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 Marco Island, Florida, 4<sup>th</sup> –7<sup>th</sup> June 2002

**Tdoc RP-020447**

CR-Form-v5.1
<b>CHANGE REQUEST</b>
⌘ <b>25.423 CR 669</b> ⌘ rev <b>2</b> ⌘ Current version: <b>5.0.0</b> ⌘

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Support of lur-g procedures
<b>Source:</b>	⌘ Nokia
<b>Work item code:</b>	⌘ TEI <span style="float: right;"><b>Date:</b> ⌘ May 2002</span>
<b>Category:</b>	⌘ <b>B</b> <span style="float: right;"><b>Release:</b> ⌘ REL-5</span> <i>Use one of the following categories:</i> 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 <a href="#">TR 21.900</a> .
	<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	⌘ Modifications to RNSAP are necessary in order to support UTRAN/GERAN interworking over the lur-g interface.
<b>Summary of change:</b>	⌘ GERAN related references, definitions and abbreviations are updated to the relevant sections.  The term BSS is used to indicate the GERAN controller in line with 43.051 GERAN Overall description, stage 2. The notation RNC/BSS is added to text describing procedures and functions, which are applicable to the lur-g interface.  The following procedures are updated to enable operation over lur-g:  <ul style="list-style-type: none"> <li>- Uplink signalling transfer</li> <li>- Downlink signalling transfer</li> <li>- Relocation commit</li> <li>- Paging</li> <li>- Error indication</li> <li>- Common measurement initiation, reporting, termination, failure</li> <li>-</li> </ul> In general, the same messages and information elements are used on the lur-g interface as on lur. The only exception is that a new GERAN specific UPLINK SIGNALLING TRANSFER INDICATION message is introduced. Elsewhere, notes are added to the semantic description fields in messages to indicate that a UTRAN specific IE is used for GERAN signalling as well. This applies to the URA/GRA ids and UTRAN/GERAN specific cell identifiers.  The editorial change from revision 1 is that the tagging is replaced with separate

	subsections indicating for lur-g.													
<b>Consequences if not approved:</b>	⌘	If this CR is not approved, lur-g will not be supported. <u>Impact Analysis:</u> Impact assessment towards the previous version of the specification (same release): This CR has no impact with the previous version of the specification (same release).												
<b>Clauses affected:</b>	⌘	2, 3.1, 3.3, 4.4, 5.1, 7, 7.1, 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5, 8.5.6, 8.5.7, 8.5.8, 8.5.9, 9.1.24, 9.1.25, 9.1.27, 9.1.43, 9.1.44, 9.1.46, 9.1.49, 9.2.1.12C, 9.2.1.12D, 9.2.1.13, 9.2.1.31E, 9.3.2, 9.3.3, 9.3.6,												
<b>Other specs affected:</b>	⌘	<table border="0"><tr><td><input type="checkbox"/></td><td>Other core specifications</td><td>⌘</td><td></td></tr><tr><td><input type="checkbox"/></td><td>Test specifications</td><td></td><td></td></tr><tr><td><input type="checkbox"/></td><td>O&amp;M Specifications</td><td></td><td></td></tr></table>	<input type="checkbox"/>	Other core specifications	⌘		<input type="checkbox"/>	Test specifications			<input type="checkbox"/>	O&M Specifications		
<input type="checkbox"/>	Other core specifications	⌘												
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<b>Other comments:</b>	⌘	The approval of this CR depends on the approval of GERAN lu-mode discussion												

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# 1 Scope

The present document specifies the radio network layer signalling procedures of the control plane between RNCs in UTRAN, [between RNC in UTRAN and BSS in GERAN Iu mode](#) and [between BSSs in GERAN Iu mode](#).

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# 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 (V3.3): "Requirements for support of Radio Resource management (FDD)".
- [24] 3GPP TS 25.123 (V3.5): "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 TS 43.930: "Iur-g interface; Stage 2".

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**Elementary Procedure:** RNSAP protocol consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between two RNCs. An EP consists of an initiating message and possibly a response message. Two kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success or failure);
- **Class 2:** Elementary Procedures without response.

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

### Successful

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

### Unsuccessful

- A signalling message explicitly indicates that the EP failed.

Class 2 EPs are considered always successful.

**Prepared Reconfiguration:** A Prepared Reconfiguration exists when the Synchronised Radio Link Reconfiguration Preparation procedure has been completed successfully. The Prepared Reconfiguration does not exist any more after either of the procedures Synchronised Radio Link Reconfiguration Commit or Synchronised Radio Link Reconfiguration Cancellation has been completed.

**UE Context:** The UE Context contains the necessary information for the DRNC/DBSS to communicate with a specific UE. The UE Context is created by the Radio Link Setup procedure or by the Uplink Signalling Transfer procedure when the UE makes its first access in a cell controlled by the DRNS/DBSS. The UE Context is deleted by the Radio Link Deletion procedure, by the Common Transport Channel Resources Release procedure, or by the Downlink Signalling Transfer procedure when neither any Radio Links nor any common transport channels are established towards the concerning UE. The UE Context is identified by the SCCP Connection for messages using connection oriented mode of the signalling bearer and the D-RNTI for messages using connectionless mode of the signalling bearer, unless specified otherwise in the procedure text.

**Distant RNC Context:** The Distant RNC context is created by the first Common Measurement Initiation Procedure or Information Exchange Initiation Procedure initiated by one RNC/BSS and requested from another RNC/BSS. The Distant RNC Context is deleted after the Common Measurement Termination, the Common Measurement Failure, the Information Exchange Termination or the Information Exchange Failure procedure when there is no more Common Measurement and no more Information to be provided by the requested RNC/BSS to the requesting RNC/BSS. The Distant RNC Context is identified by an SCCP connection as, for common measurements and information exchange, only the connection oriented mode of the signalling bearer is used.

**Real Time (RT):** Real time bearer services are those services associated with RABs whose traffic class is defined as *Conversational* or *Streaming*.

**Non Real Time (NRT):** Non Real time bearer services are those services associated with RABs whose traffic class is defined as *Interactive* or *Background*.

**Signalling radio bearer 2 (SRB2):** The signalling radio bearer 2 is used by the UE to access a GERAN cell in order to perform RRC procedures [36].

### 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

A-GPS	Assisted-GPS
ALCAP	Access Link Control Application Part
ASN.1	Abstract Syntax Notation One
BLER	Block Error Rate
<u>BSS</u>	<u>Base Station Subsystem</u>
CCCH	Common Control Channel
CCPCH	Common Control Physical Channel
CCTrCH	Coded Composite Transport Channel
CFN	Connection Frame Number
CM	Compressed Mode
CN	Core Network
CPCH	Common Packet Channel
CPICH	Common Pilot Channel
<u>CBSS</u>	<u>Controlling BSS</u>
CRNC	Controlling RNC
<u>DBSS</u>	<u>Drift BSS</u>
DCH	Dedicated Channel
DGPS	Differential GPS
DL	Downlink
DPCCH	Dedicated Physical Control Channel
DPCH	Dedicated Physical Channel
DRNC	Drift RNC
DRNS	Drift RNS
D-RNTI	Drift Radio Network Temporary Identifier
DRX	Discontinuous Reception
DSCH	Downlink Shared Channel
EP	Elementary Procedure
FACH	Forward Access Channel
FDD	Frequency Division Duplex
FP	Frame Protocol
<u>GERAN</u>	<u>GSM EDGE Radio Access Network</u>
GPS	Global Positioning System
<u>GRA</u>	<u>GERAN Registration Area</u>
IE	Information Element
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IPDL	Idle Period DownLink
ISCP	Interference Signal Code Power
LCS	Location Services
MAC	Medium Access Control
<u>MS</u>	<u>Mobile Station</u>
NAS	Non Access Stratum
O&M	Operation and Maintenance
P-CCPCH	Primary CCPCH
PCH	Paging Channel
P-CIPCH	Primary CIPCH
PCPCH	Physical Common Packet Channel
PDU	Protocol Data Unit
PICH	Paging Indication Channel
PRACH	Physical Random Access Channel
RACH	Random Access Channel
RL	Radio Link
RLC	Radio Link Control
RLS	Radio Link Set
RNS	Radio Network Subsystem
RNSAP	Radio Network Subsystem Application Part
RNTI	Radio Network Temporary Identifier

RRC	Radio Resource Control
RSCP	Received Signal Code Power
<u>SBSS</u>	<u>Serving BSS</u>
S-CCPCH	Secondary CCPCH
SCH	Synchronisation Channel
SCTD	Space Code Transmit Diversity
SDU	Service Data Unit
SFN	System Frame Number
SIR	Signal-to-Interference Ratio
<u>SRB2</u>	<u>Signalling radio bearer 2</u>
SRNC	Serving RNC
SRNS	Serving RNS
SSDT	Site Selection Diversity Transmission
STTD	Space Time Transmit Diversity
TDD	Time Division Duplex
TFCI	Transport Format Combination Indicator
TFCS	Transport Format Combination Set
TFS	Transport Format Set
ToAWS	Time of Arrival Window Endpoint
TPC	Transmit Power Control
TrCh	Transport Channel
TSTD	Time Switched Transmit Diversity
UARFCN	UTRA Absolute Radio Frequency Channel Number
UDP	User Datagram Protocol
UE	User Equipment
UL	Uplink
URA	UTRAN Registration Area
USCH	Uplink Shared Channel
UTRA	Universal Terrestrial Radio Access
UTRAN	Universal Terrestrial Radio Access Network

## 4.4 Specification Notations

For the purposes of the present document, the following notations apply:

- [FDD] This tagging of a word indicates that the word preceding the tag "[FDD]" applies only to FDD. This tagging of a heading indicates that the heading preceding the tag "[FDD]" and the section following the heading applies only to FDD.
- [TDD] This tagging of a word indicates that the word preceding the tag "[TDD]" applies only to TDD, including 3.84Mcps TDD and 1.28Mcps TDD. This tagging of a heading indicates that the heading preceding the tag "[TDD]" and the section following the heading applies only to TDD, including 3.84Mcps TDD and 1.28Mcps TDD.
- [3.84Mcps TDD] This tagging of a word indicates that the word preceding the tag "[3.84Mcps TDD]" applies only to 3.84Mcps TDD. This tagging of a heading indicates that the heading preceding the tag "[3.84Mcps TDD]" and the section following the heading applies only to 3.84Mcps TDD.
- [1.28Mcps TDD] This tagging of a word indicates that the word preceding the tag "[1.28Mcps TDD]" applies only to 1.28Mcps TDD. This tagging of a heading indicates that the heading preceding the tag "[1.28Mcps TDD]" and the section following the heading applies only to 1.28Mcps TDD.
- [FDD - ...] This tagging indicates that the enclosed text following the "[FDD - " applies only to FDD. Multiple sequential paragraphs applying only to FDD are enclosed separately to enable insertion of TDD specific (or common) paragraphs between the FDD specific paragraphs.
- [TDD - ...] This tagging indicates that the enclosed text following the "[TDD - " applies only to TDD including 3.84Mcps TDD and 1.28Mcps TDD. Multiple sequential paragraphs applying only to TDD are enclosed separately to enable insertion of FDD specific (or common) paragraphs between the TDD specific paragraphs.
- [3.84Mcps TDD - ...] This tagging indicates that the enclosed text following the "[3.84Mcps TDD - " applies only to 3.84Mcps TDD. Multiple sequential paragraphs applying only to 3.84Mcps TDD are enclosed separately to enable insertion of FDD and TDD specific (or common) paragraphs between the 3.84Mcps TDD specific paragraphs.
- [1.28Mcps TDD - ...] This tagging indicates that the enclosed text following the "[1.28Mcps TDD - " applies only to 1.28Mcps TDD. Multiple sequential paragraphs applying only to 1.28Mcps TDD are enclosed separately to enable insertion of FDD and TDD specific (or common) paragraphs between the 1.28Mcps TDD specific paragraphs.
- Procedure When referring to an elementary procedure in the specification, the Procedure Name is written with the first letters in each word in upper case characters followed by the word "procedure", e.g. Radio Link Setup procedure.
- Message When referring to a message in the specification, the MESSAGE NAME is written with all letters in upper case characters followed by the word "message", e.g. RADIO LINK SETUP REQUEST message.
- IE When referring to an information element (IE) in the specification, the *Information Element Name* is written with the first letters in each word in upper case characters and all letters in Italic font followed by the abbreviation "IE", e.g. *Transport Format Set IE*.
- Value of an IE When referring to the value of an information element (IE) in the specification, the "Value" is written as it is specified in subclause 9.2 enclosed by quotation marks, e.g. "Abstract Syntax Error (Reject)" or "SSDT Active in the UE".



## 5.1 RNSAP Procedure Modules

The Iur interface RNSAP procedures are divided into four modules as follows:

1. RNSAP Basic Mobility Procedures;
2. RNSAP DCH Procedures;
3. RNSAP Common Transport Channel Procedures;
4. RNSAP Global Procedures.

The Basic Mobility Procedures module contains procedures used to handle the mobility within UTRAN, [within GERAN and between UTRAN and GERAN](#).

The DCH Procedures module contains procedures that are used to handle DCHs, DSCHs, and USCHs between two RNSs. If procedures from this module are not used in a specific Iur, then the usage of DCH, DSCH, and USCH traffic between corresponding RNSs is not possible.

The Common Transport Channel Procedures module contains procedures that are used to control common transport channel data streams (excluding the DSCH and USCH) over Iur interface.

The Global Procedures module contains procedures that are not related to a specific UE. The procedures in this module are in contrast to the above modules involving two peer CRNCs/[CBSSs](#).

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## 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 a 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.

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
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
<a href="#">GERAN Signalling Transfer</a>	<a href="#">a) GERAN Uplink Signalling Transfer</a> <a href="#">b) Downlink Signalling Transfer</a>
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

## 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 x.

**Table x: RNSAP elementary procedures applicable on the Iur-g interface**

<b><u>Function</u></b>	<b><u>Elementary Procedure(s)</u></b>
<u>GERAN Signalling Transfer</u>	a) <u>GERAN Uplink Signalling Transfer</u> b) <u>Downlink Signalling Transfer</u>
<u>Paging</u>	<u>Paging</u>
<u>Relocation Execution</u>	<u>Relocation Commit</u>
<u>Reporting of General Error Situations</u>	<u>Error Indication</u>
<u>Measurements on Common Resources</u>	a) <u>Common Measurement Initiation</u> b) <u>Common Measurement Reporting</u> c) <u>Common Measurement Termination</u> d) <u>Common Measurement Failure</u>
<u>Information Exchange</u>	a) <u>Information Exchange Initiation</u> b) <u>Information Reporting</u> c) <u>Information Exchange Termination</u> d) <u>Information Exchange Failure</u>

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

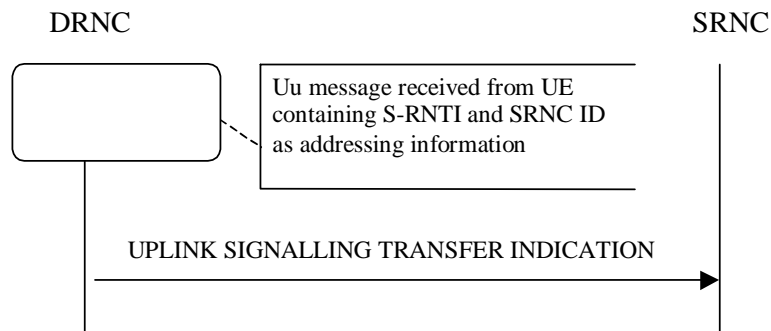
## 8.2.1 Uplink Signalling Transfer

### 8.2.1.1 General

The procedure is used by the DRNC to forward a Uu message received on the CCCH to the SRNC.

This procedure shall use the connectionless mode of the signalling bearer.

### 8.2.1.2 Successful Operation



**Figure 1: Uplink Signalling Transfer procedure, Successful Operation**

When the DRNC receives an Uu message on the CCCH where the UE addressing information is U-RNTI, i.e. S-RNTI and SRNC-ID, DRNC shall send the UPLINK SIGNALLING TRANSFER INDICATION message to the SRNC identified by the SRNC-ID received from the UE.

If at least one URA Identity is being broadcast in the cell where the Uu message was received (the accessed cell), the DRNC shall include a URA Identity for this cell in the *URA ID* IE, the *Multiple URAs Indicator* IE indicating whether or not multiple URA Identities are being broadcast in the accessed cell, and the RNC Identity of all other RNCs that are having at least one cell within the URA where the Uu message was received in the *URA Information* IE in the UPLINK SIGNALLING TRANSFER INDICATION message.

The DRNC shall include in the message the C-RNTI that it allocates to identify the UE in the radio interface in the accessed cell. If there is no valid C-RNTI for the UE in the accessed cell, the DRNC shall allocate a new C-RNTI for the UE. If the DRNC allocates a new C-RNTI it shall also release any C-RNTI previously allocated for the UE.

If the DRNC has any RACH, [FDD - CPCH], and/or FACH resources allocated for the UE identified by the U-RNTI in another cell than the accessed cell in which the Mac SDU sizes, flow control settings (including credits) and/or transport bearer are different from those in the old cell, then the DRNC shall not include the *Common Transport Channel Resources Initialisation not Required* IE in the UPLINK SIGNALLING TRANSFER INDICATION message. In addition the DRNC shall release these RACH, [FDD - CPCH,] and/or FACH resources in old cell.

If the DRNC has any RACH, [FDD - CPCH], and/or FACH resources allocated for the UE identified by the U-RNTI in another cell than the accessed cell in which the Mac SDU sizes, flow control settings (including credits) and transport bearer are the same as in the old cell, there is no need for Common Transport Channel Resources Initialisation to be initiated. In that case, DRNC may include the *Common Transport Channel Resources Initialisation not Required* IE in the UPLINK SIGNALLING TRANSFER INDICATION message. In addition, the DRNC shall move these RACH, [FDD - CPCH,] and/or FACH resources to the new cell. If no Common Transport Channel Resources Initialisation procedure is executed, the currently applicable Mac SDU sizes, flow control settings (including credits) and transport bearer shall continue to be used while the UE is in the new cell.

If no context exists for this UE in the DRNC, the DRNC shall create a UE Context for this UE, allocate a D-RNTI for the UE Context, and include the *D-RNTI* IE and the identifiers for the CN CS Domain and CN PS Domain that the DRNC is connected to in the UPLINK SIGNALLING TRANSFER INDICATION message. These CN Domain Identifiers shall be based on the LAC and RAC respectively of the cell where the message was received from the UE.

Depending on local configuration in the DRNC, it may include the geographical co-ordinates of the cell, represented either by the *Cell GAI* IE or by the *Cell GA Additional Shapes* IE, where the Uu message was received in the UPLINK SIGNALLING TRANSFER INDICATION message.

[FDD - The DRNC shall include the *DPC Mode Change Support Indicator* IE in the UPLINK SIGNALLING TRANSFER INDICATION message if the accessed cell supports DPC mode change.]

[FDD- The DRNC shall include the *Flexible Hard Split Support Indicator* IE in the UPLINK SIGNALLING TRANSFER INDICATION message if the accessed cell supports TFCI flexible hard split mode.]

The DRNC shall include [FDD - the *Cell Capability Container FDD* IE], [3.84Mcps TDD - the *Cell Capability Container TDD* IE] and/or [1.28Mcps TDD - the *Cell Capability Container TDD LCR* IE] in the UPLINK SIGNALLING TRANSFER INDICATION message if the accessed cell supports any functionalities listed in [FDD - 9.2.1.5a], [3.84Mcps TDD - 9.2.1.5aa] and [1.28 Mcps - TDD 9.2.1.5ab].

### 8.2.1.3 Abnormal Conditions

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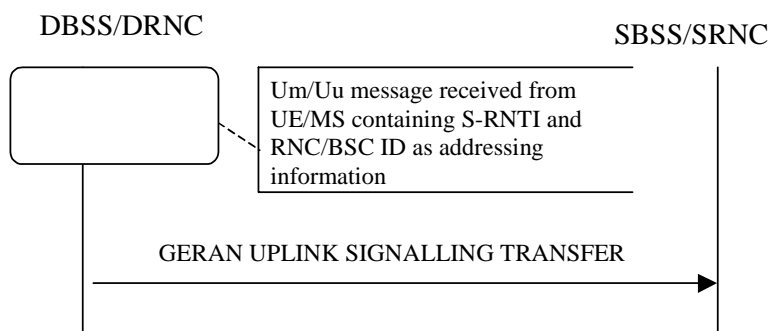
## 8.2.1x GERAN Uplink Signalling Transfer

### 8.2.1x.1 General

The procedure is used by the DBSS to forward a Um message received on the SRB2 to the SBSS/SRNC. The procedure is also used by the DRNC to forward a Uu message received on the CCCH to the SBSS.

This procedure shall use the connectionless mode of the signalling bearer.

### 8.2.1x.2 Successful Operation



**Figure 1x: GERAN Uplink Signalling Transfer procedure, Successful Operation**

When the DBSS receives an Um message on the SRB2 where the MS addressing information is G-RNTI, i.e. S-RNTI and BSC-ID, DBSS shall send the GERAN UPLINK SIGNALLING TRANSFER INDICATION message to the SBSS/SRNC identified by the BSC-ID received from the MS.

Alternatively, when the DRNC receives an Uu message on the CCCH where the UE addressing information is U-RNTI, i.e. S-RNTI and SRNC-ID, and where the SRNC-ID points to a GERAN BSS, the DRNC shall send the GERAN UPLINK SIGNALLING TRANSFER INDICATION message to the SBSS identified by SRNC-ID received from the UE.

If at least one GRA/URA Identity is being broadcast in the cell where the Um/Uu message was received (the accessed cell), the DBSS/DRNC shall include a GRA/URA Identity for this cell in the *URA ID IE*, the *Multiple URAs Indicator IE* indicating whether or not multiple GRA/URA Identities are being broadcast in the accessed cell, and the RNC/BSS Identity of all other RNC/BSSs that are having at least one cell within the GRA/URA where the Um/Uu message was received in the *URA Information IE* in the GERAN UPLINK SIGNALLING TRANSFER INDICATION message.

If no context exists for this UE/MS in the DBSS/DRNC, the DBSS/DRNC shall create a UE Context for this UE/MS, allocate a D-RNTI for the UE Context, and include the *D-RNTI IE* and the identifiers for the CN CS Domain and CN PS Domain that the DBSS/DRNC is connected to in the GERAN UPLINK SIGNALLING TRANSFER INDICATION message. These CN Domain Identifiers shall be based on the LAC and RAC respectively of the cell where the message was received from the UE/MS.

### 8.2.1x.3 Abnormal Conditions

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## 8.2.2 Downlink Signalling Transfer

### 8.2.2.1 General

The procedure is used by the SRNC to request to the DRNC the transfer of a Uu message on the CCCH in a cell. When used, the procedure is in response to a received Uplink Signalling Transfer procedure.

This procedure shall use the connectionless mode of the signalling bearer.

### 8.2.2.1.1 Downlink Signalling Transfer for lur-g

The procedure is used by the SRNC/SBSS to request to the DBSS the transfer of a Um message on the SRB2 in a cell.

The procedure is used by the SBSS to request to the DRNC the transfer of a Uu message on the CCCH in a cell.

### 8.2.2.2 Successful Operation



**Figure 2: Downlink Signalling Transfer procedure, Successful Operation**

The procedure consists of the DOWNLINK SIGNALLING TRANSFER REQUEST message sent by the SRNC to the DRNC.

The message contains the Cell Identifier (C-Id) contained in the received UPLINK SIGNALLING TRANSFER INDICATION message and the D-RNTI.

At the reception of the message, the DRNC shall send the L3 Information on the CCCH in the cell indicated by the *C-Id* IE to the UE identified by the *D-RNTI* IE.

If the *D-RNTI Release Indication* IE is set to "Release D-RNTI" and the DRNS has no dedicated resources (DCH, [TDD - USCH,] and/or DSCH) allocated for the UE, the DRNS shall release the D-RNTI and thus the UE Context and any RACH, [FDD - CPCH,] and FACH resources and any C-RNTI allocated to the UE Context at the reception of the DOWNLINK SIGNALLING TRANSFER REQUEST message.

If the *D-RNTI Release Indication* IE is set to "Release D-RNTI" and the DRNS has dedicated resources allocated for the UE, the DRNS shall only release any RACH, [FDD - CPCH,] and FACH resources and any C-RNTI allocated to the UE Context at the reception of the DOWNLINK SIGNALLING TRANSFER REQUEST message.

### 8.2.2.2.1 Successful Operation for lur-g

The procedure consists of the DOWNLINK SIGNALLING TRANSFER REQUEST message sent by the SRNC/SBSS to the DBSS or by the SBSS to the DRNC.

The message contains the Cell Identifier (C-Id) contained in the received UPLINK SIGNALLING TRANSFER INDICATION message and the D-RNTI.

At the reception of the message, the DBSS shall send the L3 Information on the SRB2 in the cell indicated by the *C-Id* IE to the UE/MS identified by the *D-RNTI* IE.

At the reception of the message, the DRNC shall send the L3 Information on the CCCH in the cell indicated by the *C-Id* IE to the UE/MS identified by the *D-RNTI* IE.

### 8.2.2.3 Abnormal Conditions

If the user identified by the *D-RNTI* IE has already accessed another cell controlled by the DRNC than the cell identified by the *C-Id* IE in the DOWNLINK SIGNALLING TRANSFER REQUEST message, the message shall be ignored.



### 8.2.2.3.1 Abnormal Conditions for Iur-g

If the user identified by the *D-RNTI* IE has already accessed another cell controlled by the DRNC/DBSS than the cell identified by the *C-Id* IE in the DOWNLINK SIGNALLING TRANSFER REQUEST message, the message shall be ignored.

If the DRNC receives from the SBSS the DOWNLINK SIGNALLING TRANSFER REQUEST message, in which the *D-RNTI Release Indication* IE is set to "not Release D-RNTI", the DRNC shall ignore this IE and release the D-RNTI.

If the DBSS receives from the SBSS/SRNC the DOWNLINK SIGNALLING TRANSFER REQUEST message, in which the *D-RNTI Release Indication* IE is set to "not Release D-RNTI", the DBSS shall ignore this IE and release the D-RNTI.

## 8.2.3 Relocation Commit

### 8.2.3.1 General

The Relocation Commit procedure is used by source RNC to execute the Relocation. This procedure supports the Relocation procedures described in [2].

This procedure shall use the signalling bearer mode specified below.

### 8.2.3.2 Successful Operation



**Figure 3: Relocation Commit procedure, Successful Operation**

The source RNC sends the RELOCATION COMMIT message to the target RNC to request the target RNC to proceed with the Relocation.

When the 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.

At reception of the RELOCATION COMMIT message from the source RNC the target RNC finalises the Relocation. If the message contains the transparent *RANAP Relocation Information* IE the target RNC shall use this information when finalising the Relocation.

#### 8.2.3.2.1 Successful Operation for lur-g

The source RNC/BSS sends the RELOCATION COMMIT message to the target RNC/BSS to request the target RNC/BSS to proceed with the Relocation.

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/MS context in the DBSS.

At reception of the RELOCATION COMMIT message from the source RNC/BSS, the target RNC/BSS finalises the Relocation. If the message contains the transparent *RANAP Relocation Information* IE the target RNC/BSS shall use this information when finalising the Relocation.

### 8.2.3.3 Abnormal Conditions

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## 8.2.4 Paging

### 8.2.4.1 General

This procedure is used by the SRNC to indicate to a CRNC that a UE shall be paged in a cell or URA that is under the control of the CRNC.

This procedure shall use the connectionless mode of the signalling bearer.

### 8.2.4.2 Successful Operation



**Figure 4: Paging procedure, Successful Operation**

The procedure is initiated with a PAGING REQUEST message sent from the SRNC to the CRNC.

If the message contains the *C-Id* IE, the CRNC shall page in the indicated cell. Alternatively, if the message contains the *URA-Id* IE, the CRNC shall page in all cells that it controls in the indicated URA.

If the PAGING REQUEST message includes the *CN Originated Page to Connected Mode UE* IE, the CRNC shall include the information contained in the *CN Originated Page to Connected Mode UE* IE when paging the UE.

The CRNC shall calculate the Paging Occasions from the *IMSI* IE and the *DRX Cycle Length Coefficient* IE according to specification in ref. [15] and apply transmission on PICH and PCH accordingly

#### 8.2.4.2.1 Successful Operation for Iur-g

The procedure is initiated with a PAGING REQUEST message sent from the SBSS to the CRNC/CBSS or from the SRNC to the CBSS.

If the message contains the *URA-Id* IE, the CRNC/CBSS shall page in all cells that it controls in the indicated URA/GRA.

If the PAGING REQUEST message includes the *CN Originated Page to Connected Mode UE* IE, the CRNC/CBSS shall include the information contained in the *CN Originated Page to Connected Mode UE* IE when paging the UE.

The CBSS shall calculate the Paging Occasions from the *IMSI* IE and the *GERAN DRX Cycle Length Coefficient* IE according to specification in ref. [36] and apply transmission on PCCCH or PACCH accordingly.

#### 8.2.4.3 Abnormal Conditions

##### 8.2.4.3.1 Abnormal Conditions for Iur-g

If the DRNC receives a PAGING REQUEST message from the SBSS, which contains the *C-Id* IE, the message shall be ignored.

If the DBSS receives a PAGING REQUEST message from the SBSS/SRNC, which contains the *C-Id* IE, the message shall be ignored.

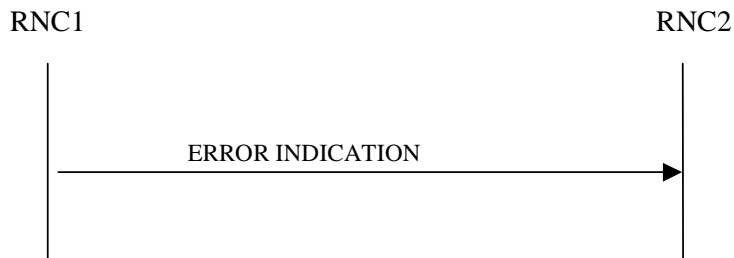
## 8.5.1 Error Indication

### 8.5.1.1 General

The Error Indication procedure is initiated by a node to report detected errors in a received message, provided they cannot be reported by an appropriate response message.

This procedure shall use the signalling bearer mode specified below.

### 8.5.1.2 Successful Operation



**Figure 30: Error Indication procedure, Successful Operation**

When the conditions defined in clause 10 are fulfilled, the Error Indication procedure is initiated by an ERROR INDICATION message sent from the receiving node. This message shall use the same mode of the signalling bearer and the same signalling bearer connection (if connection oriented) as the message that triggers the procedure.

When the ERROR INDICATION message is sent from a DRNC to an SRNC using connectionless mode of the signalling bearer, the *S-RNTI* IE shall be included in the message if available. When the ERROR INDICATION message is sent from an SRNC to a DRNC using connectionless mode of the signalling bearer, the *D-RNTI* IE shall be included in the message if available.

When a message using connectionless mode of the signalling bearer is received for a specified UE Context in a DRNC with an invalid *D-RNTI* IE, the DRNC shall include the *D-RNTI* from the received message in the *D-RNTI* IE in the ERROR INDICATION message, unless another handling is specified in the procedure text for the affected procedure.

When a message using connectionless mode of the signalling bearer is received for a specified UE in an SRNC with an invalid *S-RNTI* IE, the SRNC shall include the *S-RNTI* from the received message in the *S-RNTI* IE in the ERROR INDICATION message, unless another handling is specified in the procedure text for the affected procedure.

The ERROR INDICATION message shall include either the *Cause* IE, or the *Criticality Diagnostics* IE, or both the *Cause* IE and the *Criticality Diagnostics* IE.

Typical cause values for the ERROR INDICATION message are:

#### Protocol Causes:

- Transfer Syntax Error
- Abstract Syntax Error (Reject)
- Abstract Syntax Error (Ignore and Notify)
- Message not Compatible with Receiver State
- Unspecified

#### 8.5.1.2.1 Successful Operation for lur-g

The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the error indication procedure as specified in section 8.5.1.2.



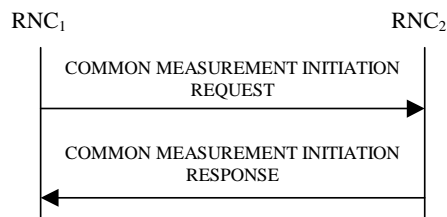
## 8.5.2 Common Measurement Initiation

### 8.5.2.1 General

This procedure is used by an RNC to request the initiation of measurements of common resources to another RNC. The requesting RNC is referred to as RNC<sub>1</sub> and the RNC to which the request is sent is referred to as RNC<sub>2</sub>.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.2.2 Successful Operation



**Figure 30A: Common Measurement Initiation procedure, Successful Operation**

The procedure is initiated with a COMMON MEASUREMENT INITIATION REQUEST message sent from the RNC<sub>1</sub> to the RNC<sub>2</sub>.

Upon reception, the RNC<sub>2</sub> shall initiate the requested measurement according to the parameters given in the request.

Unless specified below, the meaning of the parameters are given in other specifications.

[TDD- If the Time Slot Information is provided in the *Common Measurement Object Type* IE , the measurement request shall apply to the requested time slot individually.]

If the *Common Measurement Type* IE is not set to 'SFN-SFN Observed Time Difference' and the *SFN Reporting Indicator* IE is set to "FN Reporting Required", the *SFN* IE shall be included in the measurement report or in the measurement response, the latter only in the case the *Report Characteristics* IE is set to 'On-Demand'. The reported SFN shall be the SFN at the time when the measurement value was reported by the layer 3 filter, referred to as point C in the measurement model [26]. If the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference', then the *SFN Reporting Indicator* IE is ignored.

If the *SFN* IE is provided, it indicates the frame for which the first measurement shall be provided. The provided measurement value shall be the one reported by the layer 3 filter, referred to as point C in the measurement model [26]. Furthermore, if the *SFN* IE is present and if the *Common Measurement Object Type* IE is set to "UP Neighbouring Cell", then the *SFN* IE relates to the Radio Frames of the Reference Cell identified by the first *UTRAN Cell Identifier* IE.

#### Common measurement type

If the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference', then the RNC<sub>2</sub> shall initiate the SFN-SFN Observed Time Difference measurements between the reference cell identified by *C-ID* IE and the neighbouring cells identified by the *UTRAN Cell Identifier* IE (*UC-Id*).

If the *Common Measurement Type* IE is set to 'load', the RNC<sub>2</sub> shall initiate measurements of uplink and downlink load on the measured object. If either uplink or downlink load satisfies the requested report characteristics, the RNC<sub>2</sub> shall report the result of both uplink and downlink measurements.

If the *Common Measurement Type* IE is set to "RT load", the RNC<sub>2</sub> shall initiate measurements of uplink and downlink estimated share of RT (Real Time) traffic of the load of the measured object. If either uplink or downlink RT load satisfies the requested report characteristics, the RNC<sub>2</sub> shall report the result of both uplink and downlink measurements.

If the *Common Measurement Type* IE is set to "NRT load Information", the RNC<sub>2</sub> shall initiate measurements of uplink and downlink NRT (Non Real Time) load situation on the measured object. If either uplink or downlink NRT load satisfies the requested report characteristics, the RNC<sub>2</sub> shall report the result of both uplink and downlink measurements.

## Report characteristics

The *Report Characteristics* IE indicates how the reporting of the measurement shall be performed. See also Annex B.

If the *Report Characteristics* IE is set to 'On-Demand', the RNC<sub>2</sub> shall report the result of the requested measurement immediately.

If the *Report Characteristics* IE is set to 'Periodic', the RNC<sub>2</sub> shall periodically initiate a Measurement Reporting procedure for this measurement, with the requested report frequency. Furthermore, if the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference', then all the available measurements shall be reported in the *Successful Neighbouring cell SFN-SFN Observed Time Difference Measurement Information* IE and the neighbouring cells with no measurement result available shall be reported in the *Unsuccessful Neighbouring cell SFN-SFN Observed Time Difference Measurement Information* IE.

If the *Report Characteristics* IE is set to 'Event A', the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure when the measured entity rises above the requested threshold and stays there for the requested hysteresis time. If no hysteresis time is given, the RNC<sub>2</sub> shall use the value zero for the hysteresis time.

If the *Report Characteristics* IE is set to 'Event B', the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure when the measured entity falls below the requested threshold and stays there for the requested hysteresis time. If no hysteresis time is given, the RNC<sub>2</sub> shall use the value zero for the hysteresis time.

If the *Report Characteristics* IE is set to 'Event C', the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure when the measured entity rises more than the requested threshold within the requested time. After having reported this type of event, the next C event reporting for the same measurement cannot be initiated before the rising/falling time has elapsed since the previous event reporting.

If the *Report Characteristics* IE is set to 'Event D', the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure when the measured entity falls more than the requested threshold within the requested time. After having reported this type of event, the next D event reporting for the same measurement cannot be initiated before the rising/falling time has elapsed since the previous event reporting.

If the *Report Characteristics* IE is set to 'Event E', the RNC<sub>2</sub> shall initiate the Measurement Reporting procedure when the measured entity rises above the 'Measurement Threshold 1' and stays there for the 'Measurement Hysteresis Time' (Report A). When the conditions for Report A are met and the *Report Periodicity* IE is provided, the RNC<sub>2</sub> shall initiate the Measurement Reporting procedure periodically. If the conditions for Report A have been met and the measured entity falls below the 'Measurement Threshold 2' and stays there for the 'Measurement Hysteresis Time', the RNC<sub>2</sub> shall initiate the Common Measurement Reporting procedure (Report B) as well as terminating any corresponding periodic reporting. If 'Measurement Threshold 2' is not present, the RNC<sub>2</sub> shall use 'Measurement Threshold 1' instead. If no 'Measurement Hysteresis Time' is provided, the RNC<sub>2</sub> shall use the value zero as hysteresis times for both Report A and Report B.

If the *Report Characteristics* IE is set to 'Event F', the RNC<sub>2</sub> shall initiate the Measurement Reporting procedure when the measured entity falls below the 'Measurement Threshold 1' and stays there for the 'Measurement Hysteresis Time' (Report A). When the conditions for Report A are met and the *Report Periodicity* IE is provided the RNC<sub>2</sub> shall also initiate the Measurement Reporting procedure periodically. If the conditions for Report A have been met and the measured entity rises above the 'Measurement Threshold 2' and stays there for the 'Measurement Hysteresis Time', the RNC<sub>2</sub> shall initiate the Common Measurement Reporting procedure (Report B) as well as terminating any corresponding periodic reporting. If 'Measurement Threshold 2' is not present, the RNC<sub>2</sub> shall use 'Measurement Threshold 1' instead. If no 'Measurement Hysteresis Time' is provided, the RNC<sub>2</sub> shall use the value zero as hysteresis times for both Report A and Report B.

If the *Report Characteristics* IE is set to 'On Modification', the RNC<sub>2</sub> shall report the result of the requested measurement immediately. Then the RNC<sub>2</sub> shall initiate the Common Measurement Reporting procedure in accordance to the following conditions:

1. If the *Common Measurement Type* IE is set to 'UTRAN GPS Timing of Cell Frame for LCS':
  - If the *T<sub>UTRAN-GPS</sub> Change Limit* IE is included in the *T<sub>UTRAN-GPS</sub> Measurement Threshold Information* IE, the RNC<sub>2</sub> shall each time a new measurement result is received after point C in the measurement model [25], calculate the change of T<sub>UTRAN-GPS</sub> value (F<sub>n</sub>). The RNC<sub>2</sub> shall initiate the Common Measurement Reporting procedure and set n equal to zero when the absolute value of F<sub>n</sub> rises above the threshold indicated by the *T<sub>UTRAN-GPS</sub> Change Limit* IE. The change of T<sub>UTRAN-GPS</sub> value (F<sub>n</sub>) is calculated according to the following:

$$F_n=0 \text{ for } n=0$$

$$F_n = (M_n - M_{n-1}) \bmod 37158912000000 - ((SFN_n - SFN_{n-1}) \bmod 4096) * 10 * 3.84 * 10^3 * 16 + F_{n-1} \quad \text{for } n > 0$$

$F_n$  is the change of the  $T_{\text{UTRAN-GPS}}$  value expressed in unit [1/16 chip] when  $n$  measurement results has been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$M_n$  is the latest measurement result received after point C in the measurement model [25], measured at  $SFN_n$ .

$M_{n-1}$  is the previous measurement result received after point C in the measurement model [25], measured at  $SFN_{n-1}$ .

$M_1$  is the first measurement result received after point C in the measurement model [25], after first Common Measurement Reporting at initiation or after the last event was triggered.

$M_0$  is equal to the value reported in the first Common Measurement Reporting at initiation or in the Common Measurement Reporting when the event was triggered.

- If the *Predicted  $T_{\text{UTRAN-GPS}}$  Deviation Limit* IE is included in the  *$T_{\text{UTRAN-GPS}}$  Measurement Threshold Information* IE, the  $RNC_2$  shall, each time a new measurement result is received after point C in the measurement model [25], update the  $P_n$  and  $F_n$ . The  $RNC_2$  shall initiate the Common Measurement Reporting procedure and set  $n$  equal to zero when  $F_n$  rises above the threshold indicated by the *Predicted  $T_{\text{UTRAN-GPS}}$  Deviation Limit* IE. The  $P_n$  and  $F_n$  are calculated according to the following:

$$P_n = b \quad \text{for } n = 0$$

$$P_n = ((a/16) * ((SFN_n - SFN_{n-1}) \bmod 4096) / 100 + ((SFN_n - SFN_{n-1}) \bmod 4096) * 10 * 3.84 * 10^3 * 16 + P_{n-1}) \bmod 37158912000000 \quad \text{for } n > 0$$

$$F_n = \min((M_n - P_n) \bmod 37158912000000, (P_n - M_n) \bmod 37158912000000) \quad \text{for } n > 0$$

$P_n$  is the predicted  $T_{\text{UTRAN-GPS}}$  value when  $n$  measurement results has been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$a$  is the last reported  $T_{\text{UTRAN-GPS}}$  Drift Rate value.

$b$  is the last reported  $T_{\text{UTRAN-GPS}}$  value.

$F_n$  is the deviation of the last measurement result from the predicted  $T_{\text{UTRAN-GPS}}$  value ( $P_n$ ) when  $n$  measurements have been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$M_n$  is the latest measurement result received after point C in the measurement model [25, measured at  $SFN_n$ .

$M_1$  is the first measurement result received after point C in the measurement model [25], after first Common Measurement Reporting at initiation or after the last event was triggered.

The  $T_{\text{UTRAN-GPS}}$  Drift Rate is determined by the DRNS in an implementation-dependent way after point B (see model of physical layer measurements in [26]).

## 2. If the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference':

- If the *SFN-SFN Change Limit* IE is included in the *SFN-SFN Measurement Threshold Information* IE, the  $RNC_2$  shall each time a new measurement result is received after point C in the measurement model [25], calculate the change of SFN-SFN value ( $F_n$ ). The  $RNC_2$  shall initiate the Common Measurement Reporting procedure in order to report the particular SFN-SFN measurement which has triggered the event and set  $n$  equal to zero when the absolute value of  $F_n$  rises above the threshold indicated by the *SFN-SFN Change Limit* IE. The change of the SFN-SFN value is calculated according to the following:

$$F_n = 0 \quad \text{for } n = 0$$

$$[\text{FDD} - F_n = (M_n - a) \bmod 614400 \quad \text{for } n > 0]$$

$$[\text{TDD} - F_n = (M_n - a) \bmod 40960 \quad \text{for } n > 0]$$

$F_n$  is the change of the SFN-SFN value expressed in unit [1/16 chip] when  $n$  measurement results has been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$a$  is the last reported SFN-SFN.



$M_n$  is the latest measurement result received after point C in the measurement model [25], measured at SFN<sub>n</sub>.

$M_1$  is the first measurement result received after point C in the measurement model [25], after first Common Measurement Reporting at initiation or after the last event was triggered.

- If the *Predicted SFN-SFN Deviation Limit* IE is included in the *SFN-SFN Measurement Threshold Information* IE, the RNC<sub>2</sub> shall each time a new measurement result is received after point C in the measurement model [25], update the  $P_n$  and  $F_n$ . The RNC<sub>2</sub> shall initiate the Common Measurement Reporting procedure in order to report the particular SFN-SFN measurement which has triggered the event and set  $n$  equal to zero when  $F_n$  rises above the threshold indicated by the *Predicted SFN-SFN Deviation Limit* IE. The  $P_n$  and  $F_n$  are calculated according to the following:

$$P_n = b \quad \text{for } n=0$$

$$[\text{FDD} - P_n = ((a/16) * ((SFN_n - SFN_{n-1}) \bmod 4096)/100 + P_{n-1}) \bmod 614400 \quad \text{for } n>0$$

$$F_n = \min((M_n - P_n) \bmod 614400, (P_n - M_n) \bmod 614400) \quad \text{for } n>0]$$

$$[\text{TDD} - P_n = ((a/16) * (15 * (SFN_n - SFN_{n-1}) \bmod 4096 + (TS_n - TS_{n-1}))/1500 + P_{n-1}) \bmod 40960 \quad \text{for } n>0$$

$$F_n = \min((M_n - P_n) \bmod 40960, (P_n - M_n) \bmod 40960) \quad \text{for } n>0]$$

$P_n$  is the predicted SFN-SFN value when  $n$  measurement results has been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$a$  is the last reported SFN-SFN Drift Rate value.

$b$  is the last reported SFN-SFN value.

$F_n$  is the deviation of the last measurement result from the predicted SFN-SFN value ( $P_n$ ) when  $n$  measurements has been received after first Common Measurement Reporting at initiation or after the last event was triggered.

$M_n$  is the latest measurement result received after point C in the measurement model [25], measured at the [TDD - Time Slot TS<sub>n</sub>] of the Frame SFN<sub>n</sub>.

$M_1$  is the first measurement result received after point C in the measurement model [25], after first Common Measurement Reporting at initiation or after the last event was triggered.

The SFN-SFN Drift Rate is determined by the DRNS in an implementation-dependent way after point B (see model of physical layer measurements in [26]).

If the *Report Characteristics* IE is not set to 'On-Demand', the RNC<sub>2</sub> is required to perform reporting for a common measurement object, in accordance with the conditions provided in the COMMON MEASUREMENT INITIATION REQUEST message, as long as the object exists. If no common measurement object(s) for which a measurement is defined exists any more the RNC<sub>2</sub> shall terminate the measurement locally without reporting this to RNC<sub>1</sub>.

If at the start of the measurement, the reporting criteria are fulfilled for any of Event A, Event B, Event E or Event F, the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure immediately, and then continue with the measurements as specified in the COMMON MEASUREMENT INITIATION REQUEST message.

### Common measurement accuracy

If the *Common Measurement Type* IE is set to 'UTRAN GPS Timing of Cell Frames for LCS', then the *UTRAN GPS Timing Measurement Minimum Accuracy Class* IE included in the *Report Characteristics* IE indicates the minimum accuracy class required in the measurements.

- If the *UTRAN GPS Timing Measurement Minimum Accuracy Class* IE indicates 'Class A', then the concerned RNC<sub>2</sub> shall perform the measurement with the highest supported accuracy according to any of the accuracy classes A, B or C.
- If the *UTRAN GPS Timing Measurement Minimum Accuracy Class* IE indicates the 'Class B', then the concerned RNC<sub>2</sub> shall perform the measurements with the highest supported accuracy according to class B or C.
- If the *UTRAN GPS Timing Measurement Minimum Accuracy Class* IE indicates 'Class C', then the concerned RNC<sub>2</sub> shall perform the measurements with the highest supported accuracy according to class C only.

- If the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference', then the concerned RNC<sub>2</sub> shall initiate the SFN-SFN observed Time Difference measurements between the reference cell identified by *UC-ID* IE and the neighbouring cells identified by their UC-ID. The *Report Characteristics* IE applies to each of these measurements.

### Higher layer filtering

The *Measurement Filter Coefficient* IE indicates how filtering of the measurement values shall be performed before measurement event evaluation and reporting.

The averaging shall be performed according to the following formula.

$$F_n = (1 - a) \cdot F_{n-1} + a \cdot M_n$$

The variables in the formula are defined as follows

$F_n$  is the updated filtered measurement result

$F_{n-1}$  is the old filtered measurement result

$M_n$  is the latest received measurement result from physical layer measurements, the unit used for  $M_n$  is the same unit as the reported unit in the COMMON MEASUREMENT INITIATION RESPONSE, COMMON MEASUREMENT REPORT messages or the unit used in the event evaluation (i.e. same unit as for  $F_n$ ).

$a = 1/2^{(k/2)}$ , where  $k$  is the parameter received in the *Measurement Filter Coefficient* IE. If the *Measurement Filter Coefficient* IE is not present,  $a$  shall be set to 1 (no filtering).

In order to initialise the averaging filter,  $F_0$  is set to  $M_1$  when the first measurement result from the physical layer measurement is received

### Response message

If the RNC<sub>2</sub> was able to initiate the measurement requested by RNC<sub>1</sub> it shall respond with the COMMON MEASUREMENT INITIATION RESPONSE message sent. The message shall include the same Measurement ID that was used in the measurement request. Only in the case when the *Report Characteristics* IE is set to "On-Demand" or "On Modification", the COMMON MEASUREMENT INITIATION RESPONSE message shall contain the measurement result. It shall also the *Common Measurement Achieved Accuracy* IE in the *Common Measurement Value* IE if the *Common Measurement Type* IE is set to 'UTRAN GPS Timing of Cell Frame for LCS'.

Furthermore, if the *Common Measurement Type* IE is set to 'SFN-SFN Observed Time Difference', then all the available measurements shall be reported in the *Successful Neighbouring cell SFN-SFN Observed Time Difference Measurement Information* IE and the neighbouring cells with no measurement result available shall be reported in the *Unsuccessful Neighbouring cell SFN-SFN Observed Time Difference Measurement Information* IE.

#### 8.5.2.2.1 Successful Operation for Iur-g

The procedure is initiated with a COMMON MEASUREMENT INITIATION REQUEST message sent from the RNC<sub>1</sub> to the BSS<sub>2</sub> or from the BSS<sub>1</sub> to the RNC<sub>2</sub>/BSS<sub>2</sub>.

Upon reception, the RNC<sub>2</sub> /BSS<sub>2</sub> shall initiate the requested measurement according to the parameters given in the request.

#### Common measurement type on Iur-g

If the *Common Measurement Type* IE is set to "load", the RNC<sub>2</sub>/BSS<sub>2</sub> shall initiate measurements and report results as described in section 8.5.2.2.

If the *Common Measurement Type* IE is set to "RT load", the RNC<sub>2</sub>/BSS<sub>2</sub> shall initiate measurements and report results as described in section 8.5.2.2.

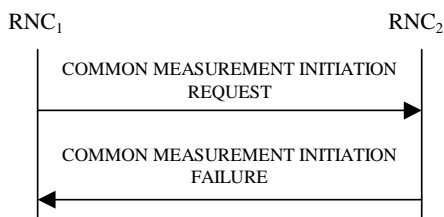
If the *Common Measurement Type* IE is set to "NRT load Information", the RNC<sub>2</sub>/BSS<sub>2</sub> shall initiate measurements and report results as described in section 8.5.2.2.

#### Report characteristics on Iur-g

The *Report Characteristics* IE indicates how the reporting of the measurement shall be performed. This IE is used as described in section 8.5.2.2.

**Response message for Iur-g**

If the RNC<sub>2</sub>/BSS<sub>2</sub> was able to initiate the measurement requested by RNC<sub>1</sub>/BSS<sub>1</sub> it shall respond with the COMMON MEASUREMENT INITIATION RESPONSE message sent. The message shall include the same Measurement ID that was used in the measurement request. Only in the case when the *Report Characteristics IE* is set to "On-Demand", the COMMON MEASUREMENT INITIATION RESPONSE message shall contain the measurement result.

**8.5.2.3 Unsuccessful Operation**

**Figure 30B: Common Measurement Initiation procedure, Unsuccessful Operation**

If the requested measurement cannot be initiated, the RNC<sub>2</sub> shall send a COMMON MEASUREMENT INITIATION FAILURE message. The message shall include the same Measurement ID that was used in the COMMON MEASUREMENT INITIATION REQUEST message and the *Cause IE* set to an appropriate value.

Typical cause values are as follows:

**Radio Network Layer Cause**

- Measurement not supported for the object.
- Measurement Temporarily not Available

**8.5.2.4 Abnormal Conditions**

If the COMMON MEASUREMENT INITIATION REQUEST message contains the *SFN-SFN Measurement Threshold Information IE* (in the *Measurement Threshold IE* contained in the *Report Characteristics IE*) and it does not contain at least one IE, the RNC<sub>2</sub> shall reject the procedure using the COMMON MEASUREMENT INITIATION FAILURE message.

If the COMMON MEASUREMENT INITIATION REQUEST message contains the *T<sub>UTRAN-GPS</sub> Measurement Threshold Information IE* (in the *Measurement Threshold IE* contained in the *Report Characteristics IE*) and it does not contain at least one IE, the RNC<sub>2</sub> shall reject the procedure using the COMMON MEASUREMENT INITIATION FAILURE message.

If the *Common Measurement Type IE* is set to 'UTRAN GPS Timing of Cell Frame for LCS', but the *T<sub>UTRAN-GPS</sub> Measurement Minimum Accuracy Class IE* in the *Common Measurement Accuracy IE* is not received in the COMMON MEASUREMENT INITIATION REQUEST message, the RNC<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed. If the Common Measurement Type received in the *Common Measurement Type IE* is not "load", "RT load" or "NRT load Information", and if the Common Measurement Type received in the *Common Measurement Type IE* is not defined in ref. [11] or [15] to be measured on the Common Measurement Object Type received in the *Common Measurement Object Type IE* in the COMMON MEASUREMENT INITIATION REQUEST message the RNC<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed.

If the *Common Measurement Type IE* is set to 'SFN-SFN Observed Time Difference', but the *Neighbouring Cell Measurement Information IE* is not received in the COMMON MEASUREMENT INITIATION REQUEST message, the RNC<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed.

The allowed combinations of the Common measurement type and Report characteristics type are shown in the table below marked with "X". For not allowed combinations, the **RNC<sub>2</sub>DRNS** shall regard the Common Measurement Initiation procedure as failed.

**Table 4: Allowed Common measurement type and Report characteristics type combinations**

Common measurement type	Report characteristics type								
	On Demand	Periodic	Event A	Event B	Event C	Event D	Event E	Event F	On Modification
Received total wide band power	X	X	X	X	X	X	X	X	
Transmitted Carrier Power	X	X	X	X	X	X	X	X	
UL Timeslot ISCP	X	X	X	X	X	X	X	X	
Load	X	X	X	X	X	X	X	X	
UTRAN GPS Timing of Cell Frames for LCS	X	X							X
SFN-SFN Observed Time Difference	X	X							X
RT load	X	X	X	X	X	X	X	X	
NRT load Information	X	X	X	X	X	X	X	X	

[TDD - If the common measurement type requires the Time Slot Information but the [3.84Mcps TDD - *Time Slot IE*] [1.28Mcps TDD – *Time Slot LCR IE*] is not provided in the *Common Measurement Object Type IE* in the COMMON MEASUREMENT INITIATION REQUEST message the DRNS shall regard the Common Measurement Initiation procedure as failed.]

#### 8.5.2.4.1 **Abnormal Conditions for Iur-g**

The measurements which can be requested on the Iur and Iur-g interfaces are shown in the table below marked with "X".

**Table xx: Allowed Common measurement type on Iur and Iur-g interfaces**

Common Measurement Type	Interface	
	Iur	Iur-g
Received total wide band power	X	
Transmitted Carrier Power	X	
UL Timeslot ISCP	X	
Load	X	X
UTRAN GPS Timing of Cell Frames for LCS	X	
SFN-SFN Observed Time Difference	X	
RT load	X	X
NRT load Information	X	X

If the RNC<sub>2</sub> receives from the BSS<sub>1</sub> a COMMON MEASUREMENT INITIATION REQUEST message where a measurement, which is not applicable on the Iur-g interface, is requested, the RNC<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed.

If the BSS<sub>2</sub> receives from the BSS<sub>1</sub> / RNC<sub>1</sub> a COMMON MEASUREMENT INITIATION REQUEST message where a measurement, which is not applicable on the Iur-g interface, is requested, the BSS<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed.

If the RNC<sub>2</sub> receives from the BSS<sub>1</sub> a COMMON MEASUREMENT INITIATION REQUEST message where the *SFN reporting indicator IE* is set to "FN Reporting Required", the RNC<sub>2</sub> shall ignore that IE.

If the BSS<sub>2</sub> receives from the BSS<sub>1</sub> / RNC<sub>1</sub> a COMMON MEASUREMENT INITIATION REQUEST message where the SFN reporting indicator IE is set to "FN Reporting Required", the BSS<sub>2</sub> shall ignore that IE.

The allowed combinations of the Common measurement type and Report characteristics type are shown in the table in section 8.5.2.4 marked with "X". For not allowed combinations, the RNC<sub>2</sub>/BSS<sub>2</sub> shall regard the Common Measurement Initiation procedure as failed.

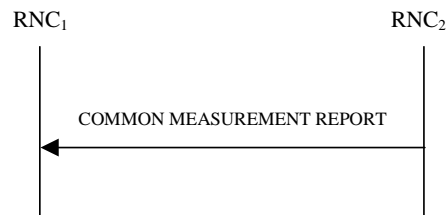
## 8.5.3 Common Measurement Reporting

### 8.5.3.1 General

This procedure is used by an RNC to report the result of measurements requested by another RNC using the Common Measurement Initiation.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.3.2 Successful Operation



**Figure 30C: Common Measurement Reporting procedure, Successful Operation**

If the requested measurement reporting criteria are met, the RNC<sub>2</sub> shall initiate a Measurement Reporting procedure. Unless specified below, the meaning of the parameters are given in other specifications.

The *Common Measurement ID* IE shall be set to the Common Measurement ID provided by RNC<sub>1</sub> when initiating the measurement with the Common Measurement Initiation procedure.

If the achieved measurement accuracy does not fulfil the given accuracy requirement, the Measurement not available shall be reported.

The RNC<sub>2</sub> shall include the *Common Measurement Achieved Accuracy* IE in the *Common Measurement Value* IE if the measurement was initiated for the 'UTRAN GPS Timing of Cell Frame for LCS' measurement type by the Common Measurement Initiation procedure.

#### 8.5.3.2.1 Successful Operation for lur-g

If the requested measurement reporting criteria are met, the RNC<sub>2</sub>/BSS<sub>2</sub> shall initiate a Measurement Reporting procedure. Unless specified below, the meaning of the parameters are given in other specifications.

The *Common Measurement ID* IE shall be set to the Common Measurement ID provided by RNC<sub>1</sub>/BSS<sub>1</sub> when initiating the measurement with the Common Measurement Initiation procedure.

### 8.5.3.3 Abnormal Conditions

-

## 8.5.4 Common Measurement Termination

### 8.5.4.1 General

This procedure is used by an RNC to terminate a measurement previously requested by the Common Measurement Initiation procedure.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.4.2 Successful Operation



**Figure 30D: Common Measurement Termination procedure, Successful Operation**

This procedure is initiated with a COMMON MEASUREMENT TERMINATION REQUEST message.

Upon reception, RNC<sub>2</sub> shall terminate reporting of measurements corresponding to the Common Measurement ID.

#### 8.5.4.2.1 Successful Operation for Iur-g

The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the Common Measurement Termination procedure as specified in section 8.5.4.2.

### 8.5.4.3 Abnormal Conditions

-

## 8.5.5 Common Measurement Failure

### 8.5.5.1 General

This procedure is used by an RNC to notify another RNC that a measurement previously requested by the Common Measurement Initiation procedure can no longer be reported.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.5.2 Successful Operation



**Figure 30E: Common Measurement Failure procedure, Successful Operation**

This procedure is initiated with a COMMON MEASUREMENT FAILURE INDICATION message, sent from RNC<sub>2</sub> to RNC<sub>1</sub> to inform the RNC<sub>1</sub> that a previously requested measurement can no longer be reported. RNC<sub>2</sub> has locally terminated the indicated measurement.

#### [8.5.5.2.1 Successful Operation for lur-g](#)

[The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the Common Measurement Failure procedure as specified in section 8.5.5.2.](#)

### 8.5.5.3 Abnormal Conditions

-

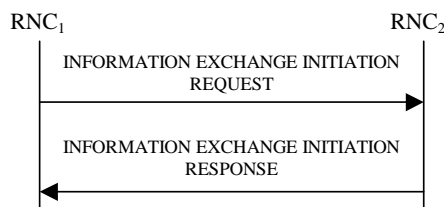


## 8.5.6 Information Exchange Initiation

### 8.5.6.1 General

This procedure is used by a RNC to request the initiation of an information exchange with another RNC. This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.6.2 Successful Operation



**Figure 30F: Information Exchange Initiation procedure, Successful Operation**

The procedure is initiated with an INFORMATION EXCHANGE INITIATION REQUEST message sent from RNC<sub>1</sub> to RNC<sub>2</sub>.

Upon reception, the RNC<sub>2</sub> shall provide the requested information according to the parameters given in the request. Unless specified below, the meaning of the parameters are given in other specifications.

#### Information Report Characteristics:

The *Information Report Characteristics* IE indicates how the reporting of the information shall be performed.

If the *Information Report Characteristics* IE is set to 'On-Demand', the RNC<sub>2</sub> shall report the requested information immediately.

If the *Information Report Characteristics* IE is set to 'Periodic', the RNC<sub>2</sub> shall periodically initiate the Information Reporting procedure for all the requested information, with the requested report frequency.

If the *Information Report Characteristics* IE is set to 'On-Modification', the RNC<sub>2</sub> shall report the requested information immediately and then shall initiate the Information Reporting procedure in accordance to the following conditions:

- If the *Information Type Item* IE is set to 'IPDL Parameters', the RNC<sub>2</sub> shall initiate the Information Reporting procedure when any change in the parameters occurs.
- If the *Information Type Item* IE is set to 'DGPS Corrections', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific Information Type when either the PRC has drifted from the previously reported value more than the threshold indicated in the *PRC Deviation* IE or a change has occurred in the IODE.
- the *Information Type Item* IE is set to 'GPS Information' and the *GPS Information Item* IE includes 'GPS Navigation Model & Recovery Assistance', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific GPS Information Type when a change has occurred regarding either the IODC or the list of visible satellites, identified by the *SatID* IEs.
- If the *Information Type Item* IE is set to 'GPS Information' and the *GPS Information Item* IE includes 'GPS Ionospheric Model', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific GPS Information Type when any change has occurred.
- If the *Information Type Item* IE is set to 'GPS Information' and the *GPS Information Item* IE includes 'GPS UTC Model', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific GPS Information Type when a change has occurred in the *t<sub>ot</sub>* parameter.
- If the *Information Type Item* IE is set to 'GPS Information' and the *GPS Information Item* IE includes 'GPS Almanac', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific GPS Information Type when any change has occurred.

- If the *Information Type Item* IE is set to 'GPS Information' and the *GPS Information Item* IE includes 'GPS Real-Time Integrity', the RNC<sub>2</sub> shall initiate the Information Reporting procedure for this specific GPS Information Type when any change has occurred.
- If the *Information Type* IE is set to "Cell Capacity Class", the RNC<sub>2</sub> shall initiate the Information Reporting procedure for uplink and downlink cell capacity class. If either uplink or downlink cell capacity class satisfies the requested report characteristics, the RNC<sub>2</sub> shall report the result of both uplink and downlink cell capacity information.

#### Response message:

If the RNC<sub>2</sub> was able to determine the information requested by the RNC<sub>1</sub>, it shall respond with the INFORMATION EXCHANGE INITIATION RESPONSE message. The message shall include the same Information Exchange ID that was included in the INFORMATION EXCHANGE REQUEST message. When the *Report Characteristics* IE is set to "On-Demand" or "On Modification" or "Periodic", the INFORMATION EXCHANGE INITIATION RESPONSE message shall contain the requested data.

#### 8.5.5.2.1 Successful Operation for Iur-g

The procedure is initiated with an INFORMATION EXCHANGE INITIATION REQUEST message sent from BSS<sub>1</sub> to BSS<sub>2</sub>/RNC<sub>2</sub> or by RNC<sub>1</sub> to BSS<sub>2</sub>.

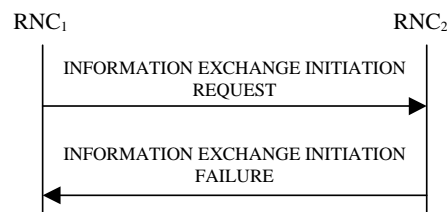
Upon reception, the BSS<sub>2</sub>/RNC<sub>2</sub> shall provide the requested information according to the parameters given in the request. Unless specified below, the meaning of the parameters are given in other specifications.

#### Information Report Characteristics on Iur-g:

If the *Information Type Item* IE is set to "load", the RNC<sub>2</sub>/BSS<sub>2</sub> shall initiate measurements and report results as described in section 8.5.5.2.

The *Information Report Characteristics* IE indicates how the reporting of the information shall be performed. This IE is used as described in section 8.5.5.2.

#### 8.5.6.3 Unsuccessful Operation



**Figure 30G: Information Exchange Initiation procedure, Unsuccessful Operation**

If the requested Information Type received in the *Information Type* IE indicates a type of information that RNC<sub>2</sub> cannot provide, the RNC<sub>2</sub> shall regard the Information Exchange Initiation procedure as failed.

If the requested information provision cannot be carried out, the RNC<sub>2</sub> shall send the INFORMATION EXCHANGE INITIATION FAILURE message. The message shall include the same Information Exchange ID that was used in the INFORMATION EXCHANGE INITIATION REQUEST message and the *Cause* IE set to an appropriate value.

Typical cause values are as follows:

#### Radio Network Layer Cause:

Information temporarily not available.

Information Provision not supported for the object.

### 8.5.6.4 Abnormal Conditions

If the *Information Report Characteristics* IE is set to 'On Modification', and the *Information Type Item* IE is set to 'DGPS Corrections', but the *Information Threshold* IE is not received in the INFORMATION EXCHANGE INITIATION REQUEST message, the RNC<sub>2</sub> shall regard the Information Exchange Initiation procedure as failed.

#### 8.5.6.4.1 Abnormal Conditions for lur-g

The information which can be requested on the lur and lur-g interfaces are shown in the table below marked with "X". For information, which are not applicable on the lur-g interface, the BSS shall regard the Information Exchange Initiation procedure as failed.

**Table xx: Allowed Information types on lur and lur-g interfaces**

Information Type	Interface	
	lur	lur-g
IPDL Parameters	X	
DGPS Corrections	X	
GPS Information	X	
Cell Capacity Class	X	X

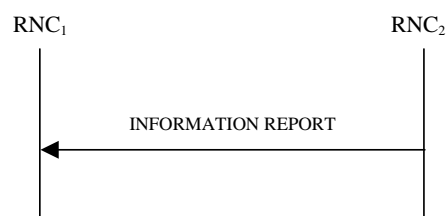
## 8.5.7 Information Reporting

### 8.5.7.1 General

This procedure is used by a RNC to report the result of information requested by another RNC using the Information Exchange Initiation.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.7.2 Successful Operation



**Figure 30H: Information Reporting procedure, Successful Operation**

If the requested information reporting criteria are met, the RNC<sub>2</sub> shall initiate an Information Reporting procedure. Unless specified below, the meaning of the parameters are given in other specifications.

The *Information Exchange ID* IE shall be set to the Information Exchange ID provided by the RNC<sub>1</sub> when initiating the information exchange with the Information Exchange Initiation procedure.

The *Requested Data Value* IE shall include at least one IE containing the data to be reported.

#### 8.5.7.2.1 Successful Operation for lur-g

The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the Information Reporting procedure as specified in section 8.5.7.2.

### 8.5.7.3 Abnormal Conditions

-

## 8.5.8 Information Exchange Termination

### 8.5.8.1 General

This procedure is used by a RNC to terminate the information exchange requested using the Information Exchange Initiation.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.8.2 Successful Operation



**Figure 30I: Information Exchange Termination procedure, Successful Operation**

This procedure is initiated with a INFORMATION EXCHANGE TERMINATION REQUEST message.

Upon reception, the RNC<sub>2</sub> shall terminate the information exchange corresponding to the Information Exchange ID.

#### [8.5.8.2.1 Successful Operation for Iur-g](#)

[The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the Information Exchange Termination procedure as specified in section 8.5.8.2.](#)

### 8.5.8.3 Abnormal Conditions

-

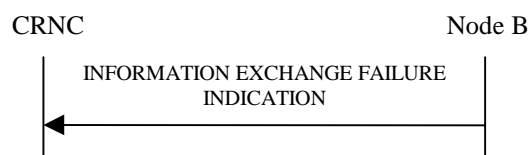
## 8.5.9 Information Exchange Failure

### 8.5.9.1 General

This procedure is used by a RNC to notify another that the information exchange it previously requested using the Information Exchange Initiation can no longer be reported.

This procedure uses the signalling bearer connection for the relevant Distant RNC Context.

### 8.5.9.2 Successful Operation



**Figure 30J: Information Exchange Failure procedure, Successful Operation**

This procedure is initiated with a INFORMATION EXCHANGE FAILURE INDICATION message, sent from the RNC<sub>2</sub> to the RNC<sub>1</sub>, to inform the RNC<sub>1</sub> that information previously requested by the Information Exchange Initiation procedure can no longer be reported. The message shall include the same Information Exchange ID that was used in the INFORMATION EXCHANGE INITIATION REQUEST message and the *Cause* IE set to an appropriate value.

Typical cause values are as follows:

**Radio Network Layer Cause:**

Information temporarily not available.

[8.5.9.2.1 Successful Operation for lur-g](#)

[The RNC<sub>1</sub>/BSS<sub>1</sub> and RNC<sub>2</sub>/BSS<sub>2</sub> shall use the Information Exchange Failure procedure as specified in section 8.5.9.2.](#)

## 9.1.24 UPLINK SIGNALLING TRANSFER INDICATION

### 9.1.24.1 FDD Message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		–	
UC-Id	M		9.2.1.71		YES	ignore
SAI	M		9.2.1.52		YES	ignore
Cell GAI	O		9.2.1.5A		YES	ignore
C-RNTI	M		9.2.1.14		YES	ignore
S-RNTI	M		9.2.1.54		YES	ignore
D-RNTI	O		9.2.1.24		YES	ignore
Propagation Delay	M		9.2.2.33		YES	ignore
STTD Support Indicator	M		9.2.2.45		YES	ignore
Closed Loop Mode1 Support Indicator	M		9.2.2.2		YES	ignore
Closed Loop Mode2 Support Indicator	M		9.2.2.3		YES	ignore
L3 Information	M		9.2.1.32		YES	ignore
CN PS Domain Identifier	O		9.2.1.12		YES	ignore
CN CS Domain Identifier	O		9.2.1.11		YES	ignore
URA Information	O		9.2.1.70B		YES	ignore
Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
DPC Mode Change Support Indicator	O		9.2.2.56		YES	ignore
Common Transport Channel Resources Initialisation not required	O		9.2.1.12F		YES	Ignore
Cell Capability Container FDD	O		9.2.2.D		YES	ignore
Cell Capability Container TDD	O		9.2.3.1a		YES	ignore
Cell Capability Container TDD LCR	O		9.2.3.1b		YES	ignore

### 9.1.24.2 TDD Message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		–	
UC-Id	M		9.2.1.71		YES	ignore
SAI	M		9.2.1.52		YES	ignore
Cell GAI	O		9.2.1.5A		YES	Ignore
C-RNTI	M		9.2.1.14		YES	ignore
S-RNTI	M		9.2.1.54		YES	ignore
D-RNTI	O		9.2.1.24		YES	ignore
Rx Timing Deviation	M		9.2.3.7A		YES	ignore
L3 Information	M		9.2.1.32		YES	ignore
CN PS Domain Identifier	O		9.2.1.12		YES	ignore
CN CS Domain Identifier	O		9.2.1.11		YES	ignore
URA Information	O		9.2.1.70B		YES	ignore
Cell GA Additional Shapes	O		9.2.1.5B		YES	ignore
Common Transport Channel Resources Initialisation not required	O		9.2.1.12F		YES	ignore
Cell Capability Container FDD	O		9.2.2.D		YES	ignore
Cell Capability Container TDD	O		9.2.3.1a		YES	ignore
Cell Capability Container TDD LCR	O		9.2.3.1b		YES	ignore

## 9.1.24x GERAN UPLINK SIGNALLING TRANSFER INDICATION

<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>
<u>Message Type</u>	<u>M</u>		<u>9.2.1.40</u>		<u>YES</u>	<u>ignore</u>
<u>Transaction ID</u>	<u>M</u>		<u>9.2.1.59</u>		<u>=</u>	
<u>UC-Id</u>	<u>M</u>		<u>9.2.1.71</u>	<u>UC-Id may be a GERAN cell identifier.</u>	<u>YES</u>	<u>ignore</u>
<u>SAI</u>	<u>M</u>		<u>9.2.1.52</u>		<u>YES</u>	<u>ignore</u>
<u>S-RNTI</u>	<u>M</u>		<u>9.2.1.54</u>		<u>YES</u>	<u>ignore</u>
<u>D-RNTI</u>	<u>O</u>		<u>9.2.1.24</u>		<u>YES</u>	<u>ignore</u>
<u>L3 Information</u>	<u>M</u>		<u>9.2.1.32</u>		<u>YES</u>	<u>ignore</u>
<u>CN PS Domain Identifier</u>	<u>O</u>		<u>9.2.1.12</u>		<u>YES</u>	<u>ignore</u>
<u>CN CS Domain Identifier</u>	<u>O</u>		<u>9.2.1.11</u>		<u>YES</u>	<u>ignore</u>
<u>URA Information</u>	<u>O</u>		<u>9.2.1.70B</u>	<u>URA information may be GRA information</u>	<u>YES</u>	<u>ignore</u>

## 9.1.25 DOWNLINK SIGNALLING TRANSFER REQUEST

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		–	
C-Id	M		9.2.1.6	<a href="#">May be a GERAN cell identifier</a>	YES	ignore
D-RNTI	M		9.2.1.24		YES	ignore
L3 Information	M		9.2.1.32		YES	ignore
D-RNTI Release Indication	M		9.2.1.25		YES	ignore



## 9.1.27 PAGING REQUEST

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		–	
CHOICE <i>Paging Area</i>	M				YES	ignore
> <i>URA</i>					–	
>>URA-ID	M		9.2.1.70	May be a GRA-ID.	–	
> <i>Cell</i>				UTRAN only	–	
>>C-Id	M		9.2.1.6		–	
SRNC-Id	M		RNC-Id 9.2.1.50	May be a BSC-Id.	YES	ignore
S-RNTI	M		9.2.1.53		YES	ignore
IMSI	M		9.2.1.31		YES	ignore
DRX Cycle Length Coefficient	M		9.2.1.26		YES	ignore
<b>CN Originated Page to Connected Mode UE</b>		0..1			YES	ignore
>Paging Cause	M		9.2.1.41E		–	
>CN Domain Type	M		9.2.1.11A		–	
>Paging Record Type	M		9.2.1.41F		–	

## 9.1.43 COMMON MEASUREMENT INITIATION REQUEST

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
Measurement ID	M		9.2.1.37		YES	reject
Common Measurement Object Type	M		9.2.1.12B		YES	reject
CHOICE <i>Common Measurement Object Type</i>	M				YES	reject
>Cell					–	
>>UTRAN Cell Identifier	M		9.2.1.71	<a href="#">May be a GERAN Cell Identifier</a>	–	
>>Time Slot	O		9.2.1.56	3.84Mcps TDD only	–	
>>Time Slot LCR	O		9.2.3.12a	1.28Mcps TDD only	–	
>>Neighbouring Cell Measurement Information		<i>0..&lt;maxnoof MeasNCells &gt;</i>		<a href="#">UTRAN only</a>	–	
>>>CHOICE <i>Neighbouring Cell Measurement Information</i>					–	
>>>> <i>Neighbouring FDD Cell Measurement Information</i>				FDD only	–	
>>>>> Neighbouring FDD Cell Measurement Information	M		9.2.1.41G		–	
>>>>> <i>Neighbouring TDD Cell Measurement Information</i>				3.84Mcps TDD only	–	
>>>>> Neighbouring TDD Cell Measurement Information	M		9.2.1.41H		–	
>>>>> <i>Neighbouring TDD Cell Measurement InformationLCR</i>				1.28Mcps TDD only		
>>>>>> Neighbouring TDD Cell Measurement InformationLCR	M		9.2.1.41Dd		–	
Common Measurement Type	M		9.2.1.12C		YES	reject
Measurement Filter Coefficient	O		9.2.1.41	<a href="#">UTRAN only</a>	YES	reject
Report Characteristics	M		9.2.1.48		YES	reject
SFN reporting indicator	M		FN reporting indicator 9.2.1.28A		YES	reject
SFN	O		9.2.1.52A	<a href="#">UTRAN only</a>	YES	reject
Common Measurement Accuracy	O		9.2.1.12A	<a href="#">UTRAN only</a>	YES	reject

## 9.1.44 COMMON MEASUREMENT INITIATION RESPONSE

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
Measurement ID	M		9.2.1.37		YES	ignore
CHOICE <i>Common Measurement Object Type</i>	O			Common Measurement Object Type that the measurement was initiated with.	YES	ignore
> <i>Cell</i>					–	
>>Common Measurement value	M		9.2.1.12D		–	
SFN	O		9.2.1.52A	Common Measurement Time Reference. <a href="#">UTRAN only</a>	YES	ignore
Criticality Diagnostics	O		9.2.1.13		YES	ignore
Common Measurement Achieved Accuracy	O		Common Measurement Accuracy 9.2.1.12A	<a href="#">UTRAN only</a>	YES	ignore

## 9.1.46 COMMON MEASUREMENT REPORT

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	ignore
Transaction ID	M		9.2.1.59		–	
Measurement ID	M		9.2.1.37		YES	ignore
CHOICE <i>Common Measurement Object Type</i>	M			Common Measurement Object Type that the measurement was initiated with.	YES	ignore
> <i>Cell</i>					–	
>>Common Measurement Value Information	M		9.2.1.12E		–	
SFN	O		9.2.1.52A	Common Measurement Time Reference, <a href="#">UTRAN only</a>	YES	ignore

## 9.1.49 INFORMATION EXCHANGE INITIATION REQUEST

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		-	
Information Exchange ID	M		9.2.1.31A		YES	reject
Information Exchange Object Type	M		9.2.1.31B		YES	reject
CHOICE <i>Information Exchange Object Type</i>	M				YES	reject
>Cell					-	
>>C-ID	M		9.2.1.6	<a href="#">May be a GERAN cell identifier</a>	YES	reject
Information Type	M		9.2.1.31E		YES	reject
Information Report Characteristics	M		9.2.1.31C		YES	reject

### 9.2.1.12C Common Measurement Type

The Common Measurement Type identifies which measurement that shall be performed.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Common Measurement Type			ENUMERATED (UTRAN GPS Timing of Cell Frames for LCS, SFN-SFN Observed Time Difference, load, transmitted carrier power, received total wide band power, UL timeslot ISCP, ..., RT Load, NRT Load Information)	UL timeslot ISCP shall only be used by TDD <a href="#">For measurements, which are requested on the Iur-g interface, only load, RT Load and NRT Load information are used.</a>

### 9.2.1.12D Common Measurement Value

The Common Measurement Value shall be the most recent value for this measurement, for which the reporting criteria were met.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
CHOICE <i>Common Measurement Value</i>				
> <i>T<sub>UTRAN-GPS</sub> Measurement Value Information</i>				<a href="#">UTRAN only</a>
>>T <sub>UTRAN-GPS</sub> Measurement Value Information	M		9.2.1.59D	
> <i>SFN-SFN Measurement Value Information</i>				<a href="#">UTRAN only</a>
>>SFN-SFN Measurement Value Information	M		9.2.1.52C	
> <i>Load Value</i>				
>>Load Value	M		9.2.1.33A	
> <i>Transmitted Carrier Power Value</i>				<a href="#">UTRAN only</a>
>>Transmitted Carrier Power Value	M		Transmitted Carrier Power 9.2.1.59A	
> <i>Received Total Wide Band Power Value</i>				<a href="#">UTRAN only</a>
>>Received Total Wide Band Power Value	M		Received Total Wide Band Power 9.2.2.35A	
> <i>UL Timeslot ISCP Value</i>				TDD Only
>>UL Timeslot ISCP Value	M		UL Timeslot ISCP 9.2.3.13A	
> <i>RT Load Value</i>				
>>RT Load Value	M		9.2.1.50B	
> <i>NRT Load Information Value</i>				
>>NRT Load Information Value	M		9.2.1.41I	

### 9.2.1.13 Criticality Diagnostics

The *Criticality Diagnostics* IE is sent by an RNC when parts of a received message have not been comprehended or were missing, or if the message contained logical errors. When applicable, it contains information about which IEs that were not comprehended or were missing.

For further details on how to use the *Criticality Diagnostics* IE, see Annex C.



IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>Procedure ID</b>		0..1		Procedure ID is to be used if Criticality Diagnostics is part of Error Indication procedure, and not within the response message of the same procedure that caused the error
>Procedure Code	M		INTEGER (0..255)	
>Ddmode	M		ENUMERATED (FDD, TDD, Common)	Common = common to FDD and TDD. <a href="#">Common Ddmode is also applicable for Iur-g procedures listed in section 7.</a>
Triggering Message	O		ENUMERATED (initiating message, successful outcome, unsuccessful outcome)	The Triggering Message is used only if the Criticality Diagnostics is part of Error Indication.
Procedure Criticality	O		ENUMERATED (reject, ignore, notify)	This Procedure Criticality is used for reporting the Criticality of the Triggering message (Procedure).
Transaction ID	O		Transaction ID	
<b>Information Element Criticality Diagnostics</b>		<i>0..&lt;maxnoof errors&gt;</i>		
>IE Criticality	M		ENUMERATED (reject, ignore, notify)	The IE Criticality is used for reporting the criticality of the triggering IE. The value 'Ignore' shall never be used.
>IE Id	M		INTEGER (0..65535)	The IE Id of the not understood or missing IE as defined in the ASN.1 part of the specification.
>Repetition Number	O		INTEGER (0..255)	<p>The <i>Repetition Number</i> IE gives</p> <ul style="list-style-type: none"> <li>in case of a not understood IE: The number of occurrences of the reported IE up to and including the not understood occurrence</li> <li>in case of a missing IE: The number of occurrences up to but not including the missing occurrence.</li> </ul> <p>Note: All the counted occurrences of the reported IE must have the same topdown hierarchical message structure of IEs with assigned criticality above them.</p>
>Message Structure	O		9.2.1.39A	The <i>Message Structure</i> IE describes the structure where the not understood or

				missing IE was detected. This IE is included if the not understood IE is not the top level of the message.
>Type of Error	M		ENUMERATED(not understood, missing, ...)	

Range bound	Explanation
Maxnooferrors	Maximum number of IE errors allowed to be reported with a single message.

### 9.2.1.31E Information Type

The Information Type indicates which kind of information the RNS shall provide.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Information Type Item	M		ENUMERATED (UTRAN Access Point Position with Altitude, IPDL Parameters, GPS Information, DGPS Corrections, GPS RX Pos, SFN-SFN Measurement Reference Point Position, ..., Cell Capacity Class)	<a href="#">For information exchange on the Iur-g interface, only the Cell Capacity Class is used.</a>
<b>GPS Information</b>	C-GPS	1..<maxnoofGPSTypes>		
>GPS Information Item			ENUMERATED (GPS Navigation Model and Time Recovery, GPS Ionospheric Model, GPS UTC Model, GPS Almanac, GPS Real-Time Integrity, ...)	

Condition	Explanation
GPS	This IE shall be present if the <i>Information Type</i> IE indicates 'GPS Information'

Range Bound	Explanation
MaxnoofGPSTypes	Maximum number of GPS Information Types supported in one Information Exchange.



## 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,  
PagingRequest,  
PhysicalChannelReconfigurationCommand,  
PhysicalChannelReconfigurationFailure,  
PhysicalChannelReconfigurationRequestFDD,  
PhysicalChannelReconfigurationRequestTDD,  
PrivateMessage,  
RadioLinkActivationCommandFDD,  
RadioLinkActivationCommandTDD,  
RadioLinkAdditionFailureFDD,  
RadioLinkAdditionFailureTDD,  
RadioLinkAdditionRequestFDD,  
RadioLinkAdditionRequestTDD,  
RadioLinkAdditionResponseFDD,  
RadioLinkAdditionResponseTDD,  
RadioLinkCongestionIndication,  
RadioLinkDeletionRequest,  
RadioLinkDeletionResponse,  
RadioLinkFailureIndication,  
RadioLinkPreemptionRequiredIndication,  
RadioLinkReconfigurationCancel,  
RadioLinkReconfigurationCommit,  
RadioLinkReconfigurationFailure,  
RadioLinkReconfigurationPrepareFDD,  
RadioLinkReconfigurationPrepareTDD,  
RadioLinkReconfigurationReadyFDD,  
RadioLinkReconfigurationReadyTDD,  
RadioLinkReconfigurationRequestFDD,  
RadioLinkReconfigurationRequestTDD,  
RadioLinkReconfigurationResponseFDD,  
RadioLinkReconfigurationResponseTDD,  
RadioLinkRestoreIndication,  
RadioLinkSetupFailureFDD,  
RadioLinkSetupFailureTDD,  
RadioLinkSetupRequestFDD,  
RadioLinkSetupRequestTDD,  
RadioLinkSetupResponseFDD,  
RadioLinkSetupResponseTDD,  
RelocationCommit,  
ResetRequest,  
ResetResponse,  
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-dedicatedMeasurementFailure,
id-dedicatedMeasurementInitiation,
id-dedicatedMeasurementReporting,
id-dedicatedMeasurementTermination,
id-paging,
id-physicalChannelReconfiguration,
id-privateMessage,
id-radioLinkActivation,
id-radioLinkAddition,
id-radioLinkCongestion,
id-radioLinkDeletion,
id-radioLinkFailure,
id-radioLinkPreemption,
id-radioLinkRestoration,
id-radioLinkSetup,
id-relocationCommit,
id-reset,
id-synchronisedRadioLinkReconfigurationCancellation,
id-synchronisedRadioLinkReconfigurationCommit,
id-synchronisedRadioLinkReconfigurationPreparation,
id-unsynchronisedRadioLinkReconfiguration,
id-uplinkSignallingTransfer,
id-gERANuplinkSignallingTransfer
FROM RNSAP-Constants;

.
.
.
<Parts of the ASN.1 module is omitted>
.
.
.

-- *****
--
-- 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
}

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
}

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

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

radioLinkSetupFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RadioLinkSetupRequestFDD
    SUCCESSFUL OUTCOME  RadioLinkSetupResponseFDD
    UNSUCCESSFUL OUTCOME RadioLinkSetupFailureFDD
    PROCEDURE ID        { procedureCode id-radioLinkSetup, ddMode fdd }
    CRITICALITY         reject
}

radioLinkSetupTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RadioLinkSetupRequestTDD
    SUCCESSFUL OUTCOME  RadioLinkSetupResponseTDD
    UNSUCCESSFUL OUTCOME RadioLinkSetupFailureTDD
    PROCEDURE ID        { procedureCode id-radioLinkSetup, ddMode tdd }
    CRITICALITY         reject
}

radioLinkAdditionFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RadioLinkAdditionRequestFDD
    SUCCESSFUL OUTCOME  RadioLinkAdditionResponseFDD
    UNSUCCESSFUL OUTCOME RadioLinkAdditionFailureFDD
    PROCEDURE ID        { procedureCode id-radioLinkAddition , ddMode fdd }
    CRITICALITY         reject
}

radioLinkAdditionTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RadioLinkAdditionRequestTDD
    SUCCESSFUL OUTCOME  RadioLinkAdditionResponseTDD
    UNSUCCESSFUL OUTCOME RadioLinkAdditionFailureTDD
    PROCEDURE ID        { procedureCode id-radioLinkAddition , ddMode tdd }
    CRITICALITY         reject
}

radioLinkDeletion RNSAP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  RadioLinkDeletionRequest
    SUCCESSFUL OUTCOME  RadioLinkDeletionResponse
}
```

```
PROCEDURE ID      { procedureCode id-radioLinkDeletion, ddMode common }
CRITICALITY      reject
}

synchronisedRadioLinkReconfigurationPreparationFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkReconfigurationPrepareFDD
  SUCCESSFUL OUTCOME  RadioLinkReconfigurationReadyFDD
  UNSUCCESSFUL OUTCOME RadioLinkReconfigurationFailure
  PROCEDURE ID        { procedureCode id-synchronisedRadioLinkReconfigurationPreparation, ddMode fdd }
  CRITICALITY         reject
}

synchronisedRadioLinkReconfigurationPreparationTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkReconfigurationPrepareTDD
  SUCCESSFUL OUTCOME  RadioLinkReconfigurationReadyTDD
  UNSUCCESSFUL OUTCOME RadioLinkReconfigurationFailure
  PROCEDURE ID        { procedureCode id-synchronisedRadioLinkReconfigurationPreparation, ddMode tdd }
  CRITICALITY         reject
}

unSynchronisedRadioLinkReconfigurationFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkReconfigurationRequestFDD
  SUCCESSFUL OUTCOME  RadioLinkReconfigurationResponseFDD
  UNSUCCESSFUL OUTCOME RadioLinkReconfigurationFailure
  PROCEDURE ID        { procedureCode id-unSynchronisedRadioLinkReconfiguration, ddMode fdd }
  CRITICALITY         reject
}

unSynchronisedRadioLinkReconfigurationTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkReconfigurationRequestTDD
  SUCCESSFUL OUTCOME  RadioLinkReconfigurationResponseTDD
  UNSUCCESSFUL OUTCOME RadioLinkReconfigurationFailure
  PROCEDURE ID        { procedureCode id-unSynchronisedRadioLinkReconfiguration, ddMode tdd }
  CRITICALITY         reject
}

physicalChannelReconfigurationFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  PhysicalChannelReconfigurationRequestFDD
  SUCCESSFUL OUTCOME  PhysicalChannelReconfigurationCommand
  UNSUCCESSFUL OUTCOME PhysicalChannelReconfigurationFailure
  PROCEDURE ID        { procedureCode id-physicalChannelReconfiguration, ddMode fdd }
  CRITICALITY         reject
}

physicalChannelReconfigurationTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  PhysicalChannelReconfigurationRequestTDD
  SUCCESSFUL OUTCOME  PhysicalChannelReconfigurationCommand
  UNSUCCESSFUL OUTCOME PhysicalChannelReconfigurationFailure
  PROCEDURE ID        { procedureCode id-physicalChannelReconfiguration, ddMode tdd }
  CRITICALITY         reject
}

dedicatedMeasurementInitiation RNSAP-ELEMENTARY-PROCEDURE ::= {
```

```
INITIATING MESSAGE DedicatedMeasurementInitiationRequest
SUCCESSFUL OUTCOME DedicatedMeasurementInitiationResponse
UNSUCCESSFUL OUTCOME DedicatedMeasurementInitiationFailure
PROCEDURE ID      { procedureCode id-dedicatedMeasurementInitiation, ddMode common }
CRITICALITY      reject
}

commonTransportChannelResourcesInitialisationFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CommonTransportChannelResourcesRequest
  SUCCESSFUL OUTCOME CommonTransportChannelResourcesResponseFDD
  UNSUCCESSFUL OUTCOME CommonTransportChannelResourcesFailure
  PROCEDURE ID      { procedureCode id-commonTransportChannelResourcesInitialisation, ddMode fdd }
  CRITICALITY      reject
}

commonTransportChannelResourcesInitialisationTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CommonTransportChannelResourcesRequest
  SUCCESSFUL OUTCOME CommonTransportChannelResourcesResponseTDD
  UNSUCCESSFUL OUTCOME CommonTransportChannelResourcesFailure
  PROCEDURE ID      { procedureCode id-commonTransportChannelResourcesInitialisation, ddMode tdd }
  CRITICALITY      reject
}

uplinkSignallingTransferFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE UplinkSignallingTransferIndicationFDD
  PROCEDURE ID      { procedureCode id-uplinkSignallingTransfer, ddMode fdd }
  CRITICALITY      ignore
}

uplinkSignallingTransferTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE UplinkSignallingTransferIndicationTDD
  PROCEDURE ID      { procedureCode id-uplinkSignallingTransfer, ddMode tdd }
  CRITICALITY      ignore
}

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

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

paging RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE PagingRequest
  PROCEDURE ID      { procedureCode id-paging, ddMode common }
  CRITICALITY      ignore
}
```

```
synchronisedRadioLinkReconfigurationCommit RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkReconfigurationCommit
  PROCEDURE ID        { procedureCode id-synchronisedRadioLinkReconfigurationCommit, ddMode common }
  CRITICALITY         ignore
}

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

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

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

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

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

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

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

radioLinkCongestion RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE  RadioLinkCongestionIndication
  PROCEDURE ID        { procedureCode id-radioLinkCongestion, ddMode common }
  CRITICALITY         reject
}
```

```
downlinkPowerControlFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE DL-PowerControlRequest
  PROCEDURE ID       { procedureCode id-downlinkPowerControl, ddMode fdd }
  CRITICALITY       ignore
}

downlinkPowerTimeslotControl RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE DL-PowerTimeslotControlRequest
  PROCEDURE ID       { procedureCode id-downlinkPowerTimeslotControl, ddMode tdd }
  CRITICALITY       ignore
}

compressedModeCommandFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CompressedModeCommand
  PROCEDURE ID       { procedureCode id-compressedModeCommand, ddMode fdd }
  CRITICALITY       ignore
}

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

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

commonMeasurementInitiation RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CommonMeasurementInitiationRequest
  SUCCESSFUL OUTCOME CommonMeasurementInitiationResponse
  UNSUCCESSFUL OUTCOME CommonMeasurementInitiationFailure
  PROCEDURE ID       { procedureCode id-commonMeasurementInitiation, ddMode common }
  CRITICALITY       reject
}

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

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

commonMeasurementFailure RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE CommonMeasurementFailureIndication
```

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

informationExchangeInitiation RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      InformationExchangeInitiationRequest
  SUCCESSFUL OUTCOME      InformationExchangeInitiationResponse
  UNSUCCESSFUL OUTCOME    InformationExchangeInitiationFailure
  PROCEDURE ID            { procedureCode id-informationExchangeInitiation, ddMode common }
  CRITICALITY             reject
}

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

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

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

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

reset RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      ResetRequest
  SUCCESSFUL OUTCOME      ResetResponse
  PROCEDURE ID            { procedureCode id-reset, ddMode common }
  CRITICALITY             reject
}

radioLinkActivationFDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      RadioLinkActivationCommandFDD
  PROCEDURE ID            { procedureCode id-radioLinkActivation, ddMode fdd }
  CRITICALITY             ignore
}

radioLinkActivationTDD RNSAP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      RadioLinkActivationCommandTDD
```

```

PROCEDURE ID      { procedureCode id-radioLinkActivation, ddMode tdd }
CRITICALITY      ignore
}

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

END

```

### 9.3.3 PDU Definitions

```

.
.
.
<Parts of the ASN.1 module is omitted>
.
.
.

-- *****
--
-- DOWNLINK SIGNALLING TRANSFER REQUEST
--
-- *****

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

DownlinkSignallingTransferRequest-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-C-ID          CRITICALITY ignore TYPE C-ID          PRESENCE mandatory } |
  -- May be a GERAN cell identifier
  { ID id-D-RNTI        CRITICALITY ignore TYPE D-RNTI        PRESENCE mandatory } |
  { ID id-L3-Information CRITICALITY ignore TYPE L3-Information PRESENCE mandatory } |
  { ID id-D-RNTI-ReleaseIndication CRITICALITY ignore TYPE D-RNTI-ReleaseIndication PRESENCE mandatory },
  ...
}

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

```

```

-- *****
--
-- RELOCATION COMMIT
--
-- *****

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

RelocationCommit-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-D-RNTI          CRITICALITY ignore TYPE D-RNTI          PRESENCE optional } |
    { ID id-RANAP-RelocationInformation CRITICALITY ignore TYPE RANAP-RelocationInformation PRESENCE optional },
    ...
}

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

-- *****
--
-- PAGING REQUEST
--
-- *****

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

PagingRequest-IEs RNSAP-PROTOCOL-IES ::= {
    { ID id-PagingArea-PagingRqst          CRITICALITY ignore TYPE PagingArea-PagingRqst          PRESENCE mandatory } |
    { ID id-SRNC-ID          CRITICALITY ignore TYPE RNC-ID          PRESENCE mandatory } | -- May be a BSC-Id. |
    { ID id-S-RNTI          CRITICALITY ignore TYPE S-RNTI          PRESENCE mandatory } |
    { ID id-IMSI          CRITICALITY ignore TYPE IMSI          PRESENCE mandatory } |
    { ID id-DRXCycleLengthCoefficient          CRITICALITY ignore TYPE DRXCycleLengthCoefficient          PRESENCE mandatory } |
    { ID id-CNOriginatedPage-PagingRqst          CRITICALITY ignore TYPE CNOriginatedPage-PagingRqst          PRESENCE optional },
    ...
}

PagingArea-PagingRqst ::= CHOICE {
    uRA          URA-PagingRqst, -- May be a GRA-ID. |
    cell          Cell-PagingRqst, -- UTRAN only |
    ...
}

.
.

```



```

.
.<Parts of the ASN.1 module is omitted>
.
.
.

*****
--
-- COMMON MEASUREMENT INITIATION REQUEST
--
-- *****

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

CommonMeasurementInitiationRequest-IEs RNSAP-PROTOCOL-IES ::= {
    { ID      id-MeasurementID                CRITICALITY reject          TYPE      MeasurementID                PRESENCE mandatory
    } |
    { ID      id-CommonMeasurementObjectType-CM-Rqst          CRITICALITY reject          TYPE      CommonMeasurementObjectType-CM-Rqst          PRESENCE
    mandatory } |
    -- This IE represents both the Common Measurement Object Type IE and the choice based on the Common Measurement Object Type
    -- as described in the tabular message format in subclause 9.1.
    { ID      id-CommonMeasurementType                CRITICALITY reject          TYPE      CommonMeasurementType                PRESENCE mandatory
    } |
    { ID      id-MeasurementFilterCoefficient          CRITICALITY reject          TYPE      MeasurementFilterCoefficient          PRESENCE optional
    } |
    -- UTRAN only
    { ID      id-ReportCharacteristics                CRITICALITY reject          TYPE      ReportCharacteristics                PRESENCE mandatory
    } |
    { ID      id-SFNReportingIndicator                CRITICALITY reject          TYPE      SFNReportingIndicator                PRESENCE mandatory
    } |
    { ID      id-SFN                                    CRITICALITY reject          TYPE      SFN                                    PRESENCE optional
    } |
    -- UTRAN only
    { ID      id-CommonMeasurementAccuracy            CRITICALITY reject          TYPE      CommonMeasurementAccuracy            PRESENCE optional
    },
    -- UTRAN only
    ...
}

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

CommonMeasurementObjectType-CM-Rqst ::= CHOICE {
    cell                Cell-CM-Rqst,
    ...
}

Cell-CM-Rqst ::= SEQUENCE {

```

```

uC-ID                UC-ID,
-- May be a GERAN cell identifier
timeSlot             TimeSlot        OPTIONAL,  --3.84Mcps TDD only
timeSlotLCR          TimeSlotLCR      OPTIONAL,  --1.28Mcps TDD only
neighbouringCellMeasurementInformation SEQUENCE (SIZE (1..maxNrOfMeasNCell)) OF
  CHOICE {
    neighbouringFDDCellMeasurementInformation NeighbouringFDDCellMeasurementInformation,
    neighbouringTDDCellMeasurementInformation NeighbouringTDDCellMeasurementInformation,
    ...,
    extension-neighbouringCellMeasurementInformation Extension-neighbouringCellMeasurementInformation
  },
-- UTRAN only
iE-Extensions        ProtocolExtensionContainer { { CellItem-CM-Rqst-ExtIEs } } OPTIONAL,
...
}

Extension-neighbouringCellMeasurementInformation ::= ProtocolIE-Single-Container {{ Extension-neighbouringCellMeasurementInformationIE }}

Extension-neighbouringCellMeasurementInformationIE NBAP-PROTOCOL-IES ::= {
  { ID id-neighbouringTDDCellMeasurementInformationLCR    CRITICALITY reject  EXTENSION NeighbouringTDDCellMeasurementInformationLCR  PRESENCE
  mandatory },
  ...
}

CellItem-CM-Rqst-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- COMMON MEASUREMENT INITIATION RESPONSE
--
-- *****

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

CommonMeasurementInitiationResponse-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-MeasurementID                CRITICALITY ignore          TYPE MeasurementID                PRESENCE mandatory
  } |
  { ID id-CommonMeasurementObjectType-CM-Rsp  CRITICALITY ignore          TYPE CommonMeasurementObjectType-CM-Rsp  PRESENCE optional
  } |
  { ID id-SFN                              CRITICALITY ignore          TYPE SFN                              PRESENCE optional
  } |
  -- UTRAN only
  { ID id-CriticalityDiagnostics            CRITICALITY ignore          TYPE CriticalityDiagnostics          PRESENCE optional
  } |
  { ID id-CommonMeasurementAccuracy         CRITICALITY reject          TYPE CommonMeasurementAccuracy        PRESENCE optional
  },
  -- UTRAN only

```

```

}
...
}
CommonMeasurementInitiationResponse-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
...
}
CommonMeasurementObjectType-CM-Rsp ::= CHOICE {
cell Cell-CM-Rsp,
...
}
Cell-CM-Rsp ::= SEQUENCE {
commonMeasurementValue CommonMeasurementValue,
iE-Extensions ProtocolExtensionContainer { { CellItem-CM-Rsp-ExtIEs } } OPTIONAL,
...
}
CellItem-CM-Rsp-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
...
}
-- *****
--
-- COMMON MEASUREMENT INITIATION FAILURE
--
-- *****
CommonMeasurementInitiationFailure ::= SEQUENCE {
protocolIEs ProtocolIE-Container {{CommonMeasurementInitiationFailure-IEs}},
protocolExtensions ProtocolExtensionContainer {{CommonMeasurementInitiationFailure-Extensions}} OPTIONAL,
...
}
CommonMeasurementInitiationFailure-IEs RNSAP-PROTOCOL-IES ::= {
{ ID id-MeasurementID CRITICALITY ignore TYPE MeasurementID PRESENCE mandatory }|
{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|
{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
...
}
CommonMeasurementInitiationFailure-Extensions RNSAP-PROTOCOL-EXTENSION ::= {
...
}
-- *****
--
-- COMMON MEASUREMENT REPORT
--
-- *****
CommonMeasurementReport ::= SEQUENCE {
protocolIEs ProtocolIE-Container {{CommonMeasurementReport-IEs}},

```

```

    protocolExtensions      ProtocolExtensionContainer  {{CommonMeasurementReport-Extensions}}  OPTIONAL,
    ...
}

CommonMeasurementReport-IEs RNSAP-PROTOCOL-IES ::= {
  { ID      id-MeasurementID          CRITICALITY ignore          TYPE      MeasurementID          PRESENCE mandatory }|
  { ID      id-CommonMeasurementObjectType-CM-Rprt  CRITICALITY ignore          TYPE      CommonMeasurementObjectType-CM-Rprt  PRESENCE mandatory
  }|
  { ID      id-SFN                    CRITICALITY ignore          TYPE      SFN                    PRESENCE optional },
  -- UTRAN only
  ...
}

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

CommonMeasurementObjectType-CM-Rprt ::= CHOICE {
  cell                Cell-CM-Rprt,
  ...
}

Cell-CM-Rprt ::= SEQUENCE {
  commonMeasurementValueInformation  CommonMeasurementValueInformation,
  iE-Extensions                      ProtocolExtensionContainer  {{ CellItem-CM-Rprt-ExtIEs }}  OPTIONAL,
  ...
}

CellItem-CM-Rprt-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

.
.
.
<Parts of the ASN.1 module is omitted>
.
.
.

-- *****
--
-- INFORMATION EXCHANGE INITIATION REQUEST
--
-- *****

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

```

```

InformationExchangeInitiationRequest-IEs RNSAP-PROTOCOL-IES ::= {
  { ID      id-InformationExchangeID          CRITICALITY reject      TYPE      InformationExchangeID          PRESENCE mandatory
  }|
  { ID      id-InformationExchangeObjectType-InfEx-Rqst  CRITICALITY reject      TYPE      InformationExchangeObjectType-InfEx-Rqst  PRESENCE
  mandatory }|
  -- This IE represents both the Information Exchange Object Type IE and the choice based on the Information Exchange Object Type
  -- as described in the tabular message format in subclause 9.1.
  { ID      id-InformationType                  CRITICALITY reject      TYPE      InformationType                  PRESENCE mandatory
  }|
  { ID      id-InformationReportCharacteristics          CRITICALITY reject      TYPE      InformationReportCharacteristics          PRESENCE mandatory
  },
  ...
}

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

InformationExchangeObjectType-InfEx-Rqst ::= CHOICE {
  cell                Cell-InfEx-Rqst,
  ...
}

Cell-InfEx-Rqst ::= SEQUENCE {
  c-ID                C-ID, --May be a GERAN cell identifier
  iE-Extensions       ProtocolExtensionContainer { { CellItem-InfEx-Rqst-ExtIEs } }  OPTIONAL,
  ...
}

CellItem-InfEx-Rqst-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

.
.
.
<Parts of the ASN.1 module is omitted>
.
.
.

-- *****
--
-- RADIO LINK ACTIVATION COMMAND TDD
--
-- *****

RadioLinkActivationCommandTDD ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container    {{RadioLinkActivationCommandTDD-IEs}},

```

```

    protocolExtensions      ProtocolExtensionContainer  {{RadioLinkActivationCommandTDD-Extensions}}      OPTIONAL,
  }
  ...
}

RadioLinkActivationCommandTDD-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-DelayedActivationList-RL-ActivationCmdTDD      CRITICALITY reject  TYPE      DelayedActivationInformationList-RL-ActivationCmdTDD
  PRESENCE      mandatory  },
  ...
}

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

DelayedActivationInformationList-RL-ActivationCmdTDD ::= SEQUENCE (SIZE (1..maxNrOfRLs)) OF ProtocolIE-Single-Container {
  { DelayedActivationInformation-RL-ActivationCmdTDD-IEs } }

DelayedActivationInformation-RL-ActivationCmdTDD-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-DelayedActivationInformation-RL-ActivationCmdTDD      CRITICALITY reject  TYPE DelayedActivationInformation-RL-ActivationCmdTDD  PRESENCE
optional  }
}

DelayedActivationInformation-RL-ActivationCmdTDD ::= SEQUENCE {
  rL-ID              RL-ID,
  delayed-activation-update  DelayedActivationUpdate,
  iE-Extensions      ProtocolExtensionContainer { { DelayedActivationInformation-RL-ActivationCmdTDD-ExtIEs } } OPTIONAL,
  ...
}

DelayedActivationInformation-RL-ActivationCmdTDD-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
  ...
}

-- *****
--
-- GERAN UPLINK SIGNALLING TRANSFER INDICATION
--
-- *****

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

GERANUplinkSignallingTransferIndication-IEs RNSAP-PROTOCOL-IES ::= {
  { ID id-UC-ID          CRITICALITY ignore  TYPE UC-ID          PRESENCE mandatory } |
  -- UC-Id may be GERAN cell identifier.
  { ID id-SAI           CRITICALITY ignore  TYPE SAI           PRESENCE mandatory } |
  { ID id-S-RNTI       CRITICALITY ignore  TYPE S-RNTI       PRESENCE mandatory } |
  { ID id-D-RNTI       CRITICALITY ignore  TYPE D-RNTI       PRESENCE optional   } |
  { ID id-L3-Information CRITICALITY ignore  TYPE L3-Information PRESENCE mandatory } |
  { ID id-CN-PS-DomainIdentifier CRITICALITY ignore  TYPE CN-PS-DomainIdentifier PRESENCE optional   } |
}

```

```
{ ID id-CN-CS-DomainIdentifier CRITICALITY ignore TYPE CN-CS-DomainIdentifier PRESENCE optional } |
{ ID id-URA-Information CRITICALITY ignore TYPE URA-Information PRESENCE optional },
-- URA information may be GRA information
...
}

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

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

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

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

END
```

## 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
<u>id-gERANuplinkSignallingTransfer</u>	<u>ProcedureCode ::= 37</u>

•  
•  
•  
•

<Parts of the ASN.1 module is omitted>

```
CommonMeasurementAccuracy ::= CHOICE {
    tUTRANGPSMeasurementAccuracyClass    TUTRANGPSAccuracyClass,
    ...
}
```

```
CommonMeasurementType ::= ENUMERATED {
    uTRAN-GPS-timing-of-cell-frames-for-LCS,
    sFN-SFN-observerd-time-difference,
    load,
    transmitted-carrier-power,
    received-total-wide-band-power,
    uplink-timeslot-iscp,
    ...,
    rT-load,
    nRT-load-Information
}
```

-- For measurements on the Iur-g interface, only load, RT Load and NRT Load information are requested.

```
CommonMeasurementValue ::= CHOICE {
    tUTRANGPSMeasurementValueInformation    TUTRANGPSMeasurementValueInformation,
    sFNSFNMeasurementValueInformation      SFNSFNMeasurementValueInformation,
    loadValue                               LoadValue,
    transmittedCarrierPowerValue           INTEGER(0..100),
    receivedTotalWideBandPowerValue       INTEGER(0..621),
    uplinkTimeslotISCPValue               UL-TimeslotISCP,
    ...,
    rTLoadValue                            RTLoadValue,
```

```

nRTLoadInformationValue          NRTLoadInformationValue
}
-- For measurements on the Iur-g interface, only load, RT Load and NRT Load values are reported.

CommonMeasurementValueInformation ::= CHOICE {
  measurementAvailable          CommonMeasurementAvailable,
  measurementnotAvailable      NULL
}

.
.
.
<Parts of the ASN.1 module is omitted>
.
.

InformationThreshold ::= CHOICE {
  dGPSThreshold          DGPSThreshold,
  ...,
  extension-InformationThreshold      Extension-InformationThreshold
}

Extension-InformationThreshold ::= ProtocolIE-Single-Container {{ Extension-InformationThresholdIE }}

Extension-InformationThresholdIE RNSAP-PROTOCOL-IES ::= {
  { ID id-Cell-Capacity-Class-Value-ThresholdInformation CRITICALITY reject TYPE Cell-Capacity-Class-Value-ThresholdInformation PRESENCE
  mandatory}
}

InformationType ::= SEQUENCE {
  informationTypeItem      ENUMERATED {
    gA-AccessPointPositionwithAltitude,
    gA-AccessPointPosition,
    iPDLParameters,
    gPSInformation,
    dGPSCorrections,
    gPS-RX-POS,
    sFNSFN-GA-AccessPointPosition,
    ...,
    cell-Capacity-Class
  },
  gPSInformation          GPSInformation          OPTIONAL,
  iE-Extensions          ProtocolExtensionContainer { { InformationType-ExtIEs} }          OPTIONAL,
  ...
}

-- The GPS Information IE shall be present if the Information Exchange Type IE indicates 'GPS Information'
-- For information exchange on the Iur-g interface, only the Cell Capacity Class is used.

```

```
InformationType-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
InnerLoopDLPCStatus ::= ENUMERATED {active, inactive}  
  
IPDLParameters ::= CHOICE {  
    iPDL-FDD-Parameters      IPDL-FDD-Parameters,  
    iPDL-TDD-Parameters      IPDL-TDD-Parameters,    --3.84Mcps TDD only  
    ...,  
    extension- IPDLParameters  Extension- IPDLParameters  
}
```