## TSGRP#15(02) 0184

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

Title: Agreed CRs to TS 25.413

Source: TSG-RAN WG3

Agenda item: 7.3.3/7.3.4

	RP_Num	Tdoc_Num	Specification	CR_Num	Revision	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	Workitem
					_Num					
F	RP-020184	R3-020731	25.413	434	2	R99	Inclusion of "Age of Location IE into LOCATION REPORT"	F	3.8.0	TEI
F	RP-020184	R3-020899	25.413	435	3	Rel-4	Inclusion of "Age of Location IE into LOCATION REPORT"	A	4.3.0	TEI

# 3GPP TSG-RAN3 Meeting #27 R3-020731 Orlando (Florida), USA, 18<sup>th</sup> – 22<sup>nd</sup> February 2002 revision of Tdoc R3-020695

	CHANGE REQUEST										
ж	25	.413	CR <mark>434</mark>	жrev	<b>2</b> *	Current vers	ion: 3	.8.0	¥		
For <u>HELP</u> on t	using t	his forn	m, see bottom	of this page or	look at ti	ne pop-up text	over the	e ¥ syn	nbols.		
Proposed change affects: # (U)SIM ME/UE Radio Access Network X Core Network X											
Title:	Inc	lusion o	of Last Know S	Service Area IE	group in	to LOCATION	REPOR	Т			
Source: #	R-V	VG3									
Work item code: ₩	TE					Date: ₩	20 Fel	bruary 2	2002		
Category: #	<i>Use</i> Deta	F (corred) A (corred) B (addited) C (function D (edited)	esponds to a co tion of feature), tional modificati orial modification	nrection in an ear ion of feature) n) above categorie		R97 R98 R99	R99 the follow (GSM Pi (Release (Release (Release (Release (Release (Release	hase 2) e 1996) e 1997) e 1998) e 1999) e 4)	ases:		
Reason for chang		suitable sent a Service according to the content of	ole behaviour as an answer to as an answer to as an answer to a an an answer to a an and the an and the an	towards the product implementation and cause values on a request for the determined at the product with the way of handle is sent as an an ecurrent Service This would not feet implementation act under protoconsidered isoland because the DN REPORT is	e when the a direct and by the ed by the evious versions and a serious versions are affect implications supported by the evious of the evious versions are affect implicated by the evious versions are a serious versions and the evious versions are a serious versions a	ne LOCATION report of Service RNC.  ASN.1 are therefore a request for a can not be determined by the control of	REPORCE Area refore up pecificat he spec - when a direct if ermined behaviorrected f view. ge affec	RT messand the and the odate ification (sar ification the LOC report of by the ng like ifunction at the L	me (same CATION of RNC - ndicated nality ocation		
Consequences if not approved:	ж										

Clauses affected: # 8.20.2, 9.1.30, 9.2.3.xx, 9.3.3, 9.3.4 and 9.3.6

Other specs	ж <mark>х</mark>	Other core specifications	$\mathbf{x}$	TS 23.171 R99, TS 23.271 R4/R5, TS
				23.060 R99/R4/R5 and mirror CR against
				TS 25.413 R4
affected:		Test specifications		
		O&M Specifications		
		_		
Other comments:	$\mathfrak{H}$			

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <a href="http://www.3gpp.org/3G\_Specs/CRs.htm">http://www.3gpp.org/3G\_Specs/CRs.htm</a>. 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.19 Location Reporting Control

## 8.19.1 General

The purpose of the Location Reporting Control procedure is to allow the CN to request information on the location of a given UE. The procedure uses connection oriented signalling.

## 8.19.2 Successful Operation



Figure 1: Location Reporting Control procedure. Successful operation.

The CN shall initiate the procedure by generating a LOCATION REPORTING CONTROL message.

The Request Type IE shall indicate to the serving RNC whether:

- to report directly;
- to report upon change of Service area, or
- to stop reporting at change of Service Area.

If reporting upon change of Service Area is requested, the Serving RNC shall report whenever the UE moves between Service Areas. For this procedure, only Service Areas that are defined for the PS and CS domains shall be considered.

The *Request Type* IE shall also indicate what type of location information the serving RNC shall report. The location information is either of the following types:

- Service Area Identifier, or
- Geographical area, including geographical coordinates with or without requested accuracy.

A request for a direct report can be done in parallel with having an active request to report upon change of Service Area for the same UE. The request to report upon change of Service Area shall not be affected by this.

#### **Interaction with Relocation:**

The order to perform location reporting at change of Service Area is lost in UTRAN at successful Relocation of SRNS. If the location reporting at change of Service Area shall continue also after the relocation has been performed, the Location Reporting Control procedure shall thus be re-initiated from the CN towards the future SRNC after the Relocation Resource Allocation procedure has been executed successfully.

#### 8.19.3 Abnormal Conditions

Not applicable.

## 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 2: 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 LOCATION REPORT message is sent as an answer to a request for a direct report of Service Area and the current Service Area can not be determined by the RNC, then the *Area Identity* IE shall be omitted and a cause value shall be included to indicate that the request could not be fulfilled, e.g. "Requested Information Not Available". The RNC may also include the *Last Known Service Area* IE.

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 of the request 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".

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, which both shall fulfill 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.

## 9.1.29 LOCATION REPORTING CONTROL

This message is sent by the CN to initiate, modify or stop location reporting from the RNC to the CN.

Direction:  $CN \rightarrow RNC$ .

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Request Type	М		9.2.1.16		YES	ignore

## 9.1.30 LOCATION REPORT

This message is sent by the RNC to the CN with information about the UE location.

Direction: RNC  $\rightarrow$  CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Area Identity	0		9.2.3.10		YES	ignore
Cause	0		9.2.1.4		YES	ignore
Request Type	0		9.2.1.16		YES	ignore
Last Known Service Area	<u>O</u>		9.2.3.xx		<u>YES</u>	ignore

## 9.2.3.18 NAS Synchronisation Indicator

This information element contains transparent NAS information that is transferred without interpretation in the RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
NAS Synchronisation	М		BIT STRING	
Indicator			(4)	

## 9.2.3.xx Last Known Service Area

This information element is used for indicating the last known Service Area and the elapsed time since the UE was known to be in this Service Area. The last known Service Area is reported when the current Service Area is unknown to the RNC.

IE/Group Name	<u>Presence</u>	<u>Range</u>	IE type and	Semantics description
			<u>reference</u>	
Last Known Service Area				
>SAI	<u>M</u>		9.2.3.9	
>Age of SAI	M		INTEGER (032767)	The value represents the elapsed time in minutes since the reported last known SAI was stored by the RNC. Value "0" shall not be used. Value "32767" indicates that the age of SAI is at least 32767 minutes old.

## 9.3.3 PDU Definitions

```
-- PDU definitions for RANAP.
__ **********************
RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }
DEFINITIONS AUTOMATIC TAGS ::=
BEGIN
__ *****************
-- IE parameter types from other modules.
__ *********************
IMPORTS
   DataVolumeReference,
   AreaIdentity,
   CN-DomainIndicator,
   Cause.
   CriticalityDiagnostics,
   ChosenEncryptionAlgorithm,
   ChosenIntegrityProtectionAlgorithm,
   ClassmarkInformation2,
   ClassmarkInformation3,
   DL-GTP-PDU-SequenceNumber,
   DL-N-PDU-SequenceNumber,
   DataVolumeReportingIndication,
   DRX-CycleLengthCoefficient,
   EncryptionInformation,
   GlobalRNC-ID,
   IntegrityProtectionInformation,
   IuSignallingConnectionIdentifier,
   IuTransportAssociation,
   KeyStatus,
   L3-Information,
   LAI,
   LastKnownServiceArea,
   NAS-PDU,
   NAS-SynchronisationIndicator,
   NonSearchingIndication,
   NumberOfSteps,
   OMC-ID,
   OldBSS-ToNewBSS-Information,
   PagingAreaID,
   PagingCause,
   PDP-TypeInformation,
   PermanentNAS-UE-ID,
   RAB-ID,
   RAB-Parameters,
   RAC,
   RelocationType,
   RequestType,
   SAI,
   SAPT.
   Service-Handover,
   SourceID,
   SourceRNC-ToTargetRNC-TransparentContainer,
   TargetID,
   {\tt TargetRNC-ToSourceRNC-TransparentContainer,}
   TemporaryUE-ID,
   TraceReference,
   TraceType,
   UnsuccessfullyTransmittedDataVolume,
   TransportLayerAddress,
   TriggerID,
   UE-ID,
   UL-GTP-PDU-SequenceNumber,
   UL-N-PDU-SequenceNumber,
   UP-ModeVersions,
```

#### **RELEASE 99**

UserPlaneMode

```
FROM RANAP-IEs
    PrivateIE-Container{},
    ProtocolExtensionContainer{},
    ProtocolIE-ContainerList{},
    ProtocolIE-ContainerPair{},
    ProtocolIE-ContainerPairList{},
    ProtocolIE-Container{},
    RANAP-PRIVATE-IES,
    RANAP-PROTOCOL-EXTENSION,
    RANAP-PROTOCOL-IES,
    RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers
    maxNrOfDTs,
    maxNrOfErrors,
    maxNrOfIuSigConIds,
    maxNrOfRABs,
    maxNrOfVol,
    id-AreaIdentity,
    id-CN-DomainIndicator,
    id-Cause,
    id-ChosenEncryptionAlgorithm,
    id-ChosenIntegrityProtectionAlgorithm,
    id-ClassmarkInformation2,
    id-ClassmarkInformation3,
    id-CriticalityDiagnostics,
    id-DRX-CycleLengthCoefficient,
    id-DirectTransferInformationItem-RANAP-RelocInf,
    id-DirectTransferInformationList-RANAP-RelocInf,
    id-DL-GTP-PDU-SequenceNumber,
    id-EncryptionInformation,
    id-GlobalRNC-ID,
    id-IntegrityProtectionInformation,
    id-IuSigConId,
    id-IuSigConIdItem,
    id-IuSigConIdList,
    id-IuTransportAssociation,
    id-KeyStatus,
    id-L3-Information,
    id-LAI,
   id-LastKnownServiceArea,
    id-NAS-PDU,
    id-NonSearchingIndication,
    id-NumberOfSteps,
    id-OMC-ID,
    id-OldBSS-ToNewBSS-Information,
    id-PagingAreaID,
    id-PagingCause,
    id-PermanentNAS-UE-ID,
    id-RAB-ContextItem,
    id-RAB-ContextList,
    id-RAB-ContextFailedtoTransferItem,
    id-RAB-ContextFailedtoTransferList,
    id-RAB-ContextItem-RANAP-RelocInf,
    id-RAB-ContextList-RANAP-RelocInf,
    id-RAB-DataForwardingItem,
    \verb|id-RAB-DataForwardingItem-SRNS-CtxReq|,\\
    id-RAB-DataForwardingList,
    id-RAB-DataForwardingList-SRNS-CtxReq,
    id-RAB-DataVolumeReportItem,
    id-RAB-DataVolumeReportList,
    id-RAB-DataVolumeReportRequestItem,
    id-RAB-DataVolumeReportRequestList,
    id-RAB-FailedItem,
    id-RAB-FailedList,
    id-RAB-FailedtoReportItem,
    id-RAB-FailedtoReportList,
    id-RAB-ID,
    id-RAB-OueuedItem,
    id-RAB-QueuedList,
    id-RAB-ReleaseFailedList,
    id-RAB-ReleaseItem,
    id-RAB-ReleasedItem-IuRelComp,
    id-RAB-ReleaseList,
```

```
id-RAB-ReleasedItem,
    id-RAB-ReleasedList,
    id-RAB-ReleasedList-IuRelComp,
    id-RAB-RelocationReleaseItem,
    id-RAB-RelocationReleaseList,
    id-RAB-SetupItem-RelocReq,
    id-RAB-SetupItem-RelocRegAck,
    id-RAB-SetupList-RelocReq,
    id-RAB-SetupList-RelocReqAck,
    id-RAB-SetupOrModifiedItem,
    id-RAB-SetupOrModifiedList,
    id-RAB-SetupOrModifyItem,
    id-RAB-SetupOrModifyList,
    id-RAC,
    id-RelocationType,
    id-RequestType,
    id-SAI,
    id-SAPI,
    id-SourceID,
    id-SourceRNC-ToTargetRNC-TransparentContainer,
    id-TargetID,
    \verb|id-TargetRNC-ToSourceRNC-TransparentContainer|,\\
    id-TemporaryUE-ID,
    id-TraceReference,
    id-TraceType,
    \verb|id-TransportLayerAddress|,
    id-TriggerID,
    id-UE-ID,
    id-UL-GTP-PDU-SequenceNumber
FROM RANAP-Constants;
```

#### Lots of unaffected ASN1 in 9.3.3 not shown

```
__ *********************
-- LOCATION REPORT ELEMENTARY PROCEDURE
__ *********************
__ ********************************
-- Location Report
__ ********************
LocationReport ::= SEQUENCE {
  protocolIEs ProtocolIE-Container { {LocationReportIEs} },
              ProtocolExtensionContainer { {LocationReportExtensions} }
  protocolExtensions
  OPTIONAL,
}
LocationReportIEs RANAP-PROTOCOL-IES ::= {
                                             PRESENCE optional
  PRESENCE optional
                                              PRESENCE optional
}
\verb|LocationReportExtensions| RANAP-PROTOCOL-EXTENSION| ::= \{ |
  optional},
}
```

Lots of unaffected ASN1 in 9.3.3 not shown

## 9.3.4 Information Element Definitions

```
-- Information Element Definitions
RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }
DEFINITIONS AUTOMATIC TAGS ::=
BEGIN
                            Lots of unaffected ASN1 in 9.3.4 not shown
                  ::= OCTET STRING (SIZE (2))
LAC
LAI ::= SEQUENCE {
   pLMNidentity
                              PLMNidentity,
    lac
                   LAC,
                          ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL
    iE-Extensions
LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
LastKnownServiceArea ::= SEQUENCE {
  sAI
            SAI,
               INTEGER (0..32767),
    ageOfSAI
```

L3-Information ::= OCTET STRING

-- M

Lots of unaffected ASN1 in 9.3.4 not shown

#### 9.3.6 Constant Definitions

#### Lots of unaffected ASN1 in 9.3.6 not shown

```
******************
-- IEs
__ ********************
id-AreaIdentity
                                               INTEGER ::= 0
id-CN-DomainIndicator
                                               INTEGER ::= 3
                                               INTEGER ::= 4
id-Cause
id-ChosenEncryptionAlgorithm
                                              INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm
                                              INTEGER ::= 6
                                              INTEGER ::= 7
id-ClassmarkInformation2
                                              INTEGER ::= 8
\verb"id-ClassmarkInformation3"
id-CriticalityDiagnostics
                                               INTEGER ::= 9
                                             INTEGER ::= 10
id-DL-GTP-PDU-SequenceNumber
                                             INTEGER ::= 11
INTEGER ::= 12
id-EncryptionInformation
id-IntegrityProtectionInformation
id-IuTransportAssociation
                                             INTEGER ::= 13
                                               INTEGER ::= 14
id-L3-Information
id-LAI
                                              INTEGER ::= 15
id-NAS-PDU
                                              INTEGER ::= 16
id-NonSearchingIndication
                                               INTEGER ::= 17
id-NumberOfSteps
                                              INTEGER ::= 18
id-OMC-ID
                                               INTEGER ::= 19
id-OldBSS-ToNewBSS-Information
                                              INTEGER ::= 20
id-PagingAreaID
                                              INTEGER ::= 21
id-PagingCause
                                               INTEGER ::= 22
id-PermanentNAS-UE-ID
                                              INTEGER ::= 23
                                              INTEGER ::= 24
id-RAB-ContextItem
                                              INTEGER ::= 25
id-RAB-ContextList
id-RAB-DataForwardingItem
                                              INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq
                                             INTEGER ::= 27
INTEGER ::= 28
id-RAB-DataForwardingList
                                             INTEGER ::= 29
INTEGER ::= 30
id-RAB-DataForwardingList-SRNS-CtxReq
id-RAB-DataVolumeReportItem
                                             INTEGER ::= 31
id-RAB-DataVolumeReportList
                                             INTEGER ::= 32
INTEGER ::= 33
id-RAB-DataVolumeReportRequestItem
id-RAB-DataVolumeReportRequestList
id-RAB-FailedItem
                                              INTEGER ::= 34
id-RAB-FailedList
                                               INTEGER ::= 35
id-RAB-ID
                                              INTEGER ::= 36
id-RAB-OueuedItem
                                               INTEGER ::= 37
id-RAB-QueuedList
                                               INTEGER ::= 38
id-RAB-ReleaseFailedList
                                              INTEGER ::= 39
id-RAB-ReleaseItem
                                               INTEGER ::= 40
                                              INTEGER ::= 41
id-RAB-ReleaseList
                                               INTEGER ::= 42
id-RAB-ReleasedItem
id-RAB-ReleasedList
                                               INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp
                                              INTEGER ::= 44
id-RAB-RelocationReleaseItem
                                               INTEGER ::= 45
id-RAB-RelocationReleaseList
                                              INTEGER ::= 46
id-RAB-SetupItem-RelocReq
                                              INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck
                                               INTEGER ::= 48
id-RAB-SetupList-RelocReq
                                              INTEGER ::= 49
id-RAB-SetupList-RelocReqAck
                                              INTEGER ::= 50
                                               INTEGER ::= 51
id-RAB-SetupOrModifiedItem
id-RAB-SetupOrModifiedList
                                               INTEGER ::= 52
                                               INTEGER ::= 53
id-RAB-SetupOrModifyItem
```

#### **RELEASE 99**

id-RAB-SetupOrModifyList	INTEGER	: :=	54
id-RAC	INTEGER	::=	55
id-RelocationType	INTEGER	::=	56
id-RequestType	INTEGER	::=	57
id-SAI	INTEGER	::=	58
id-SAPI	INTEGER	::=	59
id-SourceID	INTEGER	::=	60
id-SourceRNC-ToTargetRNC-TransparentContainer	INTEGER	::=	61
id-TargetID	INTEGER	::=	62
id-TargetRNC-ToSourceRNC-TransparentContainer	INTEGER	::=	63
id-TemporaryUE-ID	INTEGER	::=	64
id-TraceReference	INTEGER	::=	65
id-TraceType	INTEGER	::=	66
id-TransportLayerAddress	INTEGER	::=	67
id-TriggerID	INTEGER	::=	68
id-UE-ID	INTEGER	::=	69
id-UL-GTP-PDU-SequenceNumber	INTEGER	::=	70
id-RAB-FailedtoReportItem	INTEGER	::=	71
id-RAB-FailedtoReportList	INTEGER	::=	72
id-KeyStatus	INTEGER	::=	75
id-DRX-CycleLengthCoefficient	INTEGER	::=	76
id-IuSigConIdList	INTEGER	::=	77
id-IuSigConIdItem	INTEGER	::=	78
id-IuSigConId	INTEGER	::=	79
$\verb id-DirectTransferInformationItem-RANAP-RelocInf \\$	INTEGER	::=	80
$\verb id-DirectTransferInformationList-RANAP-RelocInf \\$	INTEGER	::=	81
id-RAB-ContextItem-RANAP-RelocInf	INTEGER	::=	82
id-RAB-ContextList-RANAP-RelocInf	INTEGER	::=	83
id-RAB-ContextFailedtoTransferItem	INTEGER	::=	84
id-RAB-ContextFailedtoTransferList	INTEGER	::=	85
id-GlobalRNC-ID	INTEGER	::=	86
id-RAB-ReleasedItem-IuRelComp	INTEGER	::=	87
id-MessageStructure	INTEGER	: :=	88
id-TypeOfError	INTEGER	: :=	93
id-LastKnownServiceArea	INTEGER	::=	<b>v</b> 1

END

## 3GPP TSG-RAN3 Meeting #27 Orlando (Florida), USA, 18<sup>th</sup> – 22<sup>nd</sup> February 2002

	CHANGE REQUEST										
*	25.	.413	CR <mark>435</mark>	жrev	<b>3</b> **	Current versi	ion: <b>4.3.0</b>	¥			
For <u>HELP</u> on u	ısing t	this forn	n, see bottom	of this page or	look at ti	he pop-up text	over the 光 sy	mbols.			
Proposed change affects: # (U)SIM ME/UE Radio Access Network X Core Network X											
Title: #	Inc	lusion o	of Last Know S	Service Area IE	group in	to LOCATION	REPORT				
Source: #	R-V	VG3									
Work item code: ₩	TE	l				Date: ₩	20 February	2002			
Category:	Use Deta	F (corre A (corre B (addit C (funct D (edito iled expl	esponds to a co tion of feature), tional modificat orial modificatio	orrection in an ea ion of feature) n) above categorie		2 se) R96 R97 R98 R99 REL-4	REL-4 the following rel (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5)				
Reason for change	e: #										
Summary of chang	ge: <b>#</b>	suitab sent a Service Proce accord Impact release This Orelease REPO Service has be in the othery The O	ole behaviour as an answer to as an answer to as an answer to a Area can not be dure text, tab dingly.  Let Analysis: Let assessment see):  Let Analysis: Let assessment see see):  Let Analysis: Let assessment see see see see see see see see see se	and cause valuate a request for ot be determined ular format sector towards the process of the considered isolated and because the ON REPORT is	e when the a direct and by the tion and a revious verbe previous verbe previous verbe previous at affect impations surpocol & furtated becalled inclusions.	ne LOCATION report of Service RNC.  ASN.1 are there ersion of the spous version of the spous version of the arequest for a can not be detected and the continuity of the continuity of the continuity of the Last K	REPORT medice Area and the refore update decification (satisfication) and the specification when the LC and direct reportermined by the spenarined by the spenarined function of view.	e current  me  n (same DCATION of RNC - indicated onality  Location			
Consequences if not approved:	¥										

Clauses affected: # 8.20.2, 9.1.30, 9.2.3.xx, 9.3.3, 9.3.4 and 9.3.6

Other specs	ж	X	Other core specifications	ж	TS 25.305 R99, TS 23.271 R4 and R5, TS 23.060 R4 and R5
affected:			Test specifications O&M Specifications		
Other comments:	¥		•		

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <a href="http://www.3gpp.org/3G">http://www.3gpp.org/3G</a> 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 <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.19 Location Reporting Control

#### 8.19.1 General

The purpose of the Location Reporting Control procedure is to allow the CN to request information on the location of a given UE. The procedure uses connection oriented signalling.

## 8.19.2 Successful Operation



Figure 1: Location Reporting Control procedure. Successful operation.

The CN shall initiate the procedure by generating a LOCATION REPORTING CONTROL message.

The Request Type IE shall indicate to the serving RNC whether:

- to report directly;
- to stop a direct report;
- to report upon change of Service area, or
- to stop reporting at change of Service Area.

If reporting upon change of Service Area is requested, the Serving RNC shall report whenever the UE moves between Service Areas. For this procedure, only Service Areas that are defined for the PS and CS domains shall be considered.

The *Request Type* IE shall also indicate what type of location information the serving RNC shall report. The location information is either of the following types:

- Service Area Identifier, or
- Geographical area, including geographical coordinates with or without requested accuracy, response time, priority and the client type.

A request for a direct report can be done in parallel with having an active request to report upon change of Service Area for the same UE. The request to report upon change of Service Area shall not be affected by this.

#### **Interaction with Relocation:**

The order to perform location reporting at change of Service Area is lost in UTRAN at successful Relocation of SRNS. If the location reporting at change of Service Area shall continue also after the relocation has been performed, the Location Reporting Control procedure shall thus be re-initiated from the CN towards the future SRNC after the Relocation Resource Allocation procedure has been executed successfully.

#### 8.19.3 Abnormal Conditions

Not applicable.

## 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 2: 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 LOCATION REPORT message is sent as an answer to a request for a direct report of Service Area and the current Service Area can not be determined by the RNC, then the *Area Identity* IE shall be omitted and a cause value shall be included to indicate that the request could not be fulfilled, e.g. "Requested Information Not Available". The RNC may also include the *Last Known Service Area* IE.

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 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".

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.

## 9.1.29 LOCATION REPORTING CONTROL

This message is sent by the CN to initiate, modify or stop location reporting from the RNC to the CN.

Direction:  $CN \rightarrow RNC$ .

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Request Type	M		9.2.1.16		YES	ignore

## 9.1.30 LOCATION REPORT

This message is sent by the RNC to the CN with information about the UE location.

Direction: RNC  $\rightarrow$  CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Area Identity	0		9.2.3.10		YES	ignore
Cause	0		9.2.1.4		YES	ignore
Request Type	0		9.2.1.16		YES	ignore
Last Known Service Area	<u>O</u>		9.2.3.xx		<u>YES</u>	ignore

## 9.2.3.21 Requested GPS Assistance Data

This information element is used for indicating the requested GPS assistance data.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Requested GPS Assistance			OCTET	For the corresponding
Data			STRING	Information Element Definition
			(SIZE(138))	see "gpsAssistanceData" [22].

## 9.2.3.xx Last Known Service Area

This information element is used for indicating the last known Service Area and the elapsed time since the UE was known to be in this Service Area. The last known Service Area is reported when the current Service Area is unknown to the RNC.

IE/Group Name	Presence	<u>Range</u>	IE type and	Semantics description		
			<u>reference</u>			
<b>Last Known Service Area</b>						
>SAI	M		9.2.3.9			
>Age of SAI	M		INTEGER (032767)	The value represents the elapsed time in minutes since the reported last known SAI was stored by the RNC. Value "0" shall not be used. Value "32767" indicates that the age of SAI is at least 32767 minutes old.		

## 9.3.3 PDU Definitions

```
-- PDU definitions for RANAP.
__ *********************
RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }
DEFINITIONS AUTOMATIC TAGS ::=
BEGIN
__ **********************
-- IE parameter types from other modules.
__ **********************************
   BroadcastAssistanceDataDecipheringKeys,
   LocationRelatedDataRequestType,
   DataVolumeReference,
   AreaIdentity,
   CN-DomainIndicator,
   Cause,
   CriticalityDiagnostics,
   ChosenEncryptionAlgorithm,
   ChosenIntegrityProtectionAlgorithm,
   ClassmarkInformation2,
   ClassmarkInformation3,
   DL-GTP-PDU-SequenceNumber,
   DL-N-PDU-SequenceNumber,
   DataVolumeReportingIndication,
   DRX-CycleLengthCoefficient,
   EncryptionInformation,
   GlobalCN-ID,
   GlobalRNC-ID,
   IntegrityProtectionInformation,
   IuSignallingConnectionIdentifier,
   IuTransportAssociation,
   KeyStatus,
   L3-Information,
   LAI,
   LastKnownServiceArea,
   NAS-PDU,
   NAS-SynchronisationIndicator,
   NonSearchingIndication,
   NumberOfSteps,
   OMC-ID,
   OldBSS-ToNewBSS-Information,
   PagingAreaID,
   PagingCause,
   PDP-TypeInformation,
   PermanentNAS-UE-ID,
   RAB-ID,
   RAB-Parameters,
   RAC,
   RelocationType,
   RequestType,
   Requested-RAB-Parameter-Values,
   SAI,
   SAPI,
   Service-Handover,
   SourceID,
   SourceRNC-ToTargetRNC-TransparentContainer,
   TargetID,
   TargetRNC-ToSourceRNC-TransparentContainer,
   TemporaryUE-ID,
   TraceReference,
   TraceType,
   UnsuccessfullyTransmittedDataVolume,
   TransportLayerAddress,
   TriggerID,
```

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```
UE-ID,
    UL-GTP-PDU-SequenceNumber,
    UL-N-PDU-SequenceNumber,
    UP-ModeVersions,
    UserPlaneMode,
    Alt-RAB-Parameters,
    Ass-RAB-Parameters
FROM RANAP-IES
    PrivateIE-Container{},
    ProtocolExtensionContainer{},
    ProtocolIE-ContainerList{},
    ProtocolIE-ContainerPair()
    ProtocolIE-ContainerPairList{},
    ProtocolIE-Container{},
    RANAP-PRIVATE-IES,
    RANAP-PROTOCOL-EXTENSION,
    RANAP-PROTOCOL-IES,
    RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers
    maxNrOfDTs,
   maxNrOfErrors,
    maxNrOfIuSigConIds,
    maxNrOfRABs,
    maxNrOfVol,
    id-AreaIdentity,
    id-Alt-RAB-Parameters,
    id-Ass-RAB-Parameters,
    id-BroadcastAssistanceDataDecipheringKeys,
    id-LocationRelatedDataRequestType,
    id-CN-DomainIndicator,
    id-Cause,
    id-ChosenEncryptionAlgorithm,
    id-ChosenIntegrityProtectionAlgorithm,
    id-ClassmarkInformation2,
    id-ClassmarkInformation3,
    id-CriticalityDiagnostics,
    id-DRX-CycleLengthCoefficient,
    id-DirectTransferInformationItem-RANAP-RelocInf,
    id-DirectTransferInformationList-RANAP-RelocInf,
    id-DL-GTP-PDU-SequenceNumber,
    id-EncryptionInformation,
    id-GlobalCN-ID,
    id-GlobalRNC-ID.
    id-IntegrityProtectionInformation,
    id-IuSigConId,
    id-IuSigConIdItem,
    id-IuSigConIdList,
    id-IuTransportAssociation,
    id-KeyStatus,
    id-L3-Information,
    id-LAI,
    id-LastKnownServiceArea,
    id-NAS-PDU,
    id-NonSearchingIndication,
    id-NumberOfSteps,
    id-OMC-ID,
    id-OldBSS-ToNewBSS-Information,
    id-PagingAreaID,
    id-PagingCause,
    id-PermanentNAS-UE-ID,
    id-RAB-ContextItem,
    id-RAB-ContextList,
    id-RAB-ContextFailedtoTransferItem,
    id-RAB-ContextFailedtoTransferList,
    id-RAB-ContextItem-RANAP-RelocInf,
    id-RAB-ContextList-RANAP-RelocInf,
    id-RAB-DataForwardingItem,
    id-RAB-DataForwardingItem-SRNS-CtxReq,
    id-RAB-DataForwardingList,
    id-RAB-DataForwardingList-SRNS-CtxReq,
    id-RAB-DataVolumeReportItem,
    id-RAB-DataVolumeReportList,
    id-RAB-DataVolumeReportRequestItem,
    \verb|id-RAB-DataVolumeReportRequestList|,
```

```
id-RAB-FailedItem,
    id-RAB-FailedList,
    id-RAB-FailedtoReportItem,
    id-RAB-FailedtoReportList,
    id-RAB-ID,
    id-RAB-ModifyList,
    id-RAB-ModifyItem,
    id-RAB-QueuedItem,
    id-RAB-QueuedList,
    id-RAB-ReleaseFailedList,
    id-RAB-ReleaseItem,
    id-RAB-ReleasedItem-IuRelComp,
    id-RAB-ReleaseList,
    id-RAB-ReleasedItem,
    id-RAB-ReleasedList,
    id-RAB-ReleasedList-IuRelComp,
    id-RAB-RelocationReleaseItem,
    id-RAB-RelocationReleaseList,
    id-RAB-SetupItem-RelocReq,
    id-RAB-SetupItem-RelocReqAck,
    id-RAB-SetupList-RelocReq,
    id-RAB-SetupList-RelocReqAck,
    id-RAB-SetupOrModifiedItem,
    id-RAB-SetupOrModifiedList,
    id-RAB-SetupOrModifyItem,
    id-RAB-SetupOrModifyList,
    id-RAC,
    id-RelocationType,
    id-RequestType,
    id-SAI,
    id-SAPI,
    id-SourceID,
    id-SourceRNC-ToTargetRNC-TransparentContainer,
    id-TargetID,
    id-TargetRNC-ToSourceRNC-TransparentContainer,
    id-TemporaryUE-ID,
    id-TraceReference,
    id-TraceType,
    \verb|id-TransportLayerAddress|,
    id-TriggerID,
    id-UE-ID,
    id-UL-GTP-PDU-SequenceNumber
FROM RANAP-Constants;
```

#### Lots of unaffected ASN1 in 9.3.3 not shown

```
__ **********************
-- LOCATION REPORT ELEMENTARY PROCEDURE
__ ********************
__ *********************************
-- Location Report
__ ********************************
LocationReport ::= SEQUENCE {
  protocolIEs ProtocolIE-Container { {LocationReportIEs} },
               ProtocolExtensionContainer { {LocationReportExtensions} }
  protocolExtensions
  OPTIONAL,
}
LocationReportIEs RANAP-PROTOCOL-IES ::= {
  CRITICALITY ignore TYPE Cause
CRITICALITY ignore TYPE RequestType
  { ID id-RequestType
                                                PRESENCE optional
}
LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
  optional},
```

Lots of unaffected ASN1 in 9.3.3 not shown

## 9.3.4 Information Element Definitions

#### Lots of unaffected ASN1 in 9.3.4 not shown

```
::= OCTET STRING (SIZE (2))
TAC
LAI ::= SEQUENCE {
   pLMNidentity
                             PLMNidentity,
    1AC
                   LAC,
                          ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL
    iE-Extensions
LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
LastKnownServiceArea
                     ::= SEQUENCE {
               SAI,
   sAI
               INTEGER (0..32767),
LocationRelatedDataRequestType ::= SEQUENCE {
   requestedLocationRelatedDataType
                                              RequestedLocationRelatedDataType,
                                              RequestedGPSAssistanceData OPTIONAL,
   requestedGPSAssistanceData
    -- This IE shall be present if the Requested Location Related Data Type IE is set to 'Dedicated
Assistance Data for Assisted GPS' --
L3-Information
                           ::= OCTET STRING
```

#### 9.3.6 Constant Definitions

#### Lots of unaffected ASN1 in 9.3.6 not shown

```
-- TES
__ *********************
id-AreaIdentitv
                                             INTEGER ::= 0
id-CN-DomainIndicator
                                             INTEGER ::= 3
id-Cause
                                            INTEGER ::= 4
id-ChosenEncryptionAlgorithm
                                             INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm
                                            INTEGER ::= 6
                                            INTEGER ::= 7
id-ClassmarkInformation2
id-ClassmarkInformation3
                                             INTEGER ::= 8
id-CriticalityDiagnostics
                                            INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber
                                             INTEGER ::= 10
                                            INTEGER ::= 11
id-EncryptionInformation
id-IntegrityProtectionInformation
                                            INTEGER ::= 12
id-IuTransportAssociation
                                             INTEGER ::= 13
id-L3-Information
                                             INTEGER ::= 14
                                             INTEGER ::= 15
id-LAI
id-NAS-PDU
                                             INTEGER ::= 16
id-NonSearchingIndication
                                            INTEGER ::= 17
                                             INTEGER ::= 18
id-NumberOfSteps
                                            INTEGER ::= 19
id-OMC-ID
                                             INTEGER ::= 20
id-OldBSS-ToNewBSS-Information
id-PagingAreaID
                                             INTEGER ::= 21
                                            INTEGER ::= 22
id-PagingCause
id-PermanentNAS-UE-ID
                                             INTEGER ::= 23
id-RAB-ContextItem
                                             INTEGER ::= 24
id-RAB-ContextList
                                            INTEGER ::= 25
id-RAB-DataForwardingItem
                                             INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq
                                            INTEGER ::= 27
                                           INTEGER ::= 28
INTEGER ::= 29
id-RAB-DataForwardingList
id-RAB-DataForwardingList-SRNS-CtxReq
id-RAB-DataVolumeReportItem
                                           INTEGER ::= 30
id-RAB-DataVolumeReportList
                                             INTEGER ::= 31
                                            INTEGER ::= 32
id-RAB-DataVolumeReportRequestItem
                                            INTEGER ::= 33
id-RAB-DataVolumeReportRequestList
id-RAB-FailedItem
                                             INTEGER ::= 34
id-RAB-FailedList
                                             INTEGER ::= 35
id-RAB-ID
                                             INTEGER ::= 36
id-RAB-OueuedItem
                                             INTEGER ::= 37
                                             INTEGER ::= 38
id-RAB-OueuedList
id-RAB-ReleaseFailedList
                                             INTEGER ::= 39
id-RAB-ReleaseItem
                                             INTEGER ::= 40
id-RAB-ReleaseList
                                             INTEGER ::= 41
                                             INTEGER ::= 42
id-RAB-ReleasedItem
id-RAB-ReleasedList
                                            INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp
                                             INTEGER ::= 44
id-RAB-RelocationReleaseItem
                                            INTEGER ::= 45
                                             INTEGER ::= 46
id-RAB-RelocationReleaseList
id-RAB-SetupItem-RelocReq
                                             INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck
                                            INTEGER ::= 48
id-RAB-SetupList-RelocReq
                                             INTEGER ::= 49
id-RAB-SetupList-RelocReqAck
                                             INTEGER ::= 50
id-RAB-SetupOrModifiedItem
                                             INTEGER ::= 51
id-RAB-SetupOrModifiedList
                                             INTEGER ::= 52
id-RAB-SetupOrModifyItem
                                             INTEGER ::= 53
```

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id-RAB-SetupOrModifyList	INTEGER	: :=	54
id-RAC	INTEGER	::=	55
id-RelocationType	INTEGER	::=	56
id-RequestType	INTEGER	::=	57
id-SAI	INTEGER	::=	58
id-SAPI	INTEGER	::=	59
id-SourceID	INTEGER	::=	60
id-SourceRNC-ToTargetRNC-TransparentContainer	INTEGER	::=	61
id-TargetID	INTEGER	::=	62
id-TargetRNC-ToSourceRNC-TransparentContainer	INTEGER	::=	63
id-TemporaryUE-ID	INTEGER		
id-TraceReference	INTEGER		
id-TraceType	INTEGER		
id-TransportLayerAddress	INTEGER		
id-TriggerID	INTEGER		
id-UE-ID	INTEGER		
id-UL-GTP-PDU-SequenceNumber	INTEGER	: :=	70
id-RAB-FailedtoReportItem	INTEGER		
id-RAB-FailedtoReportList	INTEGER		
id-KeyStatus	INTEGER		
id-DRX-CycleLengthCoefficient	INTEGER		
id-IuSigConIdList	INTEGER		
id-IuSigConIdItem	INTEGER		
id-IuSigConId	INTEGER		
$\verb id-DirectTransferInformationItem-RANAP-RelocInf \\$	_		
$\verb id-DirectTransferInformationList-RANAP-RelocInf \\$			
id-RAB-ContextItem-RANAP-RelocInf	INTEGER		
id-RAB-ContextList-RANAP-RelocInf	INTEGER	: :=	83
id-RAB-ContextFailedtoTransferItem	INTEGER		
id-RAB-ContextFailedtoTransferList	INTEGER		
id-GlobalRNC-ID	INTEGER		
id-RAB-ReleasedItem-IuRelComp	INTEGER		
id-MessageStructure	INTEGER		
id-Alt-RAB-Parameters	INTEGER		
id-Ass-RAB-Parameters	INTEGER		
id-RAB-ModifyList	INTEGER		
id-RAB-ModifyItem	INTEGER		
id-TypeOfError	INTEGER		
id-BroadcastAssistanceDataDecipheringKeys	INTEGER		
id-LocationRelatedDataRequestType	INTEGER		
id-GlobalCN-ID	INTEGER		
id-LastKnownServiceArea	INTEGER	::=	x1

END