

**TSG-RAN Meeting #15**  
**Cheju, Korea, 5 - 8 March 2002**

**TSGRP#15(02) 0207**

**Title:** Change Request for TSG-GERAN WI "Location Services for GERAN in Iu Mode"

**Source:** TSG-RAN WG3

RP_Num	Tdoc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	Workitem
RP-020207	R3-020632	25.413	405	1	Rel-5	Signalling enhancements for GERAN Iu Mode LCS	B	4.3.0	LCS-GERAN

## CHANGE REQUEST

⌘ **25.413** **CR** **405** ⌘ rev **3** ⌘ Current version: **4.3.0** ⌘

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

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

<b>Title:</b>	⌘ Signalling enhancements for GERAN Iu Mode LCS		
<b>Source:</b>	⌘ R-WG3		
<b>Work item code:</b>	⌘ LCS-GERAN	<b>Date:</b>	⌘ 20 February 2002
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ REL-5
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (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> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ According to the LS from GERAN WG2 [R3-013183], GERAN Iu Mode LCS uses Iu RANAP Procedures. Some enhancements to RANAP are required in order to support GERAN Iu Mode LCS.
<b>Summary of change:</b>	⌘ 1 In review of 25.413 v4.2.0, TSG GERAN WG2 has identified 3 places where enhancements to the existing RANAP signaling are required so that RANAP will support GERAN Iu mode LCS: <ol style="list-style-type: none"> <li>1. The Location Related Data Request message should allow the CN to request Dedicated Mobile-Assisted E-OTD Assistance Data and Dedicated Mobile-Based E-OTD Assistance Data be delivered to the mobile station, and also allow the CN to request that Deciphering Keys for E-OTD be delivered to the CN.</li> <li>2. The Client Type IE in the Request Type Element of the Location Reporting Control message should allow additional Client Types to be specified (PLMN Operator - broadcast services, PLMN Operator - O&amp;M, PLMN Operator - anonymous statistics, PLMN Operator - Target MS service support). These Client Types are supported in GERAN A/Gb mode LCS, and are needed in GERAN Iu mode LCS.</li> <li>3. The Cause IE in the Location Report message should allow the RAN to return an indication of Congestion.</li> </ol> According to the proposal approved in R3-013331 "Handling of GERAN specific modifications needed in UTRAN", a restriction to GERAN Iu mode case is also added for GERAN request of the bullet 1 (9.2.3.19). However no restriction was foreseen to be added for GERAN request of bullet 2 and 3, as those new LCS client types and that indication of Congestion can also apply in UTRAN case according to actual LCS stage 1 and 2 specifications [TS 22.071]/[TS 23.271]. <p>Impact Analysis: Impact assessment towards the previous version of the specification (previous release): This CR has no impact with the previous version of the specification (previous release) because this an optional new feature and the ASN.1 changes are made based on ASN.1 backward compatibility mechanisms (e.g. extension containers, ellipsis notation).</p>
<b>Consequences if not approved:</b>	⌘

<b>Clauses affected:</b>	⌘	2, 8.20, 9.2.1.4, 9.2.1.16, 9.2.3.19 and 9.3.4
<b>Other specs affected:</b>	⌘	<input type="checkbox"/> Other core specifications
		<input type="checkbox"/> Test specifications
		<input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	⌘	

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at:

[http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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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".

- [1] 3GPP TR 23.930: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects; Iu Principles".
- [2] 3GPP TS 25.410: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface: General Aspects and Principles".
- [3] 3GPP TS 25.401: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Overall Description".
- [4] 3GPP TR 25.931: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Functions, Examples on Signalling Procedures".
- [5] 3GPP TS 25.412: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface Signalling Transport".
- [6] 3GPP TS 25.415: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface User Plane Protocols".
- [7] 3GPP TS 23.107: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects; QoS Concept and Architecture".
- [8] 3GPP TS 24.008: "3<sup>rd</sup> Generation Partnership Project (3GPP); Mobile radio interface layer 3 specification, Core Network Protocols – Stage 3".
- [9] 3GPP TS 25.414: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Iu Interface Data Transport and Transport Signalling".
- [10] 3GPP TS 25.331: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; RRC Protocol Specification".
- [11] 3GPP TS 08.08: "Mobile services Switching Centre – Base Station System (MSC – BSS) interface".
- [12] 3GPP TS 12.08: "Subscriber and equipment trace".
- [13] X.691 (12/97): "Information Technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".
- [14] X.680, (12/97): "Information Technology - Abstract Syntax Notation One (ASN.1):Specification of basic notation".
- [15] X.681 (12/97): "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification".
- [16] 3GPP TS 23.110: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects, UMTS Access Stratum, Services and Functions".
- [17] 3GPP TS 25.323: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Packet Data Convergence Protocol (PDCP) Specification".
- [18] 3GPP TS 25.921: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Guidelines and principles for protocol description and error handling".

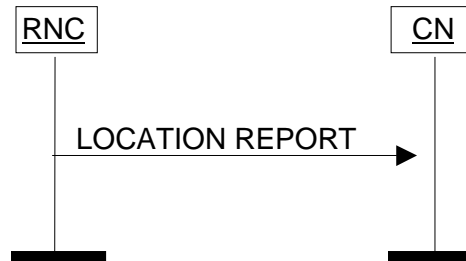
- [19] 3GPP TS 23.003: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Core Network; Numbering, addressing and identification".
- [20] 3GPP TS 23.032: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Core Network; Universal Geographical Area Description (GAD)".
- [21] 3GPP TS 23.060: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspect; General Packet Radio Service (GPRS); Service description; Stage 2".
- [22] 3GPP TS 24.080: "3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specification Group Core Network; Mobile radio interface layer 3 supplementary services specification; Formats and coding".
- [23] 3GPP TS 29.108: "3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Core Network; Application of the Radio Access Network Application Part (RANAP) on the E-interface".
- [x1] [3GPP TS 25.305: "3<sup>rd</sup> Generation Partnership Project \(3GPP\) Technical Specification Group Radio Access Network; Stage 2 Functional Specification of Location Services \(LCS\) in UTRAN"](#).
- [x2] [3GPP TS 43.059: "3<sup>rd</sup> Generation Partnership Project; Technical Specification Group GSM/EDGE Radio Access Network; Functional stage 2 description of Location Services \(LCS\) in GERAN"](#).

## 8.20 Location Report

### 8.20.1 General

The purpose of the Location Report procedure is to provide the UE's location information to the CN. The procedure uses connection oriented signalling.

### 8.20.2 Successful Operation



**Figure 1: Location Report procedure. Successful operation.**

The serving RNC shall initiate the procedure by generating a LOCATION REPORT message. The LOCATION REPORT message may be used as a response for the LOCATION REPORTING CONTROL message. Also, when a user enters or leaves a classified zone set by O&M, e.g. zone where a disaster occurred, a LOCATION REPORT message shall be sent to the CN including the Service Area of the UE in the *Area Identity* IE. The *Cause* IE shall indicate the appropriate cause value to CN, e.g. "User Restriction Start Indication" and "User Restriction End Indication". The CN shall react to the LOCATION REPORT message with CN vendor specific actions.

For this procedure, only Service Areas that are defined for the PS and CS domains shall be considered.

In case reporting at change of Service Area is requested by the CN, then the RNC shall issue a LOCATION REPORT message

- whenever the information given in the previous LOCATION REPORT message or INITIAL UE MESSAGE message is not anymore valid.
- upon receipt of the first LOCATION REPORTING CONTROL message following a Relocation Resource Allocation procedure, with *Request Type* IE set to "Change of Service Area", as soon as SAI becomes available in the new SRNC and the relocation procedure has been successfully completed.

In the case when Service Area is reported, the RNC shall include to the LOCATION REPORT message in the *Area Identity* IE the Service Area, which includes at least one of the cells from which the UE is consuming radio resources.

In the case when the LOCATION REPORT message is sent as an answer to a request for a direct report or at a change of Service Area, the *Request Type* IE from the LOCATION REPORTING CONTROL message shall be included.

If the RNC can not deliver the location information as requested by the CN, due to either the non-support of the requested event or the non-~~support~~-support of the requested report area, the RNC shall indicate the UE location to be "Undetermined" by omitting the *Area Identity* IE. A cause value shall instead be added to indicate the reason for the undetermined location, e.g. "Requested Request Type not supported" or "[Location Reporting Congestion](#)".

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request to report a geographical area with a specific accuracy, the LOCATION REPORT message shall include the *Geographical Area* IE within the *Area Identity* IE containing either a point with indicated uncertainty or a polygon or an other type, which fulfils the requested accuracy as accurately as possible. If, on the other hand, no specific accuracy level was requested in the LOCATION REPORTING CONTROL message, it is up to UTRAN to decide with which accuracy to report.

### 8.20.3 Abnormal Conditions

Not applicable.

#### 9.2.1.4 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the RANAP protocol.



IE/Group Name	Presence	Range	IE type and reference	Semantics description
<p>Choice <b>Cause</b></p> <p>&gt;Radio Network Layer Cause</p>			<p>INTEGER (RAB pre-empted(1),</p> <p>Trelocoverall Expiry(2),</p> <p>Trelocprep Expiry(3),</p> <p>Treloccomplete Expiry(4),</p> <p>Tqueing Expiry(5),</p> <p>Relocation Triggered(6),</p> <p>Unable to Establish During Relocation(8),</p> <p>Unknown Target RNC(9),</p> <p>Relocation Cancelled(10),</p> <p>Successful Relocation(11),</p> <p>Requested Ciphering and/or Integrity Protection Algorithms not Supported(12),</p> <p>Change of Ciphering and/or Integrity Protection is not supported(13),</p> <p>Failure in the Radio Interface Procedure(14),</p> <p>Release due to UTRAN Generated Reason(15),</p> <p>User Inactivity(16),</p> <p>Time Critical Relocation(17),</p> <p>Requested Traffic Class not Available(18),</p> <p>Invalid RAB Parameters Value(19),</p> <p>Requested Maximum Bit Rate</p>	<p>Value range is 1 – 64.</p>

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice <b>Cause</b>			<p>not Available(20),</p> <p>Requested Maximum Bit Rate for DL not Available(33),</p> <p>Requested Maximum Bit Rate for UL not Available(34),</p> <p>Requested Guaranteed Bit Rate not Available(21),</p> <p>Requested Guaranteed Bit Rate for DL not Available(35),</p> <p>Requested Guaranteed Bit Rate for UL not Available(36),</p> <p>Requested Transfer Delay not Achievable(22),</p> <p>Invalid RAB Parameters Combination(23),</p> <p>Condition Violation for SDU Parameters(24),</p> <p>Condition Violation for Traffic Handling Priority(25),</p> <p>Condition Violation for Guaranteed Bit Rate(26),</p> <p>User Plane Versions not Supported(27),</p> <p>Iu UP Failure(28),</p> <p>TRELOCalloc Expiry (7),</p> <p>Relocation Failure in Target CN/RNC or Target System (29),</p> <p>Invalid RAB ID(30),</p> <p>No remaining RAB(31),</p>	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Cause			<p>Interaction with other procedure(32),</p> <p>Repeated Integrity Checking Failure(37),</p> <p>Requested Request Type not supported(38),</p> <p>Request superseded(39),</p> <p>Release due to UE generated signalling connection release(40),</p> <p>Resource Optimisation Relocation(41),</p> <p>Requested Information Not Available(42),</p> <p>Relocation desirable for radio reasons (43),</p> <p>Relocation not supported in Target RNC or Target system(44),</p> <p>Directed Retry (45),</p> <p>Radio Connection With UE Lost(46)</p> <p>....</p> <p>RNC unable to establish all RFCs (47) ,</p> <p>Deciphering Keys Not Available(48),</p> <p>Dedicated Assistance data Not Available(49),</p> <p>Relocation Target not allowed(50).  <a href="#">Location Reporting Congestion(51)</a></p>	

Lots of unaffected parts in 9.2.1.4 not shown

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the concerning capability is missing. On the other hand, "not available" cause values indicate that the concerning capability is present, but insufficient resources were available to perform the requested action.

<b>Radio Network Layer cause</b>	<b>Meaning</b>
Deciphering Keys Not Available	The action failed because RNC is not able to provide requested deciphering keys.
Change Of Ciphering And/Or Integrity Protection Is Not Supported	The UTRAN and/or the UE are/is unable to support the requested change of ciphering and/or integrity protection algorithms.
Condition Violation For Guaranteed Bit Rate	The action was not performed due to condition violation for guaranteed bit rate.
Condition Violation For SDU Parameters	The action was not performed due to condition violation for SDU parameters.
Condition Violation For Traffic Handling Priority	The action was not performed due to condition violation for traffic handling priority.
Dedicated Assistance data Not Available	The action failed because RNC is not able to successfully deliver the requested dedicated assistance data to the UE.
Directed Retry	The reason for action is Directed Retry
Failure In The Radio Interface Procedure	Radio interface procedure has failed.
Interaction With Other Procedure	Relocation was cancelled due to interaction with other procedure.
Invalid RAB ID	The action failed because the RAB ID is unknown in the RNC.
Invalid RAB Parameters Combination	The action failed due to invalid RAB parameters combination.
Invalid RAB Parameters Value	The action failed due to invalid RAB parameters value.
Iu UP Failure	The action failed due to Iu UP failure.
No remaining RAB	The reason for the action is no remaining RAB.
RAB Pre-empted	The reason for the action is that RAB is pre-empted.
Radio Connection With UE Lost	The action is requested due to losing radio connection to the UE
Release Due To UE Generated Signalling Connection Release	Release requested due to UE generated signalling connection release.
Release Due To UTRAN Generated Reason	Release is initiated due to UTRAN generated reason.
Relocation Cancelled	The reason for the action is relocation cancellation.
Relocation Desirable for Radio Reasons	The reason for requesting relocation is radio related.
Relocation Failure In Target CN/RNC Or Target System	Relocation failed due to a failure in target CN/RNC or target system.
Relocation Not Supported In Target RNC Or Target System	Relocation failed because relocation was not supported in target RNC or target system.
Relocation Target not allowed	Relocation to the indicated target cell is not allowed for the UE in question.
Relocation Triggered	The action failed due to relocation.
Repeated Integrity Checking Failure	The action is requested due to repeated failure in integrity checking.
Request Superseded	The action failed because there was a second request on the same RAB.
Requested Ciphering And/Or Integrity Protection Algorithms Not Supported	The UTRAN or the UE is unable to support the requested ciphering and/or integrity protection algorithms.
Requested Guaranteed Bit Rate For DL Not Available	The action failed because requested guaranteed bit rate for DL is not available.
Requested Guaranteed Bit Rate For UL Not Available	The action failed because requested guaranteed bit rate for UL is not available.
Requested Guaranteed Bit Rate Not Available	The action failed because requested guaranteed bit rate is not available.
Requested Information Not Available	The action failed because requested information is not available.
Requested Maximum Bit Rate For DL Not Available	The action failed because requested maximum bit rate for DL is not available.
Requested Maximum Bit Rate For UL Not Available	The action failed because requested maximum bit rate for UL is not available.
Requested Maximum Bit Rate Not Available	The action failed because requested maximum bit rate is not available.
Requested Request Type Not Supported	The RNC is not supporting the requested location request type either because it doesn't support the requested event or it doesn't support the requested report area.
<a href="#">Location Reporting Congestion</a>	<a href="#">The action was not performed due to an inability to support location reporting caused by overload.</a>

Requested Traffic Class Not Available	The action failed because requested traffic class is not available.
Requested Transfer Delay Not Achievable	The action failed because requested transfer delay is not achievable.
Resource Optimisation Relocation Successful Relocation	The reason for requesting relocation is resource optimisation. The reason for the action is completion of successful relocation.
Time Critical Relocation	Relocation is requested for time critical reason.
T <sub>QUEUING</sub> Expiry	The action failed due to expiry of the timer T <sub>QUEUING</sub> .
T <sub>RELOCalloc</sub> Expiry	Relocation Resource Allocation procedure failed due to expiry of the timer T <sub>RELOCalloc</sub> .
T <sub>RELOCcomplete</sub> Expiry	The reason for the action is expiry of timer T <sub>RELOCcomplete</sub> .
T <sub>RELOCoverall</sub> Expiry	The reason for the action is expiry of timer T <sub>RELOCoverall</sub> .
T <sub>RELOCprep</sub> Expiry	Relocation Preparation procedure is cancelled when timer T <sub>RELOCprep</sub> expires.
Unable To Establish During Relocation	RAB failed to establish during relocation because it cannot be supported in the target RNC.
Unknown Target RNC	Relocation rejected because the target RNC is not known to the CN.
User Inactivity	The action is requested due to user inactivity.
User Plane Versions Not Supported	The action failed because requested user plane versions were not supported.
RNC unable to establish all RFCs	RNC couldn't establish all RAB subflow combinations indicated within the <i>RAB Parameters</i> IE.

Lots of unaffected parts in 9.2.1.4 not shown

### 9.2.1.16 Request Type

This element indicates the type of UE location to be reported from RNC and it is either a Service Area or Geographical Area.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>Request Type</b>				
>Event	M		ENUMERATED( Stop Change of service area, Direct, Change of service area, ..., Stop Direct)	
>Report Area	M		ENUMERATED( Service Area, Geographical Area, ...)	When the Event IE is set to "Stop Change of service area" or to "Stop Direct", the value of the Report area IE shall be the same as in the LOCATION REPORTING CONTROL message that initiated the location reporting.
>Horizontal Accuracy Code	O		INTEGER( 0..127)	The requested accuracy "r" is derived from the "accuracy code" k by $r = 10 \times (1.1^k - 1)$
>Vertical Accuracy Code	O		INTEGER( 0..127)	The requested accuracy "r" is derived from the "accuracy code" k by $r = 45 \times (1.025^k - 1)$ .
>Response time	C – IfDirect&GeoAreaReportArea		ENUMERATED (Low Delay, Delay Tolerant, ...)	
>Positioning Priority	C – ifDirect&ChangeArea		ENUMERATED( High Priority, Normal Priority, ...)	
>Client type	C – ifDirect		ENUMERATED( Emergency Services, Value Added Services, PLMN Operator Services, Lawful Intercept Services, ..., <a href="#">PLMN Operator - broadcast services</a> , <a href="#">PLMN Operator - O&amp;M</a> , <a href="#">PLMN Operator - anonymous statistics</a> , <a href="#">PLMN Operator - Target MS service support</a> )	Identifies the type of client

Condition	Explanation
IfDirect&GeoAreaReportArea	This IE shall be present if the <i>Event</i> IE is set to 'Direct' and the <i>Report Area</i> IE is set to 'Geographical Area'.
IfDirect	This IE shall be present if the <i>Event</i> IE is set to 'Direct'.
IfDirect&ChangeArea	This IE shall be present if the <i>Event</i> IE is set to 'Direct' or "Change of Service Area".

### 9.2.3.19 Location Related Data Request Type

This element indicates the type of the requested location related data for the indicated positioning method, and provides the assistance data for the Assisted GPS positioning method.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>Location Related Data Request Type</b>				
>Requested Location Related Data Type	M		ENUMERATED( Deciphering Keys for UE Based OTDOA,  Deciphering Keys for Assisted GPS,  Dedicated Assistance Data for UE Based OTDOA,  Dedicated Assistance Data for Assisted GPS, ...  <a href="#">Deciphering Keys for E-OTD,</a>  <a href="#">Dedicated Mobile-Assisted E-OTD Assistance Data,</a>  <a href="#">Dedicated Mobile-Based E-OTD Assistance Data)</a>	<a href="#">As defined in [x1], The standard positioning methods supported within UTRAN are:</a> - <a href="#">cell ID based method;</a> - <a href="#">OTDOA method that may be assisted by network configurable idle periods;</a> - <a href="#">network-assisted GPS methods.</a>  <a href="#">E-OTD methods [x2] are only supported in case of GERAN lu mode.</a>
>Requested GPS Assistance Data	C – ifDedAssGPS		9.2.3.21	

Condition	Explanation
ifDedAssGPS	This IE shall be present if the <i>Requested Location Related Data Type</i> IE is set to 'Dedicated Assistance Data for Assisted GPS'.



## 9.3.4 Information Element Definitions

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

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

DEFINITIONS AUTOMATIC TAGS ::=
```

Lots of unaffected ASN1 in 9.3.4 not shown
--

```
CauseRadioNetwork ::= INTEGER {
  rab-pre-empted (1),
  trelocoverall-expiry (2),
  trelocprep-expiry (3),
  treloccomplete-expiry (4),
  tqueing-expiry (5),
  relocation-triggered (6),
  trellocalloc-expiry(7),
  unable-to-establish-during-relocation (8),
  unknown-target-rnc (9),
  relocation-cancelled (10),
  successful-relocation (11),
  requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
  change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
  failure-in-the-radio-interface-procedure (14),
  release-due-to-utran-generated-reason (15),
  user-inactivity (16),
  time-critical-relocation (17),
  requested-traffic-class-not-available (18),
  invalid-rab-parameters-value (19),
  requested-maximum-bit-rate-not-available (20),
  requested-guaranteed-bit-rate-not-available (21),
  requested-transfer-delay-not-achievable (22),
  invalid-rab-parameters-combination (23),
  condition-violation-for-sdu-parameters (24),
  condition-violation-for-traffic-handling-priority (25),
  condition-violation-for-guaranteed-bit-rate (26),
  user-plane-versions-not-supported (27),
  iu-up-failure (28),
  relocation-failure-in-target-CN-RNC-or-target-system(29),
  invalid-RAB-ID (30),
  no-remaining-rab (31),
  interaction-with-other-procedure (32),
  requested-maximum-bit-rate-for-dl-not-available (33),
  requested-maximum-bit-rate-for-ul-not-available (34),
  requested-guaranteed-bit-rate-for-dl-not-available (35),
  requested-guaranteed-bit-rate-for-ul-not-available (36),
  repeated-integrity-checking-failure (37),
  requested-request-type-not-supported (38),
  request-superseded (39),
  release-due-to-UE-generated-signalling-connection-release (40),
  resource-optimisation-relocation (41),
  requested-information-not-available (42),
  relocation-desirable-for-radio-reasons (43),
  relocation-not-supported-in-target-RNC-or-target-system (44),
  directed-retry (45),
  radio-connection-with-UE-Lost (46),
  rNC-unable-to-establish-all-RFCs (47),
  deciphering-keys-not-available(48),
  dedicated-assistance-data-not-available(49),
  relocation-target-not-allowed (50),
  location-reporting-congestion \(51\)
} (1..64)

CauseNon-Standard ::= INTEGER (129..256)

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

ClientType ::= ENUMERATED {
```

```
emergency-Services,  
value-Added-Services,  
pLMN-Operator-Services,  
lawful-Intercept-Services,
```

```
...  
pLMN-Operator-Broadcast-Services,  
pLMN-Operator-O&M,  
pLMN-Operator-Anonymous-Statistics,  
pLMN-Operator-Target-MS-Service-Support  
}
```

Lots of unaffected ASN1 in 9.3.4 not shown

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

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

```
RequestedLocationRelatedDataType ::= ENUMERATED {  
    decipheringKeysUEBasedOTDOA,  
    decipheringKeysAssistedGPS,  
    dedicatedAssistanceDataUEBasedOTDOA,  
    dedicatedAssistanceDataAssistedGPS,  
    ...  
decipheringKeysEOTD,  
dedicatedMobileAssistedEOTDAssistanceData,  
dedicatedMobileBasedEOTDAssistanceData  
}
```

Lots of unaffected ASN1 in 9.3.4 not shown