

CR-Form-v7

CHANGE REQUEST

25.413 CR 673 # rev 1 # Current version: 6.1.0

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Management Based Activation in the UTRAN over Iu		
Source:	# RAN3		
Work item code:	# OAM-Trace-RAN	Date:	# 10/05/2004
Category:	# B	Release:	# Rel-6
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	# This CR adds the necessary signalling to allow Management Based Activation of a Trace Session in an RNC.		
Summary of change:	# <u>Rev 1:</u> Addition of ASN.1 identifiers. Modification of the statement in the Abnormal Conditions of the introduced procedure. <u>Rev 0:</u> Introduction of a new Class 1 procedure allowing the RNC to send some information to a CN Node in an acknowledged manner.		
Consequences if not approved:	#		

Clauses affected:	# 7, 8.1, 8.x (new procedure), 9.1.x1, 9.2.1.x2, 9.2.1.x3 (new messages), 9.2.1.1, 9.2.1.x1, 9.2.1.x2, 9.2.1.x3 (new IEs), 9.3.2, 9.3.3, 9.3.4, 9.3.6.						
Other specs	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> </table>	Y	N	X		Other core specifications	# CR 674 on TS 25.413 v 6.1.0 CR 675 on TS 25.413 v 6.1.0 CR 41 on TS 25.420 v 6.0.0 CR 979 on TS 25.423 v 6.1.0
Y	N						
X							
affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px; text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>		X		X	Test specifications O&M Specifications	
	X						
	X						

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.

7 Functions of RANAP

RANAP protocol has the following functions:

- Relocating serving RNC. This function enables to change the serving RNC functionality as well as the related Iu resources (RAB(s) and Signalling connection) from one RNC to another.
- Overall RAB management. This function is responsible for setting up, modifying and releasing RABs.
- Queuing the setup of RAB. The purpose of this function is to allow placing some requested RABs into a queue, and indicate the peer entity about the queuing.
- Requesting RAB release. While the overall RAB management is a function of the CN, the RNC has the capability to request the release of RAB.
- Release of all Iu connection resources. This function is used to explicitly release all resources related to one Iu connection.
- Requesting the release of all Iu connection resources. While the Iu release is managed from the CN, the RNC has the capability to request the release of all Iu connection resources from the corresponding Iu connection.
- SRNS context forwarding function. This function is responsible for transferring SRNS context from the RNC to the CN for intersystem change in case of packet forwarding.
- Controlling overload in the Iu interface. This function allows adjusting the load in the control plane of the Iu interface.
- Resetting the Iu. This function is used for resetting an Iu interface.
- Sending the UE Common ID (permanent NAS UE identity) to the RNC. This function makes the RNC aware of the UE's Common ID.
- Paging the user. This function provides the CN for capability to page the UE.
- Controlling the tracing of the UE activity. This function allows setting the trace mode for a given UE. This function also allows the deactivation of a previously established trace.
- Transport of NAS information between UE and CN (see [8]). This function has two sub-classes:
 1. Transport of the initial NAS signalling message from the UE to CN. This function transfers transparently the NAS information. As a consequence also the Iu signalling connection is set up.
 2. Transport of NAS signalling messages between UE and CN, This function transfers transparently the NAS signalling messages on the existing Iu signalling connection. It also includes a specific service to handle signalling messages differently.
- Controlling the security mode in the UTRAN. This function is used to send the security keys (ciphering and integrity protection) to the UTRAN, and setting the operation mode for security functions.
- Controlling location reporting. This function allows the CN to operate the mode in which the UTRAN reports the location of the UE.
- Location reporting. This function is used for transferring the actual location information from RNC to the CN.
- Data volume reporting function. This function is responsible for reporting unsuccessfully transmitted DL data volume over UTRAN for specific RABs.
- Reporting general error situations. This function allows reporting of general error situations, for which function specific error messages have not been defined.
- Location related data. This function allows the CN to either retrieve from the RNC deciphering keys (to be forwarded to the UE) for the broadcast assistance data, or request the RNC to deliver dedicated assistance data to the UE.

- Information Transfer. This function allows the CN to transfer information to the RNC.

- [Uplink Information Transfer. This function allows the RNC to transfer information to the CN.](#)

These functions are implemented by one or several RANAP elementary procedures described in the following clause.

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 Transfer	UPLINK INFORMATION TRANSFER INDICATION	UPLINK INFORMATION TRANSFER CONFIRMATION	UPLINK INFORMATION TRANSFER 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

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.x Uplink Information Transfer

8.x.1 General

The purpose of the Uplink Information Transfer procedure is to transfer some information to the CN.

This procedure uses connectionless signalling.

8.x.2 Successful Operation

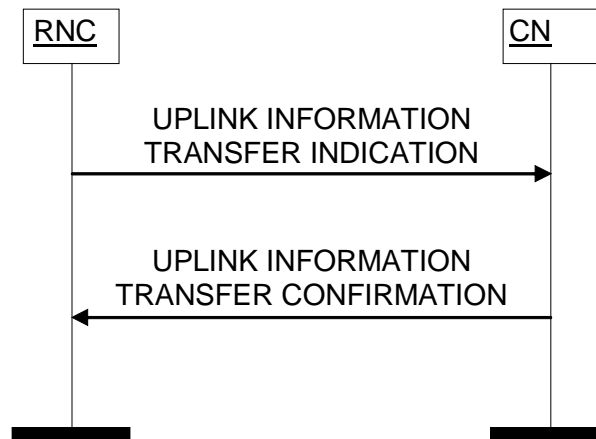


Figure x: Uplink Information Transfer procedure. Successful operation.

The procedure is initiated with an UPLINK INFORMATION TRANSFER INDICATION message sent from the RNC to the CN.

The UPLINK INFORMATION TRANSFER INDICATION message shall contain the following IEs:

- Information Transfer ID
- Information Transfer Type
- CN Domain Indicator
- Global RNC-ID

The Information Transfer Type IE indicates the nature of the information transferred.

When the transferred information relates to a Trace Session in the RNC, the Trace Activation Indicator IE indicates whether the Trace Session identified by the Trace Reference IE is activated or deactivated in the RNC. In case the Trace Session is activated, the Equipments To Be Traced IE gives the Equipment Identity of the UEs that the RNC has to trace.

If the CN node is capable of processing the request, the RNC shall be informed by the UPLINK INFORMATION TRANSFER CONFIRMATION message. The UPLINK INFORMATION TRANSFER CONFIRMATION message shall contain the Information Transfer ID IE and the CN Domain Indicator IE. If the RNC has not sent the UPLINK INFORMATION TRANSFER INDICATION message to the default CN node, the UPLINK INFORMATION TRANSFER CONFIRMATION message shall also include the Global CN-ID IE.

8.x.3 Unsuccessful Operation

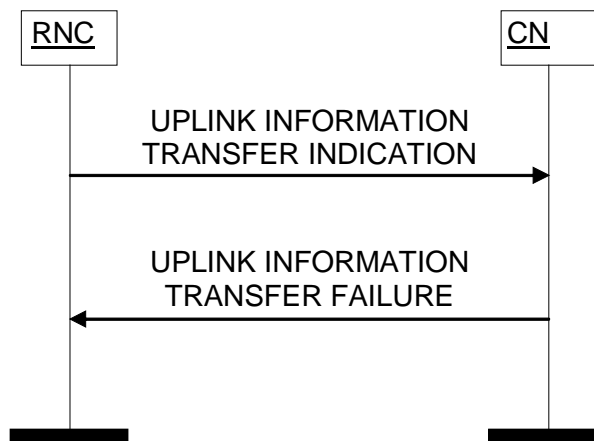


Figure x+1: Uplink Information Transfer procedure. Unsuccessful operation.

If the CN node is not capable of correctly processing the request, the RNC shall be informed by the UPLINK INFORMATION TRANSFER FAILURE message. The UPLINK INFORMATION TRANSFER FAILURE message shall contain the *Information Transfer ID IE* and the *CN Domain Indicator IE*. If the RNC has not sent the UPLINK INFORMATION TRANSFER INDICATION message to the default CN node, the UPLINK INFORMATION TRANSFER FAILURE message shall include the *Global CN-ID IE*.

8.x.4 Abnormal Conditions

Not Applicable.

9.1.x1 UPLINK INFORMATION TRANSFER INDICATION

This message is sent by the RNC to the CN in order to transfer specific information. The nature of the information to be transferred is indicated within the *Information Transfer Type IE*.

Direction: RNC → CN.

Signalling bearer mode: Connectionless.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>	<u>Criticality</u>	<u>Assigned Criticality</u>
Message Type	M		9.2.1.1		YES	reject
Information Transfer ID	M		9.2.1.55		YES	reject
Information Transfer Type	M		9.2.1.x1		YES	reject
CN Domain Indicator	M		9.2.1.5		YES	reject
Global RNC-ID	M		9.2.1.39		YES	reject

9.1.x2 UPLINK INFORMATION TRANSFER CONFIRMATION

This message is sent by the CN to the RNC as a successful response to the UPLINK INFORMATION TRANSFER INDICATION message.

Direction: CN → RNC.

Signalling bearer mode: Connectionless.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>	<u>Criticality</u>	<u>Assigned Criticality</u>
Message Type	M		9.2.1.1		YES	reject
Information Transfer ID	M		9.2.1.55		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Global CN-ID	O		9.2.1.39		YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore

9.1.x3 UPLINK INFORMATION TRANSFER FAILURE

This message is sent by the CN to the RNC as an unsuccessful response to the UPLINK INFORMATION TRANSFER INDICATION message.

Direction: CN → RNC.

Signalling bearer mode: Connectionless.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>	<u>Criticality</u>	<u>Assigned Criticality</u>
Message Type	M		9.2.1.1		YES	reject
Information Transfer ID	M		9.2.1.55		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Global CN-ID	O		9.2.1.39		YES	ignore
Cause	M		9.2.1.4		YES	ignore
Criticality Diagnostics	O		9.2.1.35		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, lu Release Request, lu 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, Uplink Information Transfer)	
>Type of Message	M		CHOICE (Initiating Message, Successful Outcome, Unsuccessful Outcome, Outcome, ...)	

9.2.1.x1 Information Transfer Type

Indicates the type of information that the RNC requests to transfer.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Choice Information Transfer Type</u>				
<u>>RNC Trace Session Information</u>			<u>9.2.1.x2</u>	

9.2.1.x2 RNC Trace Session Information

Indicates the information on a Trace Session activated by Management in the RNC.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Trace Reference</u>	<u>M</u>		<u>9.2.1.8</u>	
<u>Trace Activation Indicator</u>	<u>M</u>		<u>ENUMERATED (Activated, Deactivated)</u>	
<u>Equipments To Be Traced</u>	<u>C-IfActivated</u>		<u>9.2.1.x3</u>	

<u>Condition</u>	<u>Explanation</u>
<u>ifActivated</u>	<u>This IE shall be present if the <i>Trace Activation Indicator</i> IE is set to "Activated".</u>

9.2.1.x3 Equipments To Be Traced

Indicates the UEs that the RNC has to trace using a list of Equipment Identities or a mask on an Equipment Identity.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Choice Equipments To Be Traced</u>				
<u>>IMEI List</u>				
<u>>>IMEI List</u>		1 to <MaxUEsToBeTraced>		
<u>>>>IMEI</u>			<u>OCTET STRING (SIZE (8))</u>	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 15.</p>
<u>>IMEISV List</u>				
<u>>>IMEISV List</u>		1 to <MaxUEsToBeTraced>		
<u>>>>IMEISV</u>			<u>OCTET STRING (SIZE (8))</u>	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 16.</p>
<u>>IMEI Group</u>				
<u>>>IMEI</u>			<u>OCTET STRING (SIZE (8))</u>	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 15.</p>
<u>>>IMEI Mask</u>			<u>BIT STRING (SIZE (7))</u>	
<u>>IMEISV Group</u>				

>>IMEISV			OCTET STRING (SIZE (8))	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet. - each hexadecimal digit encoded 0000 to 1111, - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 16.</p>
>>IMEISV Mask			BIT STRING (SIZE (8))	

Range Bound	Explanation
<u>MaxUEsToBeTraced</u>	<u>Maximum number of UEs To Be Traced by the RNC in a Trace Session. Value is 64.</u>

The IMEI Group is identified by all the IMEI values whose digits 1 to 8 are equal to the corresponding digits of the IMEI IE and whose digits n+9 are equal to the corresponding digits of the IMEI IE if the bit bn of the IMEI Mask IE is equal to 1.

The IMEISV Group is identified by all the IMEISV values whose digits 1 to 8 are equal to the corresponding digits of the IMEISV IE and whose digits n+9 are equal to the corresponding digits of the IMEI IE if the bit bn of the IMEISV Mask IE is equal to 1.

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,
UplinkInformationTransferIndication,
UplinkInformationTransferConfirmation,
UplinkInformationTransferFailure
 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-UplinkInformationTransfer

```

FROM RANAP-Constants;

UNCHANGED TEXT IS REMOVED

```

-- *****
--
-- 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 |
  uplinkInformationTransfer
}

```

UNCHANGED TEXT IS REMOVED

```

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

```

UNCHANGED TEXT IS REMOVED

```
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
}

uplinkInformationTransfer RANAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      UplinkInformationTransferIndication
  SUCCESSFUL OUTCOME      UplinkInformationTransferConfirmation
  UNSUCCESSFUL OUTCOME    UplinkInformationTransferFailure
  PROCEDURE CODE          id-UplinkInformationTransfer
  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

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

IMPORTS
    BroadcastAssistanceDataDecipheringKeys,
    LocationRelatedDataRequestType,
    LocationRelatedDataRequestTypeSpecificToGERANIuMode,
    DataVolumeReference,
    CellLoadInformation,
    AreaIdentity,
    CN-DomainIndicator,
    Cause,
    ClientType,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    GERAN-BSC-Container,
    GERAN-Classmark,
    GlobalCN-ID,
    GlobalRNC-ID,
    InformationTransferID,
    InformationTransferType,
    IntegrityProtectionInformation,
    InterSystemInformation-TransparentContainer,
    IuSignallingConnectionIdentifier,
    IuTransportAssociation,

```

KeyStatus,
L3-Information,
LAI,
LastKnownServiceArea,
NAS-PDU,
NAS-SynchronisationIndicator,
NewBSS-To-OldBSS-Information,
NonSearchingIndication,
NumberOfSteps,
OMC-ID,
OldBSS-ToNewBSS-Information,
PagingAreaID,
PagingCause,
PDP-TypeInformation,
PermanentNAS-UE-ID,
PositionData,
PositionDataSpecificToGERANIuMode,
PositioningPriority,
ProvidedData,
RAB-ID,
RAB-Parameters,
RAC,
RelocationType,
RequestType,
Requested-RAB-Parameter-Values,
ResponseTime,
RRC-Container,
SAI,
SAPI,
Service-Handover,
SNA-Access-Information,
SourceID,
SourceRNC-ToTargetRNC-TransparentContainer,
TargetID,
TargetRNC-ToSourceRNC-TransparentContainer,
TemporaryUE-ID,
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,

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-CriticalityDiagnostics,
id-DRX-CycleLengthCoefficient,
id-DirectTransferInformationItem-RANAP-RelocInf,
id-DirectTransferInformationList-RANAP-RelocInf,
id-DL-GTP-PDU-SequenceNumber,
id-EncryptionInformation,
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-InformationTransferID,
id-InformationTransferType,
id-IntegrityProtectionInformation,
id-InterSystemInformation-TransparentContainer,
id-IuSigConId,
id-IuSigConIdItem,
id-IuSigConIdList,
id-IuTransportAssociation,
id-KeyStatus,
id-L3-Information,
id-LAI,

```

id-LastKnownServiceArea,
id-LocationRelatedDataRequestTypeSpecificToGERANIuMode,
id-NAS-PDU,
id-NewBSS-To-OldBSS-Information,
id-NonSearchingIndication,
id-NumberOfSteps,
id-OMC-ID,
id-OldBSS-ToNewBSS-Information,
id-PagingAreaID,
id-PagingCause,
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-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-RelocationType,
id-RequestType,
id-ResponseTime,
id-SAI,
id-SAPI,
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-TraceReference,
id-TraceType,
id-TransportLayerAddress,
id-TriggerID,
id-UE-ID,
id-UESBI-Iu,
id-UL-GTP-PDU-SequenceNumber,
id-VerticalAccuracyCode

```

FROM RANAP-Constants;

UNCHANGED TEXT IS REMOVED

```

-- *****
--
-- 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 ::= {
  ...
}

```

```

-- *****
--
-- UPLINK INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- *****

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

UplinkInformationTransferRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { UplinkInformationTransferIndicationIEs } },
    protocolExtensions  ProtocolExtensionContainer { { UplinkInformationTransferIndicationExtensions } } OPTIONAL,
    ...
}

UplinkInformationTransferIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-InformationTransferID          CRITICALITY reject TYPE InformationTransferID          PRESENCE mandatory } |
    { ID id-InformationTransferType        CRITICALITY reject TYPE InformationTransferType        PRESENCE mandatory } |
    { ID id-CN-DomainIndicator             CRITICALITY reject TYPE CN-DomainIndicator             PRESENCE mandatory } |
    { ID id-GlobalRNC-ID                   CRITICALITY reject TYPE GlobalRNC-ID                   PRESENCE mandatory } ,
    ...
}

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

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

UplinkInformationTransferConfirmation ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { UplinkInformationTransferConfirmationIEs } },
    protocolExtensions  ProtocolExtensionContainer { { UplinkInformationTransferConfirmationExtensions } } OPTIONAL,
    ...
}

UplinkInformationTransferConfirmationIEs 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-GlobalCN-ID                    CRITICALITY ignore TYPE GlobalCN-ID                    PRESENCE optional } |
    { ID id-CriticalityDiagnostics         CRITICALITY ignore TYPE CriticalityDiagnostics         PRESENCE optional } ,
    ...
}

UplinkInformationTransferConfirmationExtensions RANAP-PROTOCOL-EXTENSION ::= {

```



```

    ...
  }
  -- *****
  --
  -- Uplink Information Transfer Failure
  --
  -- *****

UplinkInformationTransferFailure ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container    { { UplinkInformationTransferFailureIEs} },
  protocolExtensions  ProtocolExtensionContainer { { UplinkInformationTransferFailureExtensions} } OPTIONAL,
  ...
}

UplinkInformationTransferFailureIEs 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-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 } ,
  ...
}

UplinkInformationTransferFailureExtensions 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,
    maxNrOfPLMNSN,
    maxSet,
    maxUEsToBeTraced,

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

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

```

UNCHANGED TEXT IS REMOVED

```

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

```

UNCHANGED TEXT IS REMOVED

```
-- E
EncryptionAlgorithm ::= INTEGER { no-encryption (0), standard-UMTS-encryption-algorithm-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
}
```

UNCHANGED TEXT IS REMOVED

```
-- 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

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))

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

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

```

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

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

UNCHANGED TEXT IS REMOVED

```
-- R
```

UNCHANGED TEXT IS REMOVED

```
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
```

```
RTLloadValue ::= INTEGER (0..100)
```

UNCHANGED TEXT IS REMOVED

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-UplinkInformationTransfer   INTEGER ::= 33
-- *****
--
-- 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

maxRAB-Subflows                 INTEGER ::= 7
maxRAB-SubflowCombination       INTEGER ::= 64
maxSet                           INTEGER ::= 9
-- *****
--
-- 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
<u>id-InformationTransferType</u>	<u>INTEGER ::= 123</u>

END

CHANGE REQUEST

25.413 CR 674 # rev 1 # Current version: 6.1.0

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Enhancement of Trace Handling during Relocation		
Source:	# RAN3		
Work item code:	# OAM-Trace-RAN	Date:	# 10/05/2004
Category:	# B	Release:	# Rel-6
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	# This CR adds an enhancement to the handling of Trace during SRNS Relocation: the Trace Identifiers of a Trace Record being generated in the Source RNC are forwarded to the Target RNC to allow easier correlation of Trace Records generated by the two different RNCs during Relocation.
Summary of change:	# <u>Rev1:</u> Addition of ASN.1 identifiers. Inclusion of the definition of the <i>Trace Recording Session Reference</i> IE. Inclusion of modifications to indicate this mechanism is restricted to Signalling Based Activation. <u>Rev0:</u> Introduction of the <i>Trace Reference</i> and <i>Trace Recording Session Reference</i> IEs in the <i>Source RNC to Target RNC Transparent Container</i> IE.
Consequences if not approved:	#

Clauses affected:	# 8.6.2, 8.7.2, 9.2.1.28, 9.2.1.x1 (new), 9.2.1.x2 (new), 9.3.4, 9.3.6						
Other specs	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> </table> Other core specifications	Y	N	X		#	CR 673 on TS 25.413 v 6.1.0 CR 675 on TS 25.413 v 6.1.0 CR 41 on TS 25.420 v 6.0.0 CR 979 on TS 25.423 v 6.1.0
Y	N						
X							

affected:

<input checked="" type="checkbox"/>	Test specifications
<input checked="" type="checkbox"/>	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.

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] 3GPP TR 23.930 (version.4.0.0, 2001-04): "Iu Principles".
- [2] 3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles".
- [3] 3GPP TS 25.401: "UTRAN Overall Description".
- [4] 3GPP TR 25.931: "UTRAN Functions, Examples on Signalling Procedures".
- [5] 3GPP TS 25.412: "UTRAN Iu interface signalling transport".
- [6] 3GPP TS 25.415: "UTRAN Iu interface user plane protocols".
- [7] 3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".
- [8] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".
- [9] 3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling".
- [10] 3GPP TS 25.331: Radio Resource Control (RRC) protocol specification".
- [11] 3GPP TS 48.008: "Mobile Switching Centre – Base Station System (MSC - BSS) interface; Layer 3 specification".
- [12] GSM TS 12.08: "Subscriber and equipment trace".
- [13] ITU-T Recommendation X.691 (1997): "Information technology - ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)".
- [14] ITU-T Recommendation X.680 (1997): "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [15] ITU-T Recommendation X.681 (1997): "Information technology - Abstract Syntax Notation One (ASN.1): Information object specification".
- [16] 3GPP TS 23.110: "UMTS Access Stratum, Services and Functions".
- [17] 3GPP TS 25.323: "Packet Data Convergence Protocol (PDCP) specification".
- [18] 3GPP TR 25.921: "Guidelines and principles for protocol description and error handling".
- [19] 3GPP TS 23.003: "Numbering, addressing and identification".
- [20] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [21] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [22] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary services specification; Formats and coding".
- [23] 3GPP TS 29.108: "Application of the Radio Access Network Application Part (RANAP) on the E-interface".

- [24] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".
 - [25] GSM TS 12.20: "Base Station System (BSS) management information".
 - [26] 3GPP TS 23.236: "Intra-domain connection of Radio Access Network (RAN) nodes to multiple Core Network (CN) nodes".
 - [27] 3GPP TS 43.051: "3rd Generation Partnership Project; Technical Specification Group GSM/EDGE Radio Access Network; Overall description - Stage 2".
 - [28] 3GPP TS 25.305: "Stage 2 Functional Specification of Location Services (LCS) in UTRAN".
 - [29] 3GPP TS 43.059: "Functional stage 2 description of Location Services (LCS) in GERAN".
 - [30] 3GPP TS 22.071: "Location Services (LCS); Service description - Stage 1".
 - [31] 3GPP TR 25.994: "Measures employed by the UMTS Radio Access Network (UTRAN) to overcome early User Equipment (UE) implementation faults".
 - [32] 3GPP TR 25.995: "Measures employed by the UMTS Radio Access Network (UTRAN) to cater for legacy User Equipment (UE) which conforms to superseded versions of the RAN interface specification".
 - [33] 3GPP TS 23.195: "Provision of UE Specific Behaviour Information to Network Entities".
 - [34] 3GPP TS 49.031: "Location Services (LCS) – Base Station System Application Part LCS Extension – (BSSAP-LE)".
 - [35] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [r1] [3GPP TS 32.421: "Subscriber and equipment trace: Trace concepts and requirements".](#)

8.6 Relocation Preparation

8.6.1 General

The purpose of the Relocation Preparation procedure is to prepare relocation of SRNS either with involving the UE or without involving the UE. The relocation procedure shall be co-ordinated over all Iu signalling connections existing for the UE in order to allow Relocation co-ordination in the target RNC. The procedure uses connection oriented signalling.

The source RNC shall not initiate the Relocation Preparation procedure for an Iu signalling connection if a Prepared Relocation exists in the RNC for that Iu signalling connection or if a Relocation Preparation procedure is ongoing for that Iu signalling connection.

8.6.2 Successful Operation

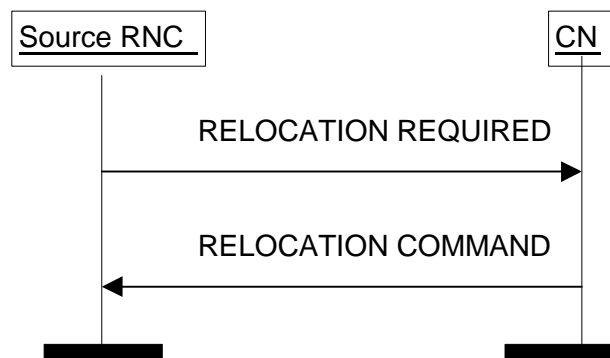


Figure 5: Relocation Preparation procedure. Successful operation.

The source RNC initiates the procedure by sending a RELOCATION REQUIRED message. The source RNC shall decide whether to initiate an intra-system Relocation or an inter-system handover. In case of intra-system Relocation, the source RNC shall indicate in the *Source ID* IE the RNC-ID of the source RNC and in the *Target ID* IE the RNC-ID of the target RNC. In case of inter-system handover, the source RNC shall indicate in the *Source ID* IE the Service Area Identifier and in the *Target ID* IE the cell global identity of the cell in the target system. The source RNC shall indicate the appropriate cause value for the Relocation in the *Cause* IE. Typical cause values are "Time critical Relocation", "Resource optimisation relocation", "Relocation desirable for radio reasons", "Directed Retry", "Reduce Load in Serving Cell", "Access Restricted Due to Shared Networks".

The source RNC shall determine whether the relocation of SRNS shall be executed with or without involvement of the UE. The source RNC shall set accordingly the *Relocation Type* IE to "UE involved in relocation of SRNS" or "UE not involved in relocation of SRNS".

In case of intra-system Relocation, the source RNC shall include in the RELOCATION REQUIRED message the *Source RNC to Target RNC Transparent Container* IE. This container shall include the *Relocation Type* IE and the *Number of Iu Instances* IE containing the number of Iu signalling connections existing for the UE .

Only in case of intra-system relocation, the *Source RNC to Target RNC Transparent Container* IE shall include the *Integrity Protection Key* IE from the last received domain on which the Security Mode Control procedure has been successfully performed, and the associated *Chosen Integrity Protection Algorithm* IE that has been selected for this domain.

Only in case of intra-system relocation, the *Source RNC to Target RNC Transparent Container* IE shall include the *Ciphering Key* IE for the signalling data from the last received domain on which the Security Mode Control procedure has been successfully performed, and the associated *Chosen Encryption Algorithm* IE that has been selected for this domain.

Only in case of intra-system relocation, for each domain where the Security Mode Control procedure has been successfully performed in the source RNC, the *Source RNC to Target RNC Transparent Container* IE shall include the *Chosen Encryption Algorithm* IE of CS (PS respectively) user data corresponding to the ciphering alternative that has been selected for this domain. If the Security Mode Control procedure had not been successful or performed for one domain or had proposed no ciphering alternative, the *Chosen Encryption Algorithm* IE for the user data of this domain

shall not be included. When both the CS and the PS user data *Chosen Encryption Algorithm* IEs are provided, they shall be the same.

This *Source RNC to Target RNC Transparent Container* IE shall include the *RRC Container* IE. If the *Relocation Type* IE is set to "UE not involved in relocation of SRNS" and the UE is using DCH(s), DSCH(s), USCH(s) or HS-DSCH, the *Source RNC to Target RNC Transparent Container* IE shall:

- for each RAB include the RAB ID, the *CN Domain Indicator* IE and the mapping between each RAB subflow and transport channel identifier(s) over Iur, i.e. if the RAB is carried on a DCH(s), the DCH ID(s) shall be included, and when it is carried on DSCH(s), USCH(s) or HS-DSCH, the DSCH ID(s), USCH ID(s) or HS-DSCH MAC-d Flow ID respectively shall be included,
- only in the case the active SRBs in SRNC are not all mapped onto the same DCH, include the *SRB TrCH Mapping* IE containing for each SRB the SRB ID and the associated transport channel identifier over Iur, i.e. if the SRB is carried on a DCH, the DCH ID shall be included, and when it is carried on DSCH or USCH, the DSCH ID or USCH ID respectively shall be included.

If the *Relocation Type* IE is set to "UE not involved in relocation of SRNS", the *d-RNTI* IE shall be included in the *Source RNC to Target RNC Transparent Container* IE. If the *Relocation Type* IE is set to "UE involved in relocation of SRNS", the *Target Cell ID* IE shall be included in the *Source RNC to Target RNC Transparent Container* IE.

In case a Trace Recording Session is active in the Source RNC due to a Signalling Based Activation (see ref [r1]), the Trace Recording Session Information IE containing information identifying the Trace Record being generated may be included in the Source RNC to Target RNC Transparent Container IE.

In case of inter-system handover to GSM the RNC:

- shall include the *MS Classmark 2* and *MS Classmark 3* IEs received from the UE in the RELOCATION REQUIRED message to the CN.
- shall include the *Old BSS to New BSS Information* IE within the RELOCATION REQUIRED message only if the information is available. This information shall include, if available, the current traffic load in the source cell, i.e. prior to the inter-system handover attempt. This information shall also include the source cell identifier the included traffic load values correspond to. In the case the UE is using, prior to the inter-system handover attempt, radio resources of more than one cell, it is implementation specific for which cell the source RNC should report the current traffic load and the cell identifier.

When the source RNC sends the RELOCATION REQUIRED message, it shall start the timer $T_{\text{RELOCprep}}$.

When the preparation including resource allocation in the target system is ready and the CN has decided to continue the relocation of SRNS, the CN shall send a RELOCATION COMMAND message to the source RNC and the CN shall start the timer $T_{\text{RELOCcomplete}}$.

If the *Target RNC To Source RNC Transparent Container* IE or the *L3 information* IE is received by the CN from the relocation target, it shall be included in the RELOCATION COMMAND message.

The RELOCATION COMMAND message may also contain the *Inter-System Information Transparent Container* IE.

For each RAB successfully established in the target system and originating from the PS domain, the RELOCATION COMMAND message shall contain at least one pair of Iu transport address and Iu transport association to be used for the forwarding of the DL N-PDU duplicates towards the relocation target. If more than one pair of Iu transport address and Iu transport association is included, the source RNC shall select one of the pairs to be used for the forwarding of the DL N-PDU duplicates towards the relocation target. Upon reception of the RELOCATION COMMAND message from the PS domain, the source RNC shall start the timer T_{DATAfwd} .

The Relocation Preparation procedure is terminated in the CN by transmission of the RELOCATION COMMAND message.

If the target system (including target CN) does not support all existing RABs, the RELOCATION COMMAND message shall contain a list of RABs indicating all the RABs that are not supported by the target system. This list is contained in the *RABs to Be Released* IE. The source RNC shall use this information to avoid transferring associated contexts where applicable and may use this information e.g. to decide if to cancel the relocation or not. The resources associated with these not supported RABs shall not be released until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

Upon reception of the RELOCATION COMMAND message the source RNC shall stop the timer $T_{RELOCprep}$, start the timer $T_{RELOCoverall}$ and terminate the Relocation Preparation procedure. The source RNC is then defined to have a Prepared Relocation for that Iu signalling connection.

When the Relocation Preparation procedure is successfully terminated and when the source RNC is ready, the source RNC should trigger the execution of relocation of SRNS.

Interactions with other procedures:

If, after a RELOCATION REQUIRED message is sent and before the Relocation Preparation procedure is terminated, the source RNC receives a RANAP message initiating another connection oriented RANAP class 1 or class 3 procedure (except IU RELEASE COMMAND message, which shall be handled normally) via the same Iu signalling connection, the source RNC shall either:

1. cancel the Relocation Preparation procedure i.e. execute the Relocation Cancel procedure with an appropriate value for the *Cause* IE, e.g. "Interaction with other procedure", and after successful completion of the Relocation Cancel procedure, the source RNC shall continue the initiated RANAP procedure;

or

2. terminate the initiated RANAP procedure without any changes in UTRAN by sending the appropriate response message with the cause value "Relocation Triggered" to the CN. The source RNC shall then continue the relocation of SRNS.

If during the Relocation Preparation procedure the source RNC receives a DIRECT TRANSFER message it shall be handled normally.

If during the Relocation Preparation procedure the source RNC receives connection oriented RANAP class 2 messages (with the exception of DIRECT TRANSFER message) it shall decide to either execute the procedure immediately or suspend it. In case the relocation is cancelled, the RNC shall resume any suspended procedures (if any).

After the Relocation Preparation procedure is successfully terminated, all RANAP messages (except IU RELEASE COMMAND message, which shall be handled normally) received via the same Iu signalling bearer shall be ignored by the source RNC.

8.6.2.1 Successful Operation for GERAN Iu-mode

The relocation between UTRAN and GERAN Iu-mode shall be considered in the Relocation Preparation procedure as intra-system relocation from RANAP point of view.

For GERAN Iu-mode and to support Relocation towards a GERAN BSC in Iu mode the following shall apply in addition for the successful operation of the Relocation Preparation procedure:

- In case of a Relocation to GERAN Iu-mode (only for CS), the RNC shall include, if available, the *GERAN Classmark* IE within the RELOCATION REQUIRED message in those cases where the transmission of the *GERAN Classmark* IE is required, as defined in [27].

8.6.3 Unsuccessful Operation

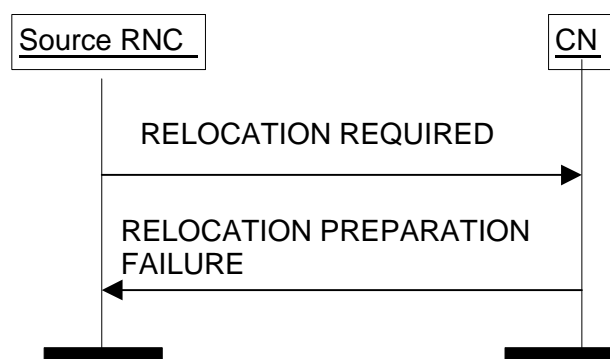


Figure 6: Relocation Preparation procedure. Unsuccessful operation.

If the CN or target system is not able to even partially accept the relocation of SRNS, or a failure occurs during the Relocation Preparation procedure in the CN, or the CN decides not to continue the relocation of SRNS, the CN shall send a RELOCATION PREPARATION FAILURE message to the source RNC.

The RELOCATION PREPARATION FAILURE message shall contain the appropriate value for the *Cause IE*, e.g. " $T_{\text{RELOCalloc expiry}}$ ", "Relocation Failure in Target CN/RNC or Target System", "Relocation not supported in Target RNC or Target System", "Relocation Target not allowed" or "No Radio Resources Available in Target Cell".

Transmission of the RELOCATION PREPARATION FAILURE message terminates the procedure in the CN. Reception of the RELOCATION PREPARATION FAILURE message terminates the procedure in UTRAN.

When the Relocation Preparation procedure is unsuccessfully terminated, the existing Iu signalling connection can be used normally.

If the Relocation Preparation procedure is unsuccessfully terminated, the CN shall release the possibly existing Iu signalling connection for the same UE and related to the same relocation of SRNS towards the target RNC by initiating the Iu Release procedure towards the target RNC with an appropriate value for the *Cause IE*, e.g. "Relocation Cancelled".

The RELOCATION PREPARATION FAILURE message may contain the *Inter-System Information Transparent Container IE*.

Interactions with Relocation Cancel procedure:

If there is no response from the CN to the RELOCATION REQUIRED message before timer $T_{\text{RELOCprep}}$ expires in the source RNC, the source RNC shall cancel the Relocation Preparation procedure by initiating the Relocation Cancel procedure with the appropriate value for the *Cause IE*, e.g. " $T_{\text{RELOCprep expiry}}$ ".

8.6.4 Abnormal Conditions

If the target RNC indicated in the RELOCATION REQUIRED message is not known to the CN:

1. The CN shall reject the relocation of SRNS by sending a RELOCATION PREPARATION FAILURE message to the source RNC with *Cause IE* set to "Unknown target RNC".
2. The CN shall continue to use the existing Iu connection towards the source RNC.

NOTE: In case two CN domains are involved in the SRNS Relocation Preparation procedure and the Source RNC receives the *Target RNC to Source RNC Transparent Container IE* via two CN domains, it may check whether the content of the two *Target RNC to Source RNC Transparent Container IE* is the same. In case the Source RNC receives two different *Target RNC to Source RNC Transparent Container IE*s, the RNC behaviour is left implementation-specific.

8.6.5 Co-ordination of Two Iu Signalling Connections

If the RNC decides to initiate the Relocation Preparation procedure for a UTRAN to UTRAN relocation, the RNC shall initiate simultaneously a Relocation Preparation procedure on all Iu signalling connections existing for the UE. The source RNC shall also include the same *Source RNC to Target RNC Transparent Container IE*, *Relocation Type IE*, *Source ID IE* and *Cause IE* in the RELOCATION REQUIRED message towards the two domains.

For intersystem handover to GSM, the Relocation Preparation procedure shall be initiated only towards the circuit-switched CN.

The source RNC shall not trigger the execution of relocation of SRNS unless it has received a RELOCATION COMMAND message from all Iu signalling connections for which the Relocation Preparation procedure has been initiated.

If the source RNC receives a RELOCATION PREPARATION FAILURE message from the CN, the RNC shall initiate the Relocation Cancel procedure on the other Iu signalling connection for the UE if the other Iu signalling connection exists and if the Relocation Preparation procedure is still ongoing or the procedure has terminated successfully in that Iu signalling connection.

8.7 Relocation Resource Allocation

8.7.1 General

The purpose of the Relocation Resource Allocation procedure is to allocate resources from a target RNS for a relocation of SRNS. The procedure shall be co-ordinated over all Iu signalling connections existing for the UE. The procedure uses connection oriented signalling.

8.7.2 Successful Operation

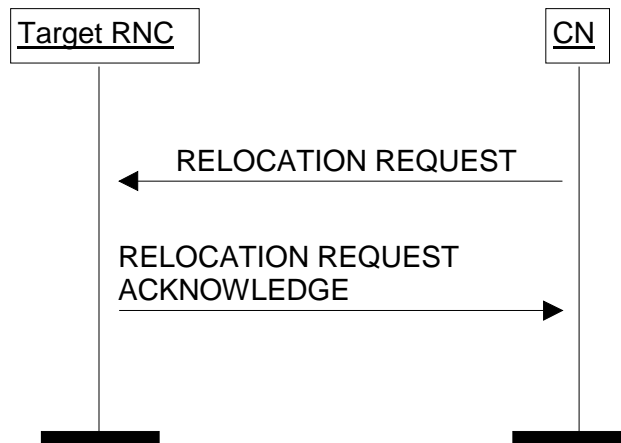


Figure 7: Relocation Resource Allocation procedure. Successful operation.

The CN initiates the procedure by generating a RELOCATION REQUEST message. In a UTRAN to UTRAN relocation, the message shall contain the information (if any) required by the UTRAN to build the same set of RABs as existing for the UE before the relocation. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

When the CN transmits the RELOCATION REQUEST message, it shall start the timer $T_{RELOCalloc}$.

When a RELOCATION REQUEST message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node, the *Global CN-ID* IE shall be included.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources.

The RELOCATION REQUEST message shall contain the following IEs:

- *Permanent NAS UE Identity* IE (if available);
- *Cause* IE;
- *CN Domain Indicator* IE;
- *Source RNC To Target RNC Transparent Container* IE;
- *Iu Signalling Connection Identifier* IE;
- *Integrity Protection Information* IE (if available);
- *SNA Access Information* IE (if available);
- *UESBI-Iu* IE (if available).

For each RAB requested to relocate (or to be created e.g. in the case of inter-system handover), the message shall contain the following IEs:

- *RAB-ID* IE;

- *NAS Synchronisation Indicator IE* (if the relevant NAS information is provided by the CN);
- *RAB parameters IE*;
- *User Plane Information IE*;
- *Transport Layer Address IE*;
- *Iu Transport Association IE*;
- *Data Volume Reporting Indication IE* (only for PS);
- *PDP Type Information IE* (only for PS).

The RELOCATION REQUEST message may include the following IE:

- *Encryption Information IE* (shall not be included if the *Integrity Protection Information IE* is not included).

For each RAB requested to relocate the message may include the following IEs:

- *Service Handover IE*;
- *Alternative RAB Parameter Values IE*.

The following information elements received in RELOCATION REQUEST message require the same special actions in the RNC as specified for the same IEs in the RAB Assignment procedure:

- *RAB-ID IE*;
- *User plane Information IE* (i.e. required User Plane Mode and required User Plane Versions);
- *Priority level IE*, *Queuing Allowed IE*, *Pre-emption Capability IE* and *Pre-emption Vulnerability IE*;
- *Service Handover IE*.

The *SDU Format Information Parameter IE* in the *RAB Parameters IE* shall be present only if the *User Plane Mode IE* is set to "support mode for pre-defined SDU sizes" and the *Traffic Class IE* is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters IE* may contain the *Signalling Indication IE*. The *Signalling Indication IE* shall not be present if the *Traffic Class IE* is not set to "Interactive" or if the *CN Domain Indicator IE* is not set to "PS domain".

If the RELOCATION REQUEST message includes the Permanent NAS UE identity (i.e. IMSI), the RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection.

If the RELOCATION REQUEST message includes the *PDP Type Information IE*, the UTRAN may use this IE to configure any compression algorithms.

The *Cause IE* shall contain the same value as the one received in the related RELOCATION REQUIRED message.

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 RNC shall store and remember this identifier for the duration of the Iu connection.

The RNC shall, if supported, use the *UESBI-Iu IE* when included in the RELOCATION REQUEST message.

The algorithms within the *Integrity Protection Information IE* and the *Encryption Information IE* shall be ordered in preferred order with the most preferred first in the list.

The *Permitted Encryption Algorithms IE* within the *Encryption Information IE* may contain "no encryption" within an element of its list in order to allow the RNC not to cipher the respective connection. This can be done either by not starting ciphering or by using the UEA0 algorithm. In the absence of the *Encryption Information IE*, the RNC shall not start ciphering.

In case of intra-system relocation, if no *Integrity Protection Key IE* (*Ciphering Key IE* respectively) is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall not start integrity protection (ciphering respectively).

In case of intra-system relocation, when an *Ciphering Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC may select to use a ciphering alternative where an algorithm is used. It shall in this case make use of this key to cipher its signalling data whatever the selected algorithm. The *Encryption Key IE* that is contained within the *Encryption Information IE* of the RELOCATION REQUEST message shall never be considered for ciphering of signalling data.

In case of intra-system relocation, when an *Integrity Protection Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall select one integrity algorithm to start integrity and shall in this case make use of this key whatever the selected algorithm. The integrity protection key that is contained within the *Integrity Protection Information IE* of the RELOCATION REQUEST message shall never be considered.

In case of intra-system relocation, when a *Trace Recording Session Information IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the Target RNC should store that information to include it in a potential future Trace Record for that UE.

In case of inter-system relocation, the integrity protection and ciphering information to be considered shall be the ones received in the *Integrity Protection Information IE* and *Encryption Information IE* of the RELOCATION REQUEST message.

The *Global CN-ID IE* contains the identity of the CN node that sent the RELOCATION REQUEST 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 RELOCATION REQUEST message shall be considered as coming from the default CN node for the indicated CN domain.

The following additional actions shall be executed in the target RNC during the Relocation Resource Allocation procedure:

If the *Relocation Type IE* is set to "UE involved in relocation of SRNS":

- The target RNC may accept a requested RAB only if the RAB can be supported by the target RNC.
- Other RABs shall be rejected by the target RNC in the RELOCATION REQUEST ACKNOWLEDGE message with an appropriate value in the *Cause IE*, e.g. "Unable to Establish During Relocation".
- The target RNC shall include information adapted to the resulting RAB configuration in the target to source RNC transparent container to be included in the RELOCATION REQUEST ACKNOWLEDGE message sent to the CN. If the target RNC supports triggering of the Relocation Detect procedure via the Iur interface, the RNC shall assign a d-RNTI for the context of the relocation and include it in the container. If two CNs are involved in the relocation of SRNS, the target RNC may, however, decide to send the container to only one CN.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*.

If the *Relocation Type IE* is set to "UE not involved in relocation of SRNS":

- The target RNC may accept a RAB only if the radio bearer(s) for the RAB either exist(s) already and can be used for the RAB by the target RNC, or do(es) not exist before the relocation but can be established in order to support the RAB in the target RNC.
- If existing radio bearers are not related to any RAB that is accepted by the target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by the radio interface protocols after completion of relocation of SRNS.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*. It should be noted that the usage of alternative RAB parameter values is not applicable to the UTRAN initiated relocation of type "UE not involved in relocation of SRNS".

After all necessary resources for accepted RABs including the initialised Iu user plane, are successfully allocated, the target RNC shall send a RELOCATION REQUEST ACKNOWLEDGE message to the CN.

For each RAB successfully setup the RNC shall include the following IEs:

- *RAB ID*
- *Transport Layer Address* (when no ALCAP has been used)
- *Iu Transport Association* (when no ALCAP has been used)

Two pairs of *Transport Layer Address* IE and *Iu Transport Association* IE may be included for RABs established towards the PS domain.

For each RAB the RNC is not able to setup during the Relocation Resource Allocation procedure, the RNC shall include the *RAB ID* IE and the *Cause* IE within the *RABs Failed To Setup* IE. The resources associated with the RABs indicated as failed to set up shall not be released in the CN until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

The RELOCATION REQUEST ACKNOWLEDGE message sent to the CN shall, if applicable and if not sent via the other CN domain, include the *Target RNC To Source RNC Transparent Container* IE. This container shall be transferred by the CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

If the target RNC supports cell load-based inter-system handover, then in the case of inter-system handover, the *New BSS to Old BSS Information* IE may be included in the RELOCATION REQUEST ACKNOWLEDGE message. This information shall include, if available, the current traffic load in the target cell assuming a successful completion of the handover in progress.

In case of inter-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Information* IE (*Encryption Information* IE respectively) was included in the RELOCATION REQUEST message.

In case of intra-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Key* IE (*Ciphering Key* IE respectively) was included within the *Source RNC-to-Target RNC transparent container* IE.

If one or more of the RABs that the target RNC has decided to support can not be supported by the CN, then these failed RABs shall not be released towards the target RNC until the relocation is completed.

If the *NAS Synchronisation Indicator* IE is contained in the RELOCATION REQUEST message, the target RNC shall pass it to the UE.

If the *SNA Access Information* IE is contained in the RELOCATION REQUEST message, the target RNC shall store this information and use it to determine whether the UE has access to radio resources in the UTRAN. The target RNC shall consider that the UE is authorised to access only the PLMNs identified by the *PLMN identity* IE in the *SNA Access Information* IE. If the *Authorised SNAs* IE is included for a given PLMN (identified by the *PLMN identity* IE), then the target RNC shall consider that the access to radio resources for the concerned UE is restricted to the LAs contained in the SNAs identified by the *SNAC* IEs.

Transmission and reception of a RELOCATION REQUEST ACKNOWLEDGE message terminate the procedure in the UTRAN and in the CN respectively.

Before reporting the successful outcome of the Relocation Resource allocation procedure, the RNC shall have executed the initialisation of the user plane mode as requested by the CN in the *User Plane Mode* IE. If the RNC can not initialise the requested user plane mode for any of the user plane mode versions in the *UP Mode Versions* IE according to the rules for initialisation of the respective user plane mode versions, as described in [6], the RAB Relocation shall fail with the cause value "RNC unable to establish all RFCs".

8.7.2.1 Successful Operation for GERAN Iu-mode

The relocation between UTRAN and GERAN Iu-mode shall be considered in the Relocation Resource Allocation procedure as intra-system relocation from RANAP point of view.

For GERAN Iu-mode and to support Relocation towards a GERAN BSC in Iu mode the following shall apply in addition for the successful operation of the Relocation Resource Allocation procedure:

- In case of GERAN Iu-mode, for RAB requested to be relocated from the the CS domain, the RELOCATION REQUEST message may contain the *GERAN BSC Container* IE in order to provide GERAN specific information to the target BSC (see [27]).

9.2.1.28 Source RNC to Target RNC Transparent Container

The *Source RNC to Target RNC Transparent Container* IE is an information element that is produced by the source RNC and is transmitted to the target RNC. In inter-system handovers, the IE is transmitted from the external relocation source to the target RNC.

This IE is transparent to the CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
RRC Container	M		OCTET STRING		-	
Number of Iu Instances	M		INTEGER (1..2)		-	
Relocation Type	M		9.2.1.23		-	
Chosen Integrity Protection Algorithm	O		9.2.1.13	Indicates the integrity protection algorithm.	-	
Integrity Protection Key	O		Bit String (128)		-	
Chosen Encryption Algorithm	O		9.2.1.14	Indicates the algorithm for ciphering of signalling data.	-	
Ciphering Key	O		Bit String (128)		-	
Chosen Encryption Algorithm	O		9.2.1.14	Indicates the algorithm for ciphering of CS user data.	-	
Chosen Encryption Algorithm	O		9.2.1.14	Indicates the algorithm for ciphering of PS user data.	-	
d-RNTI	C - ifUEnotinvolved		INTEGER (0..1048575)		-	
Target Cell ID	C - ifUEinvolved		INTEGER (0..268435455)	This information element identifies a cell uniquely within UTRAN and consists of RNC-ID (12 bits) and C-ID (16 bits) as defined in TS 25.401 [3].	-	
Cell Load Information Group	O		9.2.1.60	For "Cell Load-Based Inter-System Handover"	-	
RAB TrCH Mapping	O	1 to <maxnoof RABs>			-	
>RAB ID	M		9.2.1.2		-	
> RAB Subflow	M	1 to <maxRAB-Subflows>		The RAB Subflows shall be presented in an order that corresponds to the order in which the RBs are presented per RAB in the RRC container included in this IE.	-	
>> Transport Channel IDs					-	

>>> DCH ID	O		INTEGER (0..255)	The DCH ID is the identifier of an active dedicated transport channel. It is unique for each active DCH among the active DCHs simultaneously allocated for the same UE.	-	
>>> DSCH ID	O		INTEGER (0..255)	The DSCH ID is the identifier of an active downlink shared transport channel. It is unique for each DSCH among the active DSCHs simultaneously allocated for the same UE.	-	
>>> USCH ID	O		INTEGER (0..255)	The USCH ID is the identifier of an active uplink shared transport channel. It is unique for each USCH among the active USCHs simultaneously allocated for the same UE.	-	
>>> HS-DSCH MAC-d Flow ID	O		INTEGER (0..7)	The HS-DSCH MAC-d Flow ID is the identifier of an HS-DSCH MAC-d flow over Iur.	YES	Ignore
>CN Domain Indicator	M		9.2.1.5		YES	Ignore
SRB TrCH Mapping	O	1 to <maxnoofSRBs>			GLOBAL	Reject
>SRB ID	M		INTEGER (1..32)	The SRB ID is the absolute value of the SRB.	-	
>DCH ID	O		INTEGER (0..255)	The DCH ID is the identifier of an active dedicated transport channel over Iur. It is unique for each active DCH among the active DCHs simultaneously allocated for the same UE.	-	

>DSCH ID	O		INTEGER (0..255)	The DSCH ID is the identifier of an active downlink shared transport channel over Iur. It is unique for each DSCH among the active DSCHs simultaneously allocated for the same UE.	-	
>USCH ID	O		INTEGER (0..255)	The USCH ID is the identifier of an active uplink shared transport channel over Iur. It is unique for each USCH among the active USCHs simultaneously allocated for the same UE.	-	
Trace Recording Session Information	O		9.2.1.x1		YES	ignore

Condition	Explanation
IfUEnotinvolved	This IE shall be present if the <i>Relocation type</i> IE is set to "UE not involved in relocation of SRNS".
IfUEinvolved	This IE shall be present if the <i>Relocation type</i> IE is set to "UE involved in relocation of SRNS".

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.
maxRABSubflows	Maximum no. of subflows per RAB. Value is 7.
maxnoofSRBs	Maximum no. of SRBs per RAB. Value is 8.

[9.2.1.x1 Trace Recording Session Information](#)

Provides the information on a Trace Record being generated in the Source RNC at the time of .

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Trace Reference	M		9.2.1.8	
Trace Recording Session Reference	M		9.2.1.x2	

[9.2.1.x2 Trace Recording Session Reference](#)

[Identifier of a Trace Record.](#)

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Trace Recording Session Reference	M		INTEGER (0..65535)	

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,
    maxNrOfPLMNSN,
    maxSet,

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

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

UNCHANGED TEXT IS REMOVED

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

UNCHANGED TEXT IS REMOVED

-- S

UNCHANGED TEXT IS REMOVED

```

SourceRNC-ToTargetRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container          RRC-Container,
    numberOfIuInstances   NumberOfIuInstances,
    relocationType        RelocationType,
    chosenIntegrityProtectionAlgorithm ChosenIntegrityProtectionAlgorithm OPTIONAL,
    integrityProtectionKey IntegrityProtectionKey OPTIONAL,
    chosenEncryptionAlgorithmForSignalling ChosenEncryptionAlgorithm OPTIONAL,
    cipheringKey          EncryptionKey OPTIONAL,
    chosenEncryptionAlgorithmForCS ChosenEncryptionAlgorithm OPTIONAL,
    chosenEncryptionAlgorithmForPS 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},
    ...
}

```

UNCHANGED TEXT IS REMOVED

-- T

UNCHANGED TEXT IS REMOVED

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

```

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))

UNCHANGED TEXT IS REMOVED

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

UNCHANGED TEXT IS REMOVED

-- *****
--
-- 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
<u>id-TraceRecordingSessionInformation</u>	<u>INTEGER ::= 124</u>

END

CHANGE REQUEST

25.413 CR 675 # rev **1** # Current version: **6.1.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Modification of CN Invoke Trace for Subscriber and Equipment Trace support over lu interface		
Source:	# RAN3		
Work item code:	# OAM-Trace-RAN	Date:	# 14/05/2004
Category:	# B	Release:	# REL-6
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# This CR adds the necessary signalling to enable Rel-6 Signalling based Activation/Deactivation as well as IMEI(SV) transfer over lu interface for Management Based Activation of a Trace Session in an RNC.
Summary of change:	# Update of CN Invoke Trace and CN Deactivate Trace procedures based on enhanced trace support defined in Rel-6 TS 32.421, TS 32.422.
Consequences if not approved:	#

Clauses affected:	# 2, 3.1, 7, 8.5.2, 8.17, 8.28, 9.1.25, 9.1.42, 9.2.1.6, 9.2.1.7, 9.2.1.8, 9.2.1.9, 9.2.1.10, 9.2.1.x1(new), 9.2.1.x2(new), 9.2.1.x3(new), 9.2.1.x4(new), 9.3.3, 9.3.4 and 9.3.6						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;">X</td> <td style="width: 20px;"></td> </tr> </table> Other core specifications	Y	N	X		#	TS 25.413 CR673rev1, CR674rev1 TS 25.423 CR979rev1 TS 25.420 CR41rev1
Y	N						
X							
	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"></td> <td style="width: 20px;">X</td> </tr> </table> Test specifications O&M Specifications		X		X		
	X						
	X						
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.

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] 3GPP TR 23.930 (version.4.0.0, 2001-04): "Iu Principles".
- [2] 3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles".
- [3] 3GPP TS 25.401: "UTRAN Overall Description".
- [4] 3GPP TR 25.931: "UTRAN Functions, Examples on Signalling Procedures".
- [5] 3GPP TS 25.412: "UTRAN Iu interface signalling transport".
- [6] 3GPP TS 25.415: "UTRAN Iu interface user plane protocols".
- [7] 3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".
- [8] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".
- [9] 3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling".
- [10] 3GPP TS 25.331: Radio Resource Control (RRC) protocol specification".
- [11] 3GPP TS 48.008: "Mobile Switching Centre – Base Station System (MSC - BSS) interface; Layer 3 specification".
- [12] GSM TS 12.08: "Subscriber and equipment trace".
- [13] ITU-T Recommendation X.691 (1997): "Information technology - ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)".
- [14] ITU-T Recommendation X.680 (1997): "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [15] ITU-T Recommendation X.681 (1997): "Information technology - Abstract Syntax Notation One (ASN.1): Information object specification".
- [16] 3GPP TS 23.110: "UMTS Access Stratum, Services and Functions".
- [17] 3GPP TS 25.323: "Packet Data Convergence Protocol (PDCP) specification".
- [18] 3GPP TR 25.921: "Guidelines and principles for protocol description and error handling".
- [19] 3GPP TS 23.003: "Numbering, addressing and identification".
- [20] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [21] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [22] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary services specification; Formats and coding".
- [23] 3GPP TS 29.108: "Application of the Radio Access Network Application Part (RANAP) on the E-interface".

- [24] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".
- [25] GSM TS 12.20: "Base Station System (BSS) management information".
- [26] 3GPP TS 23.236: "Intra-domain connection of Radio Access Network (RAN) nodes to multiple Core Network (CN) nodes".
- [27] 3GPP TS 43.051: "3rd Generation Partnership Project; Technical Specification Group GSM/EDGE Radio Access Network; Overall description - Stage 2".
- [28] 3GPP TS 25.305: "Stage 2 Functional Specification of Location Services (LCS) in UTRAN".
- [29] 3GPP TS 43.059: "Functional stage 2 description of Location Services (LCS) in GERAN".
- [30] 3GPP TS 22.071: "Location Services (LCS); Service description - Stage 1".
- [31] 3GPP TR 25.994: "Measures employed by the UMTS Radio Access Network (UTRAN) to overcome early User Equipment (UE) implementation faults".
- [32] 3GPP TR 25.995: "Measures employed by the UMTS Radio Access Network (UTRAN) to cater for legacy User Equipment (UE) which conforms to superseded versions of the RAN interface specification".
- [33] 3GPP TS 23.195: "Provision of UE Specific Behaviour Information to Network Entities".
- [34] 3GPP TS 49.031: "Location Services (LCS) – Base Station System Application Part LCS Extension – (BSSAP-LE)".
- [35] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [r1] [3GPP TS 32.421: "Subscriber and equipment trace: Trace concepts and requirements"](#).
- [r2] [3GPP TS 32.422: "Subscriber and equipment trace: Trace control and Configuration Management"](#)

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions below apply. Terms and definitions not defined below can be found in [35].

Cell Load-Based Inter-System Handover: This mechanism, which is contained within a UTRAN RNC, consists of three primary functions:

1. The RNC has the capability to generate and send Cell Load Information towards the target/source system.
2. The RNC has the capability to receive Cell Load Information from the target/source system, and is able to interpret this information.
3. The ability of the RNC to make a handover decision by comparing the Cell Load Information that it has received from the target system with the Cell Load Information it has about its own cells.

Ciphering Alternative: defines both the Ciphering Status (started/not started) together with the Ciphering Algorithm considered altogether.

Default CN node: An RNC with an inactive or not implemented NAS Node Selection Function [26] has one single permanent default CN node per CN domain. It always initiates the Initial UE Message procedure towards its default CN node. If the NAS Node Selection Function is active, then no Default CN node exists.

Directed retry: Directed retry is the process of assigning a User Equipment to a radio resource that does not belong to the serving RNC e.g. in situations of congestion. It is triggered by the RAB Assignment procedure and employs relocation procedures.

Elementary Procedure: RANAP protocol consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between the RNS and the CN. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as stand alone procedures, which can be active in parallel. Examples on using several RANAP EPs together with each other and EPs from other interfaces can be found in reference [4].

An EP consists of an initiating message and possibly a response message. Three kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).
- **Class 2:** Elementary Procedures without response.
- **Class 3:** Elementary Procedures with possibility of multiple responses.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.
- On time supervision expiry (i.e. absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests. The response message used is the one defined for successful outcome.

Class 2 EPs are considered always successful.

Class 3 EPs have one or several response messages reporting both successful, unsuccessful outcome of the requests and temporary status information about the requests. This type of EP only terminates through response(s) or EP timer expiry.

GERAN BSC in Iu mode: In the context of this specification no distinction between an UTRAN RNC and a GERAN BSC in Iu mode is made. The GERAN BSC in Iu mode will behave as a RNC unless explicitly stated (see [27]).

Integrity Protection Alternative: defines both the Integrity Protection Status (started/not started) together with the Integrity Protection Algorithm considered altogether.

Management Based Activation: as defined in [r1].

PUESBINE feature: as defined in [33].

Relocation of SRNS: relocation of SRNS is a UMTS functionality used to relocate the serving RNS role from one RNS to another RNS. This UMTS functionality is realised by several elementary procedures executed in several interfaces and by several protocols and it may involve a change in the radio resources used between UTRAN and UE

It is also possible to relocate the serving RNS role from:

- one RNS within UMTS to another relocation target external to UMTS;
- functionality equivalent to the serving RNS role from another relocation source external to UMTS to another RNS.

Trace Recording Session: as defined in [r1].

Trace Recording Session Reference: as defined in [r1].

Trace Reference: as defined in [r1].

Trace Session: as defined in [r1].

Serving RNC: SRNC is the RNC belonging to SRNS

Serving RNS: role an RNS can take with respect to a specific connection between an UE and UTRAN. There is one serving RNS for each UE that has a connection to UTRAN. The serving RNS is in charge of the radio connection between a UE and the UTRAN. The serving RNS terminates the Iu for this UE

Signalling Based Activation: as defined in [r1].

Source RNC: source RNC is the RNC belonging to source RNS

Source RNS: role, with respect to a specific connection between UTRAN and CN, that RNS takes when it decides to initiate a relocation of SRNS

Target RNC: target RNC is the RNC belonging to target RNS

Target RNS: role an RNS gets with respect to a specific connection between UTRAN and CN when it is being a subject of a relocation of SRNS which is being made towards that RNS

UE Specific Behaviour Information – Iu: as defined in [33].

3.2 Symbols

Void.

3.3 Abbreviations

Applicable abbreviations can be found in [35]. For the purposes of the present document, the following abbreviations apply:

AAL2	ATM Adaptation Layer type 2
ALCAP	Access Link Control Application Part
AS	Access Stratum
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
BSC	Base Station Controller
CC	Call Control
CN	Core Network
CRNC	Controlling RNC
CS	Circuit Switched
DCH	Dedicated Channel
DL	Downlink
DRNC	Drift RNC
DRNS	Drift RNS
DSCH	Downlink Shared Channel
EP	Elementary Procedure
GERAN	GSM/EDGE Radio Access Network
GPRS	General Packet Radio System
GSM	Global System for Mobile communications
GTP	GPRS Tunnelling Protocol
IE	Information Element
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IPv4	Internet Protocol (version 4)
IPv6	Internet Protocol (version 6)
MM	Mobility Management
MSC	Mobile services Switching Center
NAS	Non Access Stratum
NNSF	NAS Node Selection Function
NRT	Non-Real Time
N-PDU	Network – Protocol Data Unit
OSP:IHOSS	Octet Stream Protocol: Internet-Hosted Octet Stream Service

P-TMSI	Packet TMSI
PDCP	Packet Data Convergence Protocol
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PLMN	Public Land Mobile Network
PPP	Point-to-Point Protocol
PS	Packet Switched
PUESBINE	Provision of UE Specific Behaviour Information to Network Entities
QoS	Quality of Service
RAB	Radio Access Bearer
RANAP	Radio Access Network Application Part
RNC	Radio Network Controller
RNS	Radio Network Subsystem
RRC	Radio Resource Control
RT	Real Time
SAI	Service Area Identifier
SAP	Service Access Point
SDU	Service Data Unit
SGSN	Serving GPRS Support Node
SNA	Shared Network Area
SNAC	Shared Network Area Code
SRNC	Serving RNC
SRNS	Serving RNS
TEID	Tunnel Endpoint Identifier
TMSI	Temporary Mobile Subscriber Identity
UE	User Equipment
UEA	UMTS Encryption Algorithm
UESBI-Iu	UE Specific Behaviour Information - Iu
UIA	UMTS Integrity Algorithm
UL	Uplink
UMTS	Universal Mobile Telecommunications System
USCH	Uplink Shared Channel
UTRAN	UMTS Terrestrial Radio Access Network

Some not impacted parts removed

7 Functions of RANAP

RANAP protocol has the following functions:

- Relocating serving RNC. This function enables to change the serving RNC functionality as well as the related Iu resources (RAB(s) and Signalling connection) from one RNC to another.
- Overall RAB management. This function is responsible for setting up, modifying and releasing RABs.
- Queuing the setup of RAB. The purpose of this function is to allow placing some requested RABs into a queue, and indicate the peer entity about the queuing.
- Requesting RAB release. While the overall RAB management is a function of the CN, the RNC has the capability to request the release of RAB.
- Release of all Iu connection resources. This function is used to explicitly release all resources related to one Iu connection.
- Requesting the release of all Iu connection resources. While the Iu release is managed from the CN, the RNC has the capability to request the release of all Iu connection resources from the corresponding Iu connection.
- SRNS context forwarding function. This function is responsible for transferring SRNS context from the RNC to the CN for intersystem change in case of packet forwarding.
- Controlling overload in the Iu interface. This function allows adjusting the load in the control plane of the Iu interface.

- Resetting the Iu. This function is used for resetting an Iu interface.
- Sending the UE Common ID (permanent NAS UE identity) to the RNC. This function makes the RNC aware of the UE's Common ID.
- Paging the user. This function provides the CN for capability to page the UE.
- Controlling the tracing of the [UE-subscriber or user equipment](#) activity. This function allows setting the trace mode for a given [UE-subscriber or user equipment](#). This function also allows the deactivation of a previously established trace.
- Transport of NAS information between UE and CN (see [8]). This function has two sub-classes:
 1. Transport of the initial NAS signalling message from the UE to CN. This function transfers transparently the NAS information. As a consequence also the Iu signalling connection is set up.
 2. Transport of NAS signalling messages between UE and CN, This function transfers transparently the NAS signalling messages on the existing Iu signalling connection. It also includes a specific service to handle signalling messages differently.
- Controlling the security mode in the UTRAN. This function is used to send the security keys (ciphering and integrity protection) to the UTRAN, and setting the operation mode for security functions.
- Controlling location reporting. This function allows the CN to operate the mode in which the UTRAN reports the location of the UE.
- Location reporting. This function is used for transferring the actual location information from RNC to the CN.
- Data volume reporting function. This function is responsible for reporting unsuccessfully transmitted DL data volume over UTRAN for specific RABs.
- Reporting general error situations. This function allows reporting of general error situations, for which function specific error messages have not been defined.
- Location related data. This function allows the CN to either retrieve from the RNC deciphering keys (to be forwarded to the UE) for the broadcast assistance data, or request the RNC to deliver dedicated assistance data to the UE.
- Information Transfer. This function allows the CN to transfer information to the RNC.

These functions are implemented by one or several RANAP elementary procedures described in the following clause.

Some not impacted parts removed

8.5 Iu Release

8.5.1 General

The purpose of the Iu Release procedure is to enable the CN to release an Iu connection and all UTRAN resources related only to that Iu connection. The procedure uses connection oriented signalling.

The Iu Release procedure can be initiated for at least the following reasons:

- Completion of transaction between the UE and the CN.
- UTRAN-generated reasons, e.g. reception of an IU RELEASE REQUEST message.
- Completion of successful relocation of SRNS.
- Cancellation of relocation after successful completion of a Relocation Resource Allocation procedure.

The Iu release procedure should also be initiated when there is a period of Iu signalling inactivity with no existing RAB.

8.5.2 Successful Operation

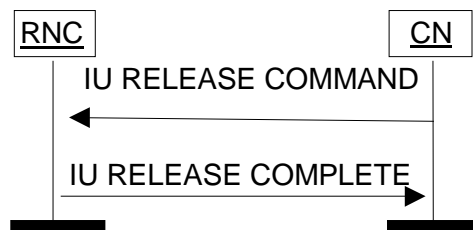


Figure 4: Iu Release procedure. Successful operation.

The CN initiates the procedure by sending an IU RELEASE COMMAND message to the UTRAN.

After the IU RELEASE COMMAND message has been sent, the CN shall not send further RANAP connection-oriented messages on this particular connection.

The IU RELEASE COMMAND message shall include a *Cause* IE indicating the reason for the release (e.g. "Successful Relocation", "Normal Release", "Release due to UTRAN Generated Reason", "Relocation Cancelled", "No Remaining RAB").

When the RNC receives the IU RELEASE COMMAND message:

1. Clearing of the related UTRAN resources is initiated. However, the UTRAN shall not clear resources related to other Iu signalling connections the UE might have. The Iu transport bearers for RABs subject to data forwarding and other UTRAN resources used for the GTP-PDU forwarding process, are released by the RNC only when the timer $T_{DATAfwd}$ expires.
2. The RNC returns any assigned Iu user plane resources to idle i.e. neither uplink user data nor downlink user data can be transferred over the Iu interface anymore. Then the RNC sends an IU RELEASE COMPLETE message to the CN. (The RNC does not need to wait for the release of UTRAN radio resources or for the transport network layer signalling to be completed before returning the IU RELEASE COMPLETE message.) When an IU RELEASE COMPLETE message is sent, the procedure is terminated in the UTRAN.

The IU RELEASE COMPLETE message shall include within the *RABs Data Volume Report List* IE for each RAB towards the PS domain successfully addressed and for which data volume reporting was requested during RAB establishment, the amount of unsuccessfully transmitted DL data.

If the release was initiated by the UTRAN, for each RAB towards the PS domain for which the *DL GTP-PDU Sequence Number* IE and/or the *UL GTP-PDU Sequence Number* IE are (is) available, the RNC shall include the available sequence number(s) in the *RABs Released Item* IE (within the *RAB Released List* IE) in the IU RELEASE COMPLETE message.

The *RAB Release Item* IE shall not be present if there is no sequence number to be reported for that RAB.

Reception of an IU RELEASE COMPLETE message terminates the procedure in the CN.

Interaction with Trace:

In case of simultaneous Iu signalling connections for both CS and PS domains, if a trace session was activated by both domains, the successful release of one of the connections should not close this trace session. If the trace session was activated by only one domain and the Iu connection for this domain is successfully released, this trace session shall be stopped in UTRAN.

8.5.3 Abnormal Conditions

If the Iu Release procedure is not initiated towards the source RNC from the CN before the expiry of timer $T_{RELOCoverall}$, the source RNC should initiate the Iu Release Request procedure towards the CN with a cause value " $T_{RELOCoverall}$ expiry".

Some not impacted parts removed

8.17 CN Invoke Trace

8.17.1 General

When used for signalling based activation, ~~The~~ the purpose of the CN Invoke Trace procedure is to inform the RNC that it should begin a trace session with the parameters indicated by the CN and related to the UE, the Iu connection is used for producing a trace record of a type indicated by the CN and related to a given UE.

When used for management based activation, the purpose of the CN Invoke Trace procedure is to provide the RNC with the equipment identity of the UE for which the RNC should begin a trace recording session

The procedure uses connection oriented signalling.

8.17.2 Successful Operation



Figure 18: CN Invoke Trace procedure. Successful operation.

The CN Invoke Trace procedure is invoked by the CN by sending a CN INVOKE TRACE message to the RNC.

The CN INVOKE TRACE message shall include the following IEs:

- The Trace Reference IE, which uniquely identifies the trace session it refers to.
- The UE Identity IE, which indicates the UE to which this trace session pertains.
- The Trace Propagation Parameters IE, only in case of a signalling based activation.

If present, the Trace Propagation Parameters IE shall include the following IEs:

- The Trace Recording Session Reference IE, which is allocated by the CN.
- The Trace Depth IE, which defines how detailed information should be recorded for this trace session in the RNC.

The Trace Propagation Parameters IE may also include the List Of Interfaces To Trace IE, which defines which interfaces should be traced in the RNC. If the List Of Interfaces To Trace IE is not included, the RNC should trace all the following interfaces, if available: Iu-CS, Iu-PS, Uu, Iur and Iub.

Upon receiving the CN INVOKE TRACE message, which includes the Trace Propagation Parameters IE, the RNC should begin a trace recording session according to the parameters indicated in the CN INVOKE TRACE message. If the RNC does not support the requested value "Minimum" or "Medium" of the Trace Depth IE, the RNC should begin a trace recording session with maximum trace depth.

Upon receiving the CN INVOKE TRACE message, which does not include the Trace Propagation Parameters IE, the RNC should begin a trace recording session according to the parameters configured in the RNC for the indicated equipment identity in the CN INVOKE TRACE message.

The RNC may not start a trace recording session if there are insufficient resources available within the RNC.

The Trace Reference IE, UE identity IE and, if the Trace Propagation Parameters IE is present, the Trace Recording Session Reference IE are used to tag the trace record to allow simpler construction of the total record by the entity which combines trace records.

Interaction with Relocation:

In case of signalling based activation, the order to perform tracing is lost in UTRAN at successful Relocation of SRNS. If the tracing shall continue also after the relocation has been performed, the CN Invoke Trace procedure shall thus be re-initiated from the CN towards the future SRNC after the Relocation Resource Allocation procedure has been executed successfully.

8.17.2.1 Successful Operation for GERAN Iu mode

The CN INVOKE TRACE message shall include the *Trace Type* IE to indicate the events and parameters to be recorded.

The message shall include a *Trace Reference* IE which is allocated by the entity which triggered the trace.

The message may include the *OMC ID* IE, which if present, indicates the OMC to which the record is destined.

The message may include the *UE Identity* IE, which if present, indicates the UE to which this record pertains to.

The message may include the *Trigger ID* IE, which if present, indicates the entity which triggered the trace.

The *Trace Reference* and *Trigger ID* IEs are used to tag the trace record to allow simpler construction of the total record by the entity which combines trace records.

Interaction with Relocation:

~~The order to perform tracing is lost in UTRAN at successful Relocation of SRNS. If the tracing shall continue also after the relocation has been performed, the CN Invoke Trace procedure shall thus be re-initiated from the CN towards the future SRNC after the Relocation Resource Allocation procedure has been executed successfully.~~

8.17.3 Abnormal Conditions

In the case RNC receives multiple CN INVOKE TRACE messages for the same subscriber or equipment (e.g. simultaneous CS/PS connections):-

- if the *Trace Reference* IE is equal to an existing one, a new trace session and trace recording session shall not be started;

- if the *Trace Reference* IE is not equal to an existing one, a new trace session and trace recording session may be started.

8.17.3.1 Abnormal Conditions for GERAN Iu mode

Not applicable.

Some not impacted parts removed

8.28 CN Deactivate Trace

8.28.1 General

The purpose of the CN Deactivate Trace procedure is to inform the RNC ~~that it should~~ to stop the trace session, initiated by a signalling based activation, for the indicated trace reference and related to the UE the Iu connection is used for producing a trace record for the indicated trace reference. The procedure uses connection oriented signalling.

8.28.2 Successful Operation

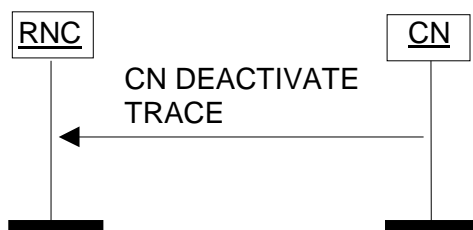


Figure 33: CN Deactivate Trace procedure. Successful operation.

The CN invokes the CN Deactivate Trace procedure by sending a CN DEACTIVATE TRACE message to the UTRAN.

The CN DEACTIVATE TRACE message shall contain the *Trace Reference IE*. The RNC shall stop the trace session for the indicated trace reference in the *Trace Reference IE*. In case of simultaneous CS/PS connections, the trace session for the indicated trace reference shall be closed upon reception of the CN DEACTIVATE TRACE message from any of the CN domain, whether it was the one which initiated trace session activation or not.

8.28.2.1 Successful Operation for GERAN lu mode

The CN DEACTIVATE TRACE message shall contain the *Trace Reference IE* and may contain the *Trigger ID IE*. The *Trace Reference IE* and, if present, the *Trigger ID IE* are used to indicate which trace shall be stopped.

8.28.3 Abnormal Conditions

If the RNC receives a CN DEACTIVATE TRACE message with an unknown trace reference, the RNC shall take no action.

Some not impacted parts removed

9.1.25 CN INVOKE TRACE

This message is sent by the CN to request the RNC to start ~~to produce~~ a trace recording [session](#).

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	ignore
Trace Type	M <u>O</u>		9.2.1.6	Mandatory for GERAN Iu Mode. Not applicable to UTRAN.	YES	ignore
Trace Reference	M		9.2.1.8		YES	ignore
Trigger ID	O		9.2.1.7	Mandatory for GERAN Iu Mode. Not applicable to UTRAN.	YES	ignore
UE Identity	O		9.2.1.9	Mandatory for UTRAN. Optional for GERAN Iu Mode.	YES	ignore
OMC ID	O		9.2.1.10	Mandatory for GERAN Iu Mode. Not applicable to UTRAN.	YES	ignore
Trace Propagation Parameters	<u>O</u>		9.2.1.x1	Optional for UTRAN. Not applicable to GERAN Iu Mode.	YES	ignore

Some not impacted parts removed

9.1.42 CN DEACTIVATE TRACE

This message is sent by the CN to request the RNC to stop ~~producing~~ a trace ~~record~~ [session](#) for the indicated trace [reference](#).

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	ignore
Trace Reference	M		9.2.1.8		YES	ignore
Trigger ID	O		9.2.1.7	Optional for GERAN Iu Mode. Not applicable to UTRAN.	YES	ignore

Some not impacted parts removed

9.2.1.6 Trace Type

Indicates the type of trace information to be recorded. [Applicable to GERAN Iu Mode only, not applicable to UTRAN.](#)

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Trace Type	M		OCTET STRING (1)	Coded as the Trace Type specified in 3GPP TS based on [12].

9.2.1.7 Trigger ID

Indicates the identity of the entity which initiated the trace. [Applicable to GERAN Iu Mode only, not applicable to UTRAN.](#)

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Trigger ID	M		OCTET STRING (3..22)	Typically an OMC identity.

Note: Due to inconsistency in the definition of Trigger ID between TS 25.413 and [24], it shall be ensured that the *Trigger ID* IE is coded with at least the minimum number of required octets.

9.2.1.8 Trace Reference

[Identifies a trace session and is globally unique within one PLMN](#)~~Provides a trace reference number allocated by the triggering entity.~~

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Trace Reference	M		OCTET STRING (2..3)	

~~NOTE: Due to inconsistency in the definition of Trace Reference between TS 25.413 and [24], it shall be ensured that the *Trace Reference* IE is coded with at least the minimum number of required octets.~~

9.2.1.9 UE Identity

This element identifies the element to be traced i.e. a subscriber or a user equipment.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice UE Identity				
>IMSI			OCTET STRING (SIZE (3..8))	<ul style="list-style-type: none"> - digits 0 to 9, encoded 0000 to 1001, - 1111 used as filler digit, two digits per octet, - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>-Number of decimal digits shall be from 6 to 15 starting with the digits from the PLMN identity.</p> <p>When the IMSI is made of an odd number of digits, the filler digit shall be added at the end to make an even number of digits of length 2N. The filler digit shall then be consequently encoded as bit 8 to 5 of octet N.</p>
>IMEI			OCTET STRING (SIZE (8))	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 15.</p>
>IMEISV			OCTET STRING (SIZE (8))	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet. - each hexadecimal digit encoded 0000 to 1111. - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 16.</p>

9.2.1.10 OMC ID

A variable length element indicating the destination address of the Operation and Maintenance Center (OMC) to which trace information is to be sent. [Applicable to GERAN Iu Mode only, not applicable to UTRAN.](#)

IE/Group Name	Presence	Range	IE type and reference	Semantics description
OMC ID	M		OCTET STRING (3..22)	Coded as the OMC ID specified in UMTS TS based on GSM [25].

NOTE: Due to inconsistency in the definition of OMC ID between TS 25.413 and [24], it shall be ensured that the *OMC ID* IE is coded with at least the minimum number of required octets.

Some not impacted parts removed

9.2.1.61 Source Cell Identifier

The *Source Cell Identifier* IE identifies the involved cell of the source system for the relocation of SRNS. The *Source Cell Identifier* IE may be e.g. source GERAN Source Cell ID (in case of GSM to UMTS relocation) or the UTRAN Source Cell ID (in case of UMTS to GSM relocation).

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Source Cell Identifier				
>GERAN Source Cell ID				
>>PLMN identity	M		OCTET STRING (SIZE (3))	<ul style="list-style-type: none"> - 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 <p>-The PLMN identity consists of 3 digits from MCC followed by either</p> <ul style="list-style-type: none"> -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).
>>LAC	M		OCTET STRING (2)	0000 and FFFE not allowed.
>>CI	M		OCTET STRING (2)	
>UTRAN Source Cell ID				
>>PLMN-ID	M		OCTET STRING (SIZE (3))	<ul style="list-style-type: none"> - 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 <p>-The PLMN identity consists of 3 digits from MCC followed by either</p> <ul style="list-style-type: none"> - 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).
>>Source Cell ID	M		INTEGER (0..268435455)	This information element identifies a cell uniquely within UTRAN and consists of RNC-ID (12 bits) and C-ID (16 bits) as defined in TS 25.401 [3].

[9.2.1.x1 Trace Propagation Parameters](#)

[Indicates the trace parameters to activate a trace session by a trace parameter propagation.](#)

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Trace Propagation Parameters</u>	M			
> <u>Trace Recording Session Reference</u>	M		9.2.1.x2	
> <u>Trace Depth</u>	M		9.2.1.x3	
> <u>List Of Interfaces To Trace</u>	O		9.2.1.x4	

9.2.1.x2 Trace Recording Session Reference

Identifies a Trace Recording Session within a Trace Session.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Trace Recording Session Reference</u>	M		INTEGER (0..65535)	

9.2.1.x3 Trace Depth

Indicates how detailed information should be recorded for this trace session in the RNC.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Trace Depth</u>	M		ENUMERATED (Minimum, Medium, Maximum, ...)	See [r2].

9.2.1.x4 List Of Interfaces To Trace

Indicates the interface(s) to be traced by RNC.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>List Of Interfaces To Trace</u>				
> <u>Interfaces To Trace</u>		1 to <maxInterfaces>		
>> <u>Interface</u>	M		ENUMERATED (Iu-CS, Iu-PS, Iur, Iub, Uu, ...)	

<u>Range bound</u>	<u>Explanation</u>
<u>maxInterfaces</u>	Maximum no. of different UTRAN interfaces to trace. The value for <u>maxInterfaces</u> is 16.

Some not impacted parts removed

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
BroadcastAssistanceDataDecipheringKeys,
LocationRelatedDataRequestType,
LocationRelatedDataRequestTypeSpecificToGERANIuMode,
DataVolumeReference,
CellLoadInformation,
AreaIdentity,
CN-DomainIndicator,
Cause,
ClientType,
CriticalityDiagnostics,
ChosenEncryptionAlgorithm,
ChosenIntegrityProtectionAlgorithm,
ClassmarkInformation2,
ClassmarkInformation3,
DL-GTP-PDU-SequenceNumber,
DL-N-PDU-SequenceNumber,
DataVolumeReportingIndication,
DRX-CycleLengthCoefficient,
EncryptionInformation,
GERAN-BSC-Container,
GERAN-Classmark,
GlobalCN-ID,
GlobalRNC-ID,
InformationTransferID,
IntegrityProtectionInformation,
InterSystemInformation-TransparentContainer,
IuSignallingConnectionIdentifier,
```

IuTransportAssociation,
KeyStatus,
L3-Information,
LAI,
LastKnownServiceArea,
NAS-PDU,
NAS-SynchronisationIndicator,
NewBSS-To-OldBSS-Information,
NonSearchingIndication,
NumberOfSteps,
OMC-ID,
OldBSS-ToNewBSS-Information,
PagingAreaID,
PagingCause,
PDP-TypeInformation,
PermanentNAS-UE-ID,
PositionData,
PositionDataSpecificToGERANIuMode,
PositioningPriority,
ProvidedData,
RAB-ID,
RAB-Parameters,
RAC,
RelocationType,
RequestType,
Requested-RAB-Parameter-Values,
ResponseTime,
RRC-Container,
SAI,
SAPI,
Service-Handover,
SNA-Access-Information,
SourceID,
SourceRNC-ToTargetRNC-TransparentContainer,
TargetID,
TargetRNC-ToSourceRNC-TransparentContainer,
TemporaryUE-ID,
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.

TracePropagationParameters

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,
```

```
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-CriticalityDiagnostics,
id-DRX-CycleLengthCoefficient,
id-DirectTransferInformationItem-RANAP-RelocInf,
id-DirectTransferInformationList-RANAP-RelocInf,
id-DL-GTP-PDU-SequenceNumber,
id-EncryptionInformation,
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-InformationTransferID,
id-IntegrityProtectionInformation,
id-InterSystemInformation-TransparentContainer,
id-IuSigConId,
id-IuSigConIdItem,
```

id-IuSigConIdList,
id-IuTransportAssociation,
id-KeyStatus,
id-L3-Information,
id-LAI,
id-LastKnownServiceArea,
id-LocationRelatedDataRequestTypeSpecificToGERANIuMode,
id-NAS-PDU,
id-NewBSS-To-OldBSS-Information,
id-NonSearchingIndication,
id-NumberOfSteps,
id-OMC-ID,
id-OldBSS-ToNewBSS-Information,
id-PagingAreaID,
id-PagingCause,
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-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-RelocationType,
id-RequestType,
id-ResponseTime,
id-SAI,
id-SAPI,
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-TraceReference,
id-TraceType,
id-TransportLayerAddress,
id-TriggerID,
id-UE-ID,
id-UESBI-Iu,
id-UL-GTP-PDU-SequenceNumber,
id-VerticalAccuracyCode,
id-TracePropagationParameters
FROM RANAP-Constants;

```

Some not impacted parts removed

```

-- *****
--
-- 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 mandatoryoptional } |
  -- 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 ::= {
  ...
}

```

Some not impacted parts removed

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,
    maxNrOfPLMNSN,
    maxSet,
    maxNrOfInterfaces,

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

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

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
```

```
TriggeringMessage
FROM RANAP-CommonDataTypes
```

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

Some not impacted parts removed

```
-- I
```

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

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

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

```
InformationTransferID ::= INTEGER (0.. 1048575)
```

Some not impacted parts removed

```
ListOF-SNAs ::= SEQUENCE (SIZE (1..maxNrOfSNAs)) OF SNAC
```

```
ListOF-InterfacesToTrace ::= SEQUENCE (SIZE (1..maxNrOfInterfaces)) OF InterfacesToBeTracedItem
```

```
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)
```

Some not impacted parts removed

```
-- O
```

```
OldBSS-ToNewBSS-Information ::= OCTET STRING
```

```
OMC-ID ::= OCTET STRING (SIZE (3..22))
```

-- Reference: GSM [25]

Some not impacted parts removed

-- 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,
  ...
}
```

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 ::= {
    ...
}

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,
    ...
}

```

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```
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
}

```

Some not impacted parts removed

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  
  
-- *****  
--  
-- 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
maxNrOfInterfaces        INTEGER ::= 16

maxRAB-Subflows            INTEGER ::= 7
maxRAB-SubflowCombination INTEGER ::= 64
maxSet                     INTEGER ::= 9

-- *****
--
-- 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

```


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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

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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-TracePropagationParameters	INTEGER ::= 125

END

Some not impacted parts removed

CR-Form-v7

CHANGE REQUEST

25.420 CR 41 # 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 Core Network

Title:	# Trace Parameter Propagation over the lur		
Source:	# RAN3		
Work item code:	# OAM-Trace-RAN	Date:	# 10/05/2004
Category:	# B	Release:	# Rel-6
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	# This CR adds the Trace functionality over the lur interface.
Summary of change:	# Addition of the Trace functionality.
Consequences if not approved:	#

Clauses affected:	# 5.1						
Other specs	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="height: 40px; vertical-align: top;">X</td> <td></td> </tr> </table> Other core specifications	Y	N	X		#	CR 673 on TS 25.413 v 6.1.0 CR 674 on TS 25.413 v 6.1.0 CR 675 on TS 25.413 v 6.1.0 CR 979 on TS 25.423 v 6.1.0
Y	N						
X							
affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">X</td> <td style="width: 20px;">X</td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;">X</td> </tr> </table> Test specifications O&M Specifications	X	X		X		
X	X						
	X						
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.

5 Functions of the I_{ur} Interface Protocols

5.1 Functional List

The list of functions on the I_{ur} interface is the following:

1. Transport Network Management.
 2. Traffic management of Common Transport Channels:
 - Preparation of Common Transport Channel resources;
 - Paging.
 3. Traffic Management of Dedicated Transport Channels:
 - Radio Link Setup/ Addition/ Deletion;
 - Measurement Reporting.
 4. Traffic Management of Downlink Shared Transport Channels and [TDD - Uplink Shared Transport Channels]:
 - Radio Link Setup/ Addition/ Deletion;
 - Capacity Allocation.
 5. Measurement reporting for common and dedicated measurement objects.
- x. [Tracing of various events related to a UE.](#)

CR-Form-v7
CHANGE REQUEST
⌘ 25.423 CR 979 ⌘ rev 1 ⌘ Current version: 6.1.0 ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Trace Parameter Propagation over the lur		
Source:	⌘ RAN3		
Work item code:	⌘ OAM-Trace-RAN	Date:	⌘ 10/05/2004
Category:	⌘ B	Release:	⌘ Rel-6
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ This CR adds the necessary signalling to allow Trace Parameter Propagation over the lur.
Summary of change:	⌘ <u>Rev1:</u> Indication that lur Invoke Trace and lur Deactivate Trace are used for Signalling Based Activation only. Trace Depth presence is changed to Mandatory. Editorial improvements. <u>Rev0:</u> Introduction of two new Class 2 procedures allowing an SRNC to trigger a Trace Recording Session in a DRNC (Signalling Based Activation mechanism).
Consequences if not approved:	⌘

Clauses affected:	⌘ 2, 7, 8.1, 8.1.x1 (new), 8.1.x2 (new), 9.1.x1 (new), 9.1.x2 (new), 9.2.1.x1 (new), 9.2.1.x2 (new), 9.2.1.x3 (new), 9.2.1.x4 (new), 9.2.1.x5 (new), 9.2.1.x6 (new), 9.3.2, 9.3.3, 9.3.4, 9.3.6						
Other specs	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> </table> Other core specifications	Y	N	X		⌘	CR 673 on TS 25.413 v 6.1.0 CR 674 on TS 25.413 v 6.1.0 CR 675 on TS 25.413 v 6.1.0 CR 41 on TS 25.420 v 6.0.0
Y	N						
X							
affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Test specifications	Y	N		X		
Y	N						
	X						

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.

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] 3GPP TS 23.003: "Numbering, addressing and identification".
- [2] 3GPP TS 25.413: "UTRAN Iu Interface RANAP Signalling".
- [3] 3GPP TS 25.426: "UTRAN Iur and Iub Interface Data Transport & Transport Layer Signalling for DCH Data Streams".
- [4] 3GPP TS 25.427: "UTRAN Iur and Iub Interface User Plane Protocols for DCH Data Streams".
- [5] 3GPP TS 25.435: "UTRAN Iub interface User Plane Protocols for Common Transport Channel Data Streams".
- [6] 3GPP TS 25.104: "UTRA (BS) FDD; Radio transmission and Reception".
- [7] 3GPP TS 25.105: "UTRA (BS) TDD; Radio Transmission and Reception".
- [8] 3GPP TS 25.211: "Physical Channels and Mapping of Transport Channels onto Physical Channels (FDD)".
- [9] 3GPP TS 25.212: "Multiplexing and Channel Coding (FDD)".
- [10] 3GPP TS 25.214: "Physical Layer Procedures (FDD)".
- [11] 3GPP TS 25.215: "Physical Layer – Measurements (FDD)".
- [12] 3GPP TS 25.221: "Physical Channels and Mapping of Transport Channels onto Physical Channels (TDD)".
- [13] 3GPP TS 25.223: "Spreading and Modulation (TDD)".
- [14] 3GPP TS 25.225: "Physical Layer – Measurements (TDD)".
- [15] 3GPP TS 25.304: "UE Procedures in Idle Mode"
- [16] 3GPP TS 25.331: "RRC Protocol Specification".
- [17] 3GPP TS 25.402: "Synchronisation in UTRAN, Stage 2".
- [18] ITU-T Recommendation X.680 (12/97): "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [19] ITU-T Recommendation X.681 (12/97): "Information technology - Abstract Syntax Notation One (ASN.1): Information object specification".
- [20] ITU-T Recommendation X.691 (12/97): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".
- [21] 3GPP TS 25.213: "Spreading and modulation (FDD)".
- [22] 3GPP TS 25.224: "Physical Layer Procedures (TDD)".

- [23] 3GPP TS 25.133: "Requirements for support of Radio Resource management (FDD)".
 - [24] 3GPP TS 25.123: "Requirements for support of Radio Resource management (TDD)".
 - [25] 3GPP TS 23.032: "Universal Graphical Area Description (GAD)".
 - [26] 3GPP TS 25.302: "Services Provided by the Physical Layer".
 - [27] 3GPP TS 25.213: "Spreading and modulation (FDD)".
 - [28] 3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".
 - [29] GSM TS 05.05: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".
 - [30] ICD-GPS-200: "Navstar GPS Space Segment/Navigation User Interface".
 - [31] RTCM-SC104: "RTCM Recommended Standards for Differential GNSS Service (v.2.2)".
 - [32] 3GPP TS 25.425: "UTRAN Iur and Iub Interface User Plane Protocols for Common Transport Channel data streams".
 - [33] IETF RFC 2460 "Internet Protocol, Version 6 (IPv6) Specification".
 - [34] IETF RFC 768 "User Datagram Protocol", (8/1980)
 - [35] 3GPP TS 25.424: " UTRAN Iur Interface Data Transport & Transport Signalling for Common Transport Channel Data Streams".
 - [36] 3GPP TS 44.118: "Mobile radio interface layer 3 specification; Radio Resource Control (RRC) Protocol Iu mode".
 - [37] 3GPP TR 43.930: "Iur-g interface; Stage 2".
 - [38] 3GPP TS 48.008: "Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification".
 - [39] 3GPP TS 43.051: "GSM/EGDE Radio Access Network; Overall description - Stage 2".
 - [40] 3GPP TS 25.401: "UTRAN Overall Description".
 - [41] 3GPP TS 25.321: "MAC protocol specification".
 - [42] 3GPP TS 25.306: "UE Radio Access capabilities".
 - [43] 3GPP TS 25.101: " User Equipment (UE) radio transmission and reception (FDD)".
 - [44] IETF RFC 2474 "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".
 - [45] IETF RFC 2475 "An Architecture for Differentiated Services".
 - [46] 3GPP TS 25.222: "Multiplexing and Channel Coding (TDD)".
- [r1] [3GPP TS 32.421: "Subscriber and equipment trace: Trace concepts and requirements"](#).
- [r2] [3GPP TS 32.422: "Subscriber and equipment trace: Trace control and Configuration Management"](#).

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.](#)

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-emption i) 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) lur Invoke Trace b) lur Deactivate Trace

7.1 RNSAP functions and elementary procedures for Iur-g.

The functions and RNSAP elementary procedures, which are applicable on the Iur-g interface are shown in the Table 1A.

Table 1A: RNSAP elementary procedures applicable on the Iur-g interface

Function	Elementary Procedure(s)
GERAN Signalling Transfer	a) GERAN Uplink Signalling Transfer b) Downlink Signalling Transfer
Paging	Paging
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

Note: In the connection with the functions related to the GERAN and UTRAN, the term RNC shall refer to RNC/BSS.

8 RNSAP Procedures

8.1 Elementary Procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs.

Table 2: Class 1 Elementary Procedures

Elementary Procedure	Initiating Message	Successful Outcome	Unsuccessful Outcome
		Response message	Response message
Radio Link Setup	RADIO LINK SETUP REQUEST	RADIO LINK SETUP RESPONSE	RADIO LINK SETUP FAILURE
Radio Link Addition	RADIO LINK ADDITION REQUEST	RADIO LINK ADDITION RESPONSE	RADIO LINK ADDITION FAILURE
Radio Link Deletion	RADIO LINK DELETION REQUEST	RADIO LINK DELETION RESPONSE	
Synchronised Radio Link Reconfiguration Preparation	RADIO LINK RECONFIGURATION PREPARE	RADIO LINK RECONFIGURATION READY	RADIO LINK RECONFIGURATION FAILURE
Unsynchronised Radio Link Reconfiguration	RADIO LINK RECONFIGURATION REQUEST	RADIO LINK RECONFIGURATION RESPONSE	RADIO LINK RECONFIGURATION FAILURE
Physical Channel Reconfiguration	PHYSICAL CHANNEL RECONFIGURATION REQUEST	PHYSICAL CHANNEL RECONFIGURATION COMMAND	PHYSICAL CHANNEL RECONFIGURATION FAILURE
Dedicated Measurement Initiation	DEDICATED MEASUREMENT INITIATION REQUEST	DEDICATED MEASUREMENT INITIATION RESPONSE	DEDICATED MEASUREMENT INITIATION FAILURE
Common Transport Channel Resources Initialisation	COMMON TRANSPORT CHANNEL RESOURCES REQUEST	COMMON TRANSPORT CHANNEL RESOURCES RESPONSE	COMMON TRANSPORT CHANNEL RESOURCES FAILURE
Common Measurement Initiation	COMMON MEASUREMENT INITIATION REQUEST	COMMON MEASUREMENT INITIATION RESPONSE	COMMON MEASUREMENT INITIATION FAILURE
Information Exchange Initiation	INFORMATION EXCHANGE INITIATION REQUEST	INFORMATION EXCHANGE INITIATION RESPONSE	INFORMATION EXCHANGE INITIATION FAILURE
Reset	RESET REQUEST	RESET RESPONSE	
UE Measurement Initiation[TDD]	UE MEASUREMENT INITIATION REQUEST	UE MEASUREMENT INITIATION RESPONSE	UE MEASUREMENT INITIATION FAILURE

Table 3: Class 2 Elementary Procedures

Elementary Procedure	Initiating Message
Uplink Signalling Transfer	UPLINK SIGNALLING TRANSFER INDICATION
GERAN Uplink Signalling Transfer	GERAN UPLINK SIGNALLING TRANSFER INDICATION
Downlink Signalling Transfer	DOWNLINK SIGNALLING TRANSFER REQUEST
Relocation Commit	RELOCATION COMMIT
Paging	PAGING REQUEST
Synchronised Radio Link Reconfiguration Commit	RADIO LINK RECONFIGURATION COMMIT
Synchronised Radio Link Reconfiguration Cancellation	RADIO LINK RECONFIGURATION CANCEL
Radio Link Failure	RADIO LINK FAILURE INDICATION
Radio Link Restoration	RADIO LINK RESTORE INDICATION
Dedicated Measurement Reporting	DEDICATED MEASUREMENT REPORT
Dedicated Measurement Termination	DEDICATED MEASUREMENT TERMINATION REQUEST
Dedicated Measurement Failure	DEDICATED MEASUREMENT FAILURE INDICATION
Downlink Power Control [FDD]	DL POWER CONTROL REQUEST
Compressed Mode Command [FDD]	COMPRESSED MODE COMMAND
Common Transport Channel Resources Release	COMMON TRANSPORT CHANNEL RESOURCES RELEASE REQUEST
Error Indication	ERROR INDICATION
Downlink Power Timeslot Control [TDD]	DL POWER TIMESLOT CONTROL REQUEST
Radio Link Pre-emption	RADIO LINK PREEMPTION REQUIRED INDICATION
Radio Link Congestion	RADIO LINK CONGESTION INDICATION
Common Measurement Reporting	COMMON MEASUREMENT REPORT
Common Measurement Termination	COMMON MEASUREMENT TERMINATION REQUEST
Common Measurement Failure	COMMON MEASUREMENT FAILURE INDICATION
Information Reporting	INFORMATION REPORT
Information Exchange Termination	INFORMATION EXCHANGE TERMINATION REQUEST
Information Exchange Failure	INFORMATION EXCHANGE FAILURE INDICATION
Radio Link Parameter Update	RADIO LINK PARAMETER UPDATE INDICATION
UE Measurement Reporting [TDD]	UE MEASUREMENT REPORT
UE Measurement Termination [TDD]	UE MEASUREMENT TERMINATION REQUEST
UE Measurement Failure [TDD]	UE MEASUREMENT FAILURE INDICATION
Iur Invoke Trace	IUR INVOKE TRACE
Iur Deactivate Trace	IUR DEACTIVATE TRACE

8.3.x1 Iur Invoke Trace

8.3.x1.1 General

The purpose of the Iur Invoke Trace procedure is to inform the DRNC that it should begin a Trace Session for a given UE Context according to the Trace Parameters indicated by the SRNC. This procedure is used for Trace Parameter Propagation in the Signalling Based Activation mechanism as defined in [r1] and [r2].

This procedure shall use the signalling bearer mode specified below.

8.3.x1.2 Successful Operation

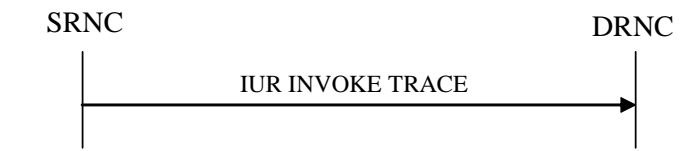


Figure x1: Iur Invoke Trace procedure, Successful Operation

The Iur Invoke Trace procedure is invoked by the SRNC by sending an IUR INVOKE TRACE message to the DRNC.

When the concerned UE is utilising one or more radio links in the DRNC the message shall be sent using the connection oriented service of the signalling bearer and no further identification of the UE Context in the DRNC is required. If on the other hand, the UE is not utilising any radio link the message shall be sent using the connectionless service of the signalling bearer and the *D-RNTI* IE shall be included in the message to identify the UE Context in the DRNC.

Upon receiving the IUR INVOKE TRACE message, the DRNC should begin a Trace Recording Session according to the parameters indicated in the IUR INVOKE TRACE message.

If the *List Of Interfaces To Trace* IE is included in the IUR INVOKE TRACE message, the DRNC shall trace, for the concerned UE Context, the interfaces indicated by the *List Of Interfaces To Trace* IE. Otherwise, the DRNC shall trace, for the concerned UE Context, the Iur and Iub interfaces.

The values of the *UE Identity* IE, *Trace Reference* IE and *Trace Recording Session Reference* IE are used to tag the Trace Record to allow simpler construction of the total record by the entity which combines Trace Records.

If the DRNC does not support the requested value "Minimum" or "Medium" of the *Trace Depth* IE, the DRNC should begin a Trace Recording Session with maximum Trace Depth.

The DRNC may not start a Trace Recording Session if there are insufficient resources available within the DRNC.

8.3.x1.3 Abnormal Conditions

=

8.3.x2 Iur Deactivate Trace

8.3.x2.1 General

The purpose of the Iur Deactivate Trace procedure is to inform the DRNC that it should stop a Trace Session for the concerned UE Context and the indicated Trace Reference. This procedure is used for the Signalling Based Deactivation mechanism as defined in [r1] and [r2].

This procedure shall use the signalling bearer mode specified below.

8.3.x2.2 Successful Operation



Figure x1: Iur Invoke Trace procedure, Successful Operation

The Iur Deactivate Trace procedure is invoked by the SRNC by sending an IUR DEACTIVATE TRACE message to the DRNC.

When the concerned UE is utilising one or more radio links in the DRNC the message shall be sent using the connection oriented service of the signalling bearer and no further identification of the UE Context in the DRNC is required. If on the other hand, the UE is not utilising any radio link the message shall be sent using the connectionless service of the signalling bearer and the *D-RNTI* IE shall be included in the message to identify the UE Context in the DRNC.

Upon receiving the IUR DEACTIVATE TRACE message, the DRNC shall stop any ongoing Trace Recording Session for the Trace Session identified by the *Trace Reference* IE.

8.3.x2.3 Abnormal Conditions

=

9.1.x1 IUR INVOKE TRACE

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>	<u>Criticality</u>	<u>Assigned Criticality</u>
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		=	
D-RNTI	O		9.2.1.24		YES	ignore
Trace Reference	M		9.2.1.x5		YES	ignore
UE Identity	M		9.2.1.x6		YES	ignore
Trace Recording Session Reference	M		9.2.1.x4		YES	ignore
List Of Interfaces To Trace		0..maxnoofInterfaces			EACH	ignore
>Interface	M		ENUMERATED (lub, lur,...)			
Trace Depth	M		9.2.1.x3		YES	ignore

<u>Range bound</u>	<u>Explanation</u>
maxnoofInterfaces	Maximum of Interfaces to be traced.

9.1.x2 IUR DEACTIVATE TRACE

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>	<u>Criticality</u>	<u>Assigned Criticality</u>
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		=	
D-RNTI	O		9.2.1.24		YES	ignore
Trace Reference	M		9.2.1.x5		YES	ignore

9.2.1.x1 IMEI

The IMEI is a permanent UE Equipment Identity, see ref. [1].

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>IMEI</u>			<u>OCTET STRING (SIZE (8))</u>	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 15.</p>

9.2.1.x2 IMEISV

The IMEISV is a permanent UE Equipment Identity, see ref. [1].

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>IMEISV</u>			<u>OCTET STRING (SIZE (8))</u>	<ul style="list-style-type: none"> - hexadecimal digits 0 to F, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 1111, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n <p>Number of hexadecimal digits shall be 16.</p>

9.2.1.x3 Trace Depth

The *Trace Depth* IE is Trace Configuration Parameter what should be traced by the DRNC on the indicated interfaces.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>Trace Depth</u>			<u>ENUMERATED (Minimum, Medium, Maximum,...)</u>	Meaning of this parameter is described in [r2]

9.2.1.x4 Trace Recording Session Reference

The *Trace Recording Session Reference* IE provides a Trace Recording Session Reference allocated by the triggering entity.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>Trace Recording Session Reference</u>			<u>INTEGER (0..65535)</u>	

9.2.1.x5 Trace Reference

The *Trace Reference* IE provides a Trace Reference allocated by the triggering entity.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>Trace Reference</u>			<u>OCTET STRING (SIZE(2..3))</u>	

9.2.1.x6 UE Identity

The *UE Identity* IE identifies the UE by one of its Permanent NAS Identifier.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE Type and Reference</u>	<u>Semantics Description</u>
<u>CHOICE UE Identity</u>	<u>M</u>			
<u>>IMSI</u>				
<u>>>IMSI</u>	<u>M</u>		<u>9.2.1.31</u>	
<u>>IMEI</u>				
<u>>>IMEI</u>	<u>M</u>		<u>9.2.1.x1</u>	
<u>>IMEISV</u>				
<u>>>IMEISV</u>	<u>M</u>		<u>9.2.1.x2</u>	

9.3.2 Elementary Procedure Definitions

```

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

IMPORTS
    Criticality,
    ProcedureID,
    TransactionID
FROM RNSAP-CommonDataTypes

    CommonMeasurementFailureIndication,
    CommonMeasurementInitiationFailure,
    CommonMeasurementInitiationRequest,
    CommonMeasurementInitiationResponse,
    CommonMeasurementReport,
    CommonMeasurementTerminationRequest,
    CommonTransportChannelResourcesFailure,
    CommonTransportChannelResourcesRequest,
    CommonTransportChannelResourcesReleaseRequest,
    CommonTransportChannelResourcesResponseFDD,
    CommonTransportChannelResourcesResponseTDD,
    CompressedModeCommand,
    DedicatedMeasurementFailureIndication,
    DedicatedMeasurementInitiationFailure,
    DedicatedMeasurementInitiationRequest,
    DedicatedMeasurementInitiationResponse,
    DedicatedMeasurementReport,
    DedicatedMeasurementTerminationRequest,
    DL-PowerControlRequest,
    DL-PowerTimeslotControlRequest,
    DownlinkSignallingTransferRequest,
    ErrorIndication,
    InformationExchangeFailureIndication,

```

InformationExchangeInitiationFailure,
InformationExchangeInitiationRequest,
InformationExchangeInitiationResponse,
InformationExchangeTerminationRequest,
InformationReport,
IurDeactivateTrace,
IurInvokeTrace,
PagingRequest,
PhysicalChannelReconfigurationCommand,
PhysicalChannelReconfigurationFailure,
PhysicalChannelReconfigurationRequestFDD,
PhysicalChannelReconfigurationRequestTDD,
PrivateMessage,
RadioLinkActivationCommandFDD,
RadioLinkActivationCommandTDD,
RadioLinkAdditionFailureFDD,
RadioLinkAdditionFailureTDD,
RadioLinkAdditionRequestFDD,
RadioLinkAdditionRequestTDD,
RadioLinkAdditionResponseFDD,
RadioLinkAdditionResponseTDD,
RadioLinkCongestionIndication,
RadioLinkDeletionRequest,
RadioLinkDeletionResponse,
RadioLinkFailureIndication,
RadioLinkParameterUpdateIndicationFDD,
RadioLinkParameterUpdateIndicationTDD,
RadioLinkPreemptionRequiredIndication,
RadioLinkReconfigurationCancel,
RadioLinkReconfigurationCommit,
RadioLinkReconfigurationFailure,
RadioLinkReconfigurationPrepareFDD,
RadioLinkReconfigurationPrepareTDD,
RadioLinkReconfigurationReadyFDD,
RadioLinkReconfigurationReadyTDD,
RadioLinkReconfigurationRequestFDD,
RadioLinkReconfigurationRequestTDD,
RadioLinkReconfigurationResponseFDD,
RadioLinkReconfigurationResponseTDD,
RadioLinkRestoreIndication,
RadioLinkSetupFailureFDD,
RadioLinkSetupFailureTDD,
RadioLinkSetupRequestFDD,
RadioLinkSetupRequestTDD,
RadioLinkSetupResponseFDD,
RadioLinkSetupResponseTDD,
RelocationCommit,
ResetRequest,
ResetResponse,
UEMeasurementFailureIndication,
UEMeasurementInitiationFailure,
UEMeasurementInitiationRequest,
UEMeasurementInitiationResponse,

```

UEMeasurementReport,
UEMeasurementTerminationRequest,
UplinkSignallingTransferIndicationFDD,
UplinkSignallingTransferIndicationTDD,
GERANUplinkSignallingTransferIndication
FROM RNSAP-PDU-Contents

id-commonMeasurementFailure,
id-commonMeasurementInitiation,
id-commonMeasurementReporting,
id-commonMeasurementTermination,
id-commonTransportChannelResourcesInitialisation,
id-commonTransportChannelResourcesRelease,
id-compressedModeCommand,
id-downlinkPowerControl,
id-downlinkSignallingTransfer,
id-downlinkPowerTimeslotControl,
id-errorIndication,
id-informationExchangeFailure,
id-informationExchangeInitiation,
id-informationReporting,
id-informationExchangeTermination,
id-iurDeactivateTrace,
id-iurInvokeTrace,
id-dedicatedMeasurementFailure,
id-dedicatedMeasurementInitiation,
id-dedicatedMeasurementReporting,
id-dedicatedMeasurementTermination,
id-paging,
id-physicalChannelReconfiguration,
id-privateMessage,
id-radioLinkActivation,
id-radioLinkAddition,
id-radioLinkCongestion,
id-radioLinkDeletion,
id-radioLinkFailure,
id-radioLinkParameterUpdate,
id-radioLinkPreemption,
id-radioLinkRestoration,
id-radioLinkSetup,
id-relocationCommit,
id-reset,
id-synchronisedRadioLinkReconfigurationCancellation,
id-synchronisedRadioLinkReconfigurationCommit,
id-synchronisedRadioLinkReconfigurationPreparation,
id-uEMeasurementFailure,
id-uEMeasurementInitiation,
id-uEMeasurementReporting,
id-uEMeasurementTermination,
id-unSynchronisedRadioLinkReconfiguration,
id-uplinkSignallingTransfer,
id-GERANuplinkSignallingTransfer
FROM RNSAP-Constants;

```

UNCHANGED TEXT IS REMOVED

```

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

```

```

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

```

```

RNSAP-ELEMENTARY-PROCEDURES-CLASS-1 RNSAP-ELEMENTARY-PROCEDURE ::= {
  radioLinkSetupFDD
  radioLinkSetupTDD
  radioLinkAdditionFDD
  radioLinkAdditionTDD
  radioLinkDeletion
  synchronisedRadioLinkReconfigurationPreparationFDD
  synchronisedRadioLinkReconfigurationPreparationTDD
  unSynchronisedRadioLinkReconfigurationFDD
  unSynchronisedRadioLinkReconfigurationTDD
  physicalChannelReconfigurationFDD
  physicalChannelReconfigurationTDD
  dedicatedMeasurementInitiation
  commonTransportChannelResourcesInitialisationFDD
  commonTransportChannelResourcesInitialisationTDD
  ...,
  commonMeasurementInitiation
  informationExchangeInitiation
  reset
  uEMeasurementInitiation
}

```

```

RNSAP-ELEMENTARY-PROCEDURES-CLASS-2 RNSAP-ELEMENTARY-PROCEDURE ::= {
  uplinkSignallingTransferFDD
  uplinkSignallingTransferTDD
  downlinkSignallingTransfer
  relocationCommit
  paging
  synchronisedRadioLinkReconfigurationCommit
  synchronisedRadioLinkReconfigurationCancellation
  radioLinkFailure
  radioLinkPreemption
  radioLinkRestoration
  dedicatedMeasurementReporting
  dedicatedMeasurementTermination
  dedicatedMeasurementFailure
}

```

```

downlinkPowerControlFDD
downlinkPowerTimeslotControl
compressedModeCommandFDD
commonTransportChannelResourcesRelease
errorIndication
privateMessage
....
radioLinkCongestion
commonMeasurementFailure
commonMeasurementReporting
commonMeasurementTermination
informationExchangeFailure
informationExchangeTermination
informationReporting
radioLinkActivationFDD
radioLinkActivationTDD
gERANuplinkSignallingTransfer
radioLinkParameterUpdateFDD
radioLinkParameterUpdateTDD
uEMeasurementReporting
uEMeasurementTermination
uEMeasurementFailure
iurInvokeTrace
iurDeactivateTrace
}

```

```

RNSAP-ELEMENTARY-PROCEDURES-CLASS-3 RNSAP-ELEMENTARY-PROCEDURE ::= {
...
}

```

```

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

```

UNCHANGED TEXT IS REMOVED

```

uEMeasurementFailure RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE UEMeasurementFailureIndication
  PROCEDURE ID       { procedureCode id-uEMeasurementFailure, ddMode tdd }
  CRITICALITY        ignore
}

```

```

iurInvokeTrace RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE IurInvokeTrace
  PROCEDURE ID       { procedureCode id-iurInvokeTrace, ddMode common }
  CRITICALITY        ignore
}

```

```

iurDeactivateTrace RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE IurDeactivateTrace

```



```

PROCEDURE ID      { procedureCode id-iurDeactivateTrace, ddMode common }
CRITICALITY      ignore
}

```

END

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,
  AllocationRetentionPriority,
  AllowedQueuingTime,
  Allowed-Rate-Information,
  AlphaValue,
  AntennaColocationIndicator,
  BLER,
  SCTD-Indicator,
  BindingID,
  C-ID,
  C-RNTI,
  CCTrCH-ID,
  CFN,
  ClosedLoopModel-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,
L3-Information,
SplitType,
LengthOfTFICI2,
LimitedPowerIncrease,
MaximumAllowedULTxPower,
MaxNrDLPhysicalchannels,
MaxNrDLPhysicalchannelsTS,
MaxNrOfUL-DPCHs,
MaxNrTimeslots,
MaxNrULPhysicalchannels,
MeasurementFilterCoefficient,
MeasurementID,
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,
TnlQos,
ToAWE,
ToAWS,
TraceDepth,
TraceRecordingSessionReference,
TraceReference,
TrafficClass,
TransmitDiversityIndicator,
TransportBearerID,
TransportBearerRequestIndicator,
TFCS,
Transmission-Gap-Pattern-Sequence-Information,
TransportFormatManagement,
TransportFormatSet,
TransportLayerAddress,
TrCH-SrcStatisticsDescr,
TSTD-Indicator,
TSTD-Support-Indicator,
UARFCN,
UC-ID,
UEIdentity,

```

UEMeasurementType,
UEMeasurementTimeslotInfoHCR,
UEMeasurementTimeslotInfoLCR,
UEMeasurementReportCharacteristics,
UEMeasurementParameterModAllow,
UEMeasurementValueInformation,
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,

id-Active-Pattern-Sequence-Information,
id-AdjustmentRatio,
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-ClosedLoopModel-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-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-DSCHsToBeAddedOrModifiedList-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-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-MeasurementFilterCoefficient,
id-MeasurementID,
id-Multiple-RL-InformationResponse-RL-ReconfReadyTDD,
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,
 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-Reporting-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-TnlQos,
[id-TraceDepth,](#)

id-TraceRecordingSessionReference,
id-TraceReference,

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-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-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;

UNCHANGED TEXT IS REMOVED

```
-- *****
--
-- UE MEASUREMENT FAILURE INDICATION
--
-- *****
```

```
UEMeasurementFailureIndication ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          {{UEMeasurementFailureIndication-IEs}},
    protocolExtensions   ProtocolExtensionContainer    {{UEMeasurementFailureIndication-Extensions}}    OPTIONAL,
    ...
}
```

```
UEMeasurementFailureIndication-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-MeasurementID          CRITICALITY ignore TYPE MeasurementID          PRESENCE mandatory } |
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory } ,
    ...
}
```

```
UEMeasurementFailureIndication-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
-- *****
--
-- IUR INVOKE TRACE
--
-- *****
```

```
IurInvokeTrace ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          {{IurInvokeTrace-IEs}},
    protocolExtensions   ProtocolExtensionContainer    {{IurInvokeTrace-Extensions}}    OPTIONAL,
    ...
}
```

```
IurInvokeTrace-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-D-RNTI                CRITICALITY ignore TYPE D-RNTI                PRESENCE optional } |
    { ID id-TraceReference         CRITICALITY ignore TYPE TraceReference         PRESENCE mandatory } |
    { ID id-UEIdentity             CRITICALITY ignore TYPE UEIdentity             PRESENCE mandatory } |
    { ID id-TraceRecordingSessionReference CRITICALITY ignore TYPE TraceRecordingSessionReference PRESENCE mandatory } |
    { ID id-ListOfInterfacesToTrace CRITICALITY ignore TYPE ListOfInterfacesToTrace PRESENCE optional } |
    { ID id-TraceDepth             CRITICALITY ignore TYPE TraceDepth             PRESENCE mandatory } ,
}
```

```

...
}

ListOfInterfacesToTrace ::= SEQUENCE (SIZE (1..maxNrOfInterfaces)) OF ProtocolIE-Single-Container {{ InterfacesToBeTracedItemIE }}

InterfacesToBeTracedItemIE RNSAP-PROTOCOL-IES ::= {
  { ID id-InterfacesToTraceItem          CRITICALITY ignore  TYPE InterfacesToTraceItem          PRESENCE mandatory  }
}

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

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

IurInvokeTrace-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- IUR DEACTIVATE TRACE
--
-- *****

IurDeactivateTrace ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container          {{IurDeactivateTrace-IEs}},
  protocolExtensions  ProtocolExtensionContainer    {{IurDeactivateTrace-Extensions}} OPTIONAL,
  ...
}

IurDeactivateTrace-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-D-RNTI          CRITICALITY ignore  TYPE D-RNTI          PRESENCE optional  },
  { ID id-TraceReference  CRITICALITY ignore  TYPE TraceReference  PRESENCE mandatory },
  ...
}

IurDeactivateTrace-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

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

PrivateMessage ::= SEQUENCE {

```

```
privateIEs PrivateIE-Container {{PrivateMessage-IEs}},
  ...
}
PrivateMessage-IEs RNSAP-PRIVATE-IES ::= {
  ...
}
END
```


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

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-- I

UNCHANGED TEXT IS REMOVED

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))

UNCHANGED TEXT IS REMOVED

-- T

UNCHANGED TEXT IS REMOVED

ToAWE ::= INTEGER (0..2559)

ToAWS ::= INTEGER (0..1279)

TraceDepth ::= ENUMERATED {
    minimum,
    medium,
    maximum,
    ...
}

TraceRecordingSessionReference ::= INTEGER (0..65535)
```

TraceReference ::= OCTET STRING (SIZE (2..3))

```
TrafficClass ::= ENUMERATED {
  conversational,
  streaming,
  interactive,
  background,
  ...
}
```

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-- U

UNCHANGED TEXT IS REMOVED

```
UE-Capabilities-Info ::= SEQUENCE {
  hSDSCH-Physical-Layer-Category      INTEGER (1..64,...),
  mACHs-Reordering-Buffer-Size        MACHsReorderingBufferSize,
  iE-Extensions                       ProtocolExtensionContainer { { UE-Capabilities-Info-ExtIEs } }
  ...
}
```

```
UE-Capabilities-Info-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}
```

```
UEIdentity ::= CHOICE {
  imsi      IMSI,
  imei      IMEI,
  imeisv    IMEISV,
  ...
}
```

```
UEMeasurementHysteresisTime ::= INTEGER (0..15)
  -- Unit dB
  -- Range 0..7.5 dB
  -- Step 0.5 dB
```

UNCHANGED TEXT IS REMOVED

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

```

```

-- *****
--
-- 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
maxNrOfPoints              INTEGER ::= 15
maxNrOfRFLs                INTEGER ::= 16
maxNrOfRFLSets             INTEGER ::= maxNrOfRFLs
maxNrOfRFLSets-1           INTEGER ::= 15 -- maxNrOfRFLSets - 1
maxNrOfRFLs-1              INTEGER ::= 15 -- maxNrOfRFLs - 1
maxNrOfRFLs-2              INTEGER ::= 14 -- maxNrOfRFLs - 2
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
maxNrOfPriorityClasses         INTEGER ::= 16
maxNrOfSatAlmanac-maxNoSat    INTEGER ::= 16
maxNrOfInterfaces             INTEGER ::= 16

```

```

-- *****
--
-- IEs
--
-- *****

```

```

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
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-Reporting-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
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-ClosedLoopModel-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
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-SFN SFN Measurement Threshold Information	ProtocolIE-ID ::= 238
id-Transmitted-Carrier-Power-Value	ProtocolIE-ID ::= 239
id-Transmitted-Carrier-Power-Value-IncrDecrThres	ProtocolIE-ID ::= 240
id-TUTRANGPS Measurement Threshold Information	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-LengthOfTF CI2	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
id-DSCH-RNTI	ProtocolIE-ID ::= 249
id-DL-PowerBalancing-Information	ProtocolIE-ID ::= 296
id-DL-PowerBalancing-ActivationIndicator	ProtocolIE-ID ::= 297
id-DL-PowerBalancing-UpdatedIndicator	ProtocolIE-ID ::= 298
id-DL-ReferencePowerInformation	ProtocolIE-ID ::= 299
id-Enhanced-PrimaryCPICH-EcNo	ProtocolIE-ID ::= 224
id-IPDL-TDD-ParametersLCR	ProtocolIE-ID ::= 252
id-CellCapabilityContainer-FDD	ProtocolIE-ID ::= 300
id-CellCapabilityContainer-TDD	ProtocolIE-ID ::= 301
id-CellCapabilityContainer-TDD-LCR	ProtocolIE-ID ::= 302
id-RL-Specific-DCH-Info	ProtocolIE-ID ::= 317
id-RL-ReconfigurationRequestFDD-RL-InformationList	ProtocolIE-ID ::= 318
id-RL-ReconfigurationRequestFDD-RL-Information-IEs	ProtocolIE-ID ::= 319
id-RL-ReconfigurationRequestTDD-RL-Information	ProtocolIE-ID ::= 321
id-CommonTransportChannelResourcesInitialisationNotRequired	ProtocolIE-ID ::= 250
id-DelayedActivation	ProtocolIE-ID ::= 312
id-DelayedActivationList-RL-ActivationCmdFDD	ProtocolIE-ID ::= 313
id-DelayedActivationInformation-RL-ActivationCmdFDD	ProtocolIE-ID ::= 314
id-DelayedActivationList-RL-ActivationCmdTDD	ProtocolIE-ID ::= 315
id-DelayedActivationInformation-RL-ActivationCmdTDD	ProtocolIE-ID ::= 316
id-neighbouringTDDCellMeasurementInformationLCR	ProtocolIE-ID ::= 251
id-UL-SIR-Target-CCTrCH-InformationItem-RL-SetupRspTDD	ProtocolIE-ID ::= 150
id-UL-SIR-Target-CCTrCH-LCR-InformationItem-RL-SetupRspTDD	ProtocolIE-ID ::= 151
id-PrimCCPCH-RSCP-DL-PC-RqstTDD	ProtocolIE-ID ::= 451
id-HSDSCH-FDD-Information	ProtocolIE-ID ::= 452
id-HSDSCH-FDD-Information-Response	ProtocolIE-ID ::= 453
id-HSDSCH-FDD-Update-Information	ProtocolIE-ID ::= 466
id-HSDSCH-Information-to-Modify	ProtocolIE-ID ::= 456
id-HSDSCHMacdFlowSpecificInformationList-RL-PreemptRequiredInd	ProtocolIE-ID ::= 516
id-HSDSCHMacdFlowSpecificInformationItem-RL-PreemptRequiredInd	ProtocolIE-ID ::= 517
id-HSDSCH-RNTI	ProtocolIE-ID ::= 457
id-HSDSCH-TDD-Information	ProtocolIE-ID ::= 458
id-HSDSCH-TDD-Information-Response	ProtocolIE-ID ::= 459
id-HSDSCH-TDD-Update-Information	ProtocolIE-ID ::= 467
id-HSPDSCH-RL-ID	ProtocolIE-ID ::= 463

id-HSDSCH-MACdFlows-to-Add	ProtocolIE-ID ::= 531
id-HSDSCH-MACdFlows-to-Delete	ProtocolIE-ID ::= 532
id-Angle-Of-Arrival-Value-LCR	ProtocolIE-ID ::= 148
id-TrafficClass	ProtocolIE-ID ::= 158
id-TFCI-PC-SupportIndicator	ProtocolIE-ID ::= 248
id-Qth-Parameter	ProtocolIE-ID ::= 253
id-PDSCH-RL-ID	ProtocolIE-ID ::= 323
id-TimeSlot-RL-SetupRspTDD	ProtocolIE-ID ::= 325
id-GERAN-Cell-Capability	ProtocolIE-ID ::= 468
id-GERAN-Classmark	ProtocolIE-ID ::= 469
id-DSCH-InitialWindowSize	ProtocolIE-ID ::= 480
id-UL-Synchronisation-Parameters-LCR	ProtocolIE-ID ::= 464
id-SNA-Information	ProtocolIE-ID ::= 479
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
id-TDD-TPC-UplinkStepSize-InformationModify-LCR-RL-ReconfPrepTDD	ProtocolIE-ID ::= 489
id-TDD-TPC-DownlinkStepSize-InformationAdd-RL-ReconfPrepTDD	ProtocolIE-ID ::= 490
id-TDD-TPC-DownlinkStepSize-InformationModify-RL-ReconfPrepTDD	ProtocolIE-ID ::= 491
id-UL-TimingAdvanceCtrl-LCR	ProtocolIE-ID ::= 492
id-HSPDSCH-Timeslot-InformationList-PhyChReconfRqstTDD	ProtocolIE-ID ::= 493
id-HSPDSCH-Timeslot-InformationListLCR-PhyChReconfRqstTDD	ProtocolIE-ID ::= 494
id-HS-SICH-Reception-Quality	ProtocolIE-ID ::= 495
id-HS-SICH-Reception-Quality-Measurement-Value	ProtocolIE-ID ::= 496
id-HSSICH-Info-DM-Rprt	ProtocolIE-ID ::= 497
id-HSSICH-Info-DM-Rqst	ProtocolIE-ID ::= 498
id-HSSICH-Info-DM	ProtocolIE-ID ::= 499
id-CCTrCH-Maximum-DL-Power-RL-SetupRspTDD	ProtocolIE-ID ::= 500
id-CCTrCH-Minimum-DL-Power-RL-SetupRspTDD	ProtocolIE-ID ::= 501
id-CCTrCH-Maximum-DL-Power-RL-AdditionRspTDD	ProtocolIE-ID ::= 502
id-CCTrCH-Minimum-DL-Power-RL-AdditionRspTDD	ProtocolIE-ID ::= 503
id-CCTrCH-Maximum-DL-Power-RL-ReconfReadyTDD	ProtocolIE-ID ::= 504
id-CCTrCH-Minimum-DL-Power-RL-ReconfReadyTDD	ProtocolIE-ID ::= 505
id-Maximum-DL-Power-TimeslotLCR-InformationModifyItem-RL-ReconfReadyTDD	ProtocolIE-ID ::= 506
id-Minimum-DL-Power-TimeslotLCR-InformationModifyItem-RL-ReconfReadyTDD	ProtocolIE-ID ::= 507
id-DL-CCTrCH-InformationList-RL-ReconfRspTDD	ProtocolIE-ID ::= 508
id-DL-DPCH-InformationModifyItem-LCR-RL-ReconfRspTDD	ProtocolIE-ID ::= 509
id-Maximum-DL-Power-TimeslotLCR-InformationItem	ProtocolIE-ID ::= 510
id-Minimum-DL-Power-TimeslotLCR-InformationItem	ProtocolIE-ID ::= 511
id-TDD-Support-8PSK	ProtocolIE-ID ::= 512
id-TDD-maxNrDLPhysicalchannels	ProtocolIE-ID ::= 513
id-ExtendedGSMCellIndividualOffset	ProtocolIE-ID ::= 514
id-RL-ParameterUpdateIndicationFDD-RL-InformationList	ProtocolIE-ID ::= 518
id-Primary-CPICH-Usage-For-Channel-Estimation	ProtocolIE-ID ::= 519
id-Secondary-CPICH-Information	ProtocolIE-ID ::= 520
id-Secondary-CPICH-Information-Change	ProtocolIE-ID ::= 521
id-UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation	ProtocolIE-ID ::= 522

id-UE-Support-Of-Dedicated-Pilots-For-Channel-Estimation-Of-HS-DSCH	ProtocolIE-ID ::= 523
id-RL-ParameterUpdateIndicationFDD-RL-Information-Item	ProtocolIE-ID ::= 524
id-Phase-Reference-Update-Indicator	ProtocolIE-ID ::= 525
id-Unidirectional-DCH-Indicator	ProtocolIE-ID ::= 526
id-RL-Information-RL-ReconfPrepTDD	ProtocolIE-ID ::= 527
id-Multiple-RL-InformationResponse-RL-ReconfReadyTDD	ProtocolIE-ID ::= 528
id-RL-ReconfigurationResponseTDD-RL-Information	ProtocolIE-ID ::= 529
id-Satellite-Almanac-Information-ExtItem	ProtocolIE-ID ::= 530
id-HSDSCH-Information-to-Modify-Unsynchronised	ProtocolIE-ID ::= 533
id-TnlQos	ProtocolIE-ID ::= 534
id-RTLoadValue	ProtocolIE-ID ::= 535
id-NRTLLoadInformationValue	ProtocolIE-ID ::= 536
id-CellPortionID	ProtocolIE-ID ::= 537
id-UpPTSInterferenceValue	ProtocolIE-ID ::= 538
id-PrimaryCCPCH-RSCP-Delta	ProtocolIE-ID ::= 539
id-UEMeasurementType	ProtocolIE-ID ::= 540
id-UEMeasurementTimeslotInfoHCR	ProtocolIE-ID ::= 541
id-UEMeasurementTimeslotInfoLCR	ProtocolIE-ID ::= 542
id-UEMeasurementReportCharacteristics	ProtocolIE-ID ::= 543
id-UEMeasurementParameterModAllow	ProtocolIE-ID ::= 544
id-UEMeasurementValueInformation	ProtocolIE-ID ::= 545
<u>id-InterfacesToTraceItem</u>	<u>ProtocolIE-ID ::= 546</u>
<u>id-ListOfInterfacesToTrace</u>	<u>ProtocolIE-ID ::= 547</u>
<u>id-TraceDepth</u>	<u>ProtocolIE-ID ::= 548</u>
<u>id-TraceRecordingSessionReference</u>	<u>ProtocolIE-ID ::= 549</u>
<u>id-TraceReference</u>	<u>ProtocolIE-ID ::= 550</u>
<u>id-UEIdentity</u>	<u>ProtocolIE-ID ::= 551</u>

END