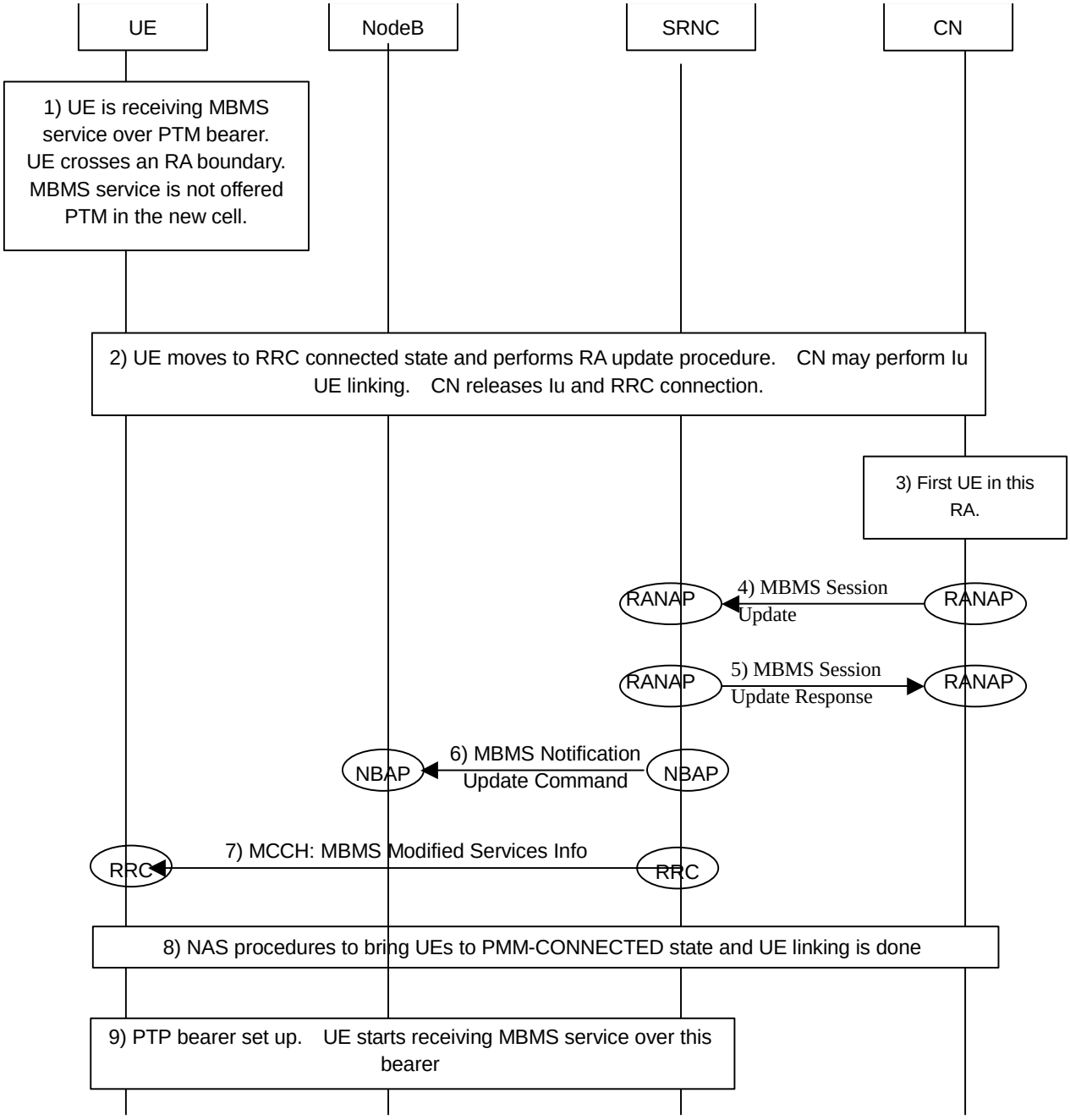

Figure f6: MBMS Service Activation

1. UE in idle mode receiving MBMS service over PTM crosses RA boundry.
2. UE moves to connected mode and performs RA update. CN releases Iu connection on completion of RA udpate procedure. If the CN does not release Iu connection immediately, it must perform UE linking.
3. This is first UE in the RA.

4. RNC sends an RANAP **MBMS Session Update** message to Core Network after RNC to update the RA list containing UEs.
   Parameters: Session Update ID, Delta RA list of Idle mode UEs.
   Editors Note: Why do we need the Session update here? Wouldn't the MCCH always require UE to establish PMM connection?

5. RNC responds with RANAP **MBMS Session Update Response** message. MBMS Iu bearer was already set up earlier.
   Parameters: Session update Id.

6. RNC sends NBAP **MBMS Notification Update Command** to update the MICH.
   Parameters: C-ID, Common Physical Channel ID, Modification Period, MICH CFN, NI Information.

7. SRNC as CRNC updates the MCCH using RRC **MBMS Modified Services Info** message on MCCH to request UE to establish PMM connection. As this is the first UE in the RA, the SRNC does not need to peform counting.
   Parameters: MBMS Transmission id, MBMS Required UE action, Continue MCCH reading.

8. UE establishes PMM connection. CN performs UE linking.

9. SRNC sets up PTP radio bearer. UE starts to receive data over PTP radio bearer.