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					
RP-020185	R3-020732	25.413	435	2	Rel-4	Inclusion of "Age of Location IE into LOCATION REPORT"	С	4.3.0	TEI

TSGRP#15(02) 0185

3GPP TSG-RAN3 Meeting #27R3-020732Orlando (Florida), USA, 18th – 22nd February 2002revision of Tdoc R3-020696

CHANGE REQUEST								
ж	25.413 CR 435 # rev 2 ^{# Current version: 4.3.0 [#]}							
For <u>HELP</u> on us	ing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.							
Proposed change at	ffects: # (U)SIM ME/UE Radio Access Network X Core Network X							
Title: ೫	Inclusion of Last Know Service Area IE group into LOCATION REPORT							
Source: #	R-WG3							
Work item code: ೫	TEI Date: # 20 February 2002							
Category: %	CRelease: %REL-4Use one of the following categories:Use one of the following releases:F (correction)2A (corresponds to a correction in an earlier release)R96B (addition of feature),R97C (functional modification of feature)R98D (editorial modification)R99D tetailed explanations of the above categories canREL-4be found in 3GPP TR 21.900.REL-5C(Release 5)							
Reason for change:	· ¥							
Summary of change	 Inclusion of Last Know Service Area IE group into LOCATION REPORT with suitable behaviour and cause value when 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. Procedure text, tabular format section and ASN.1 are therefore update accordingly. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the way of handling one particular case - when 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 - has been changed. This would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. The CR has an impact under protocol & functional point of view. The impact can be considered isolated because the change affects the Location reporting function and because the inclusion of the <i>Last Know Service Area IE</i> group into LOCATION REPORT is optional. 							
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 affected:	ж	X	Other core specifications Test specifications O&M Specifications	Ħ	TS 25.305 R99, TS 23.271 R4 and R5, TS 23.060 R4 and R5
Other comments:	ж				

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. Below is a brief summary:

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

8.19 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	Μ		9.2.1.1		YES	ignore
Request Type	Μ		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	М		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	0		<u>9.2.3.xx</u>		YES	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			(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	Range	IE type and	Semantics description
			<u>reference</u>	
Last Known Service Area				
<u>>SAI</u>	M		9.2.3.9	
<u>>Age of SAI</u>	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
   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,
```

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, 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, 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 ::= {

      ID id-AreaIdentity
      CRITICALITY ignore
      TYPE AreaIdentity
      PRESENCE optional

      ID id-Cause
      CRITICALITY ignore
      TYPE Cause
      PRESENCE optional

                           CRITICALITY ignore TYPE Cause
CRITICALITY ignore TYPE RequestType
   { ID id-RequestType
                                                                 PRESENCE optional
   . . .
}
LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
   { ID id-LastKnownServiceArea CRITICALITY ignore EXTENSION LastKnownServiceArea PRESENCE
optional},
...
}
```

Lots of unaffected ASN1 in 9.3.3 not shown

9.3.4 Information Element Definitions

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Lots of unaffected ASN1 in 9.3.4 not shown -- L ::= OCTET STRING (SIZE (2)) LAC LAI ::= SEQUENCE { pLMNidentity PLMNidentity, 1AC LAC, ProtocolExtensionContainer { {LAI-ExtIEs} } OPTIONAL iE-Extensions } LAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= { . . . } LastKnownServiceArea ::= SEQUENCE { SAI, sAI ageOfSAI 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 -- M Lots of unaffected ASN1 in 9.3.4 not shown

9.3.6 Constant Definitions

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Lots of unaffected ASN1 in 9.3.6 not shown

************************************	* * * * * * * * * * * * * * * * * * *
IEs	
************************************	* * * * * * * * * * * * * * * * * * *
id-AreaIdentity	INTEGER ::= 0
id-CN-DomainIndicator	INTEGER ::= 3
id-Cause	INTEGER ::= 4
id-ChosenEncryptionAlgorithm	INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm	INTEGER ::= 6
id-ClassmarkInformation2	INTEGER ::= 7
id-ClassmarkInformation3	INTEGER ::= 8
id-CriticalityDiagnostics	INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber	INTEGER ::= 10
id-EncryptionInformation	INTEGER ::= 11
id-IntegrityProtectionInformation	INTEGER ::= 12
id-IuTransportAssociation	INTEGER ::= 13
id-L3-Information	INTEGER ::= 14
id-LAI	INTEGER ::= 15
id-NAS-PDU	INTEGER ::= 16
id-NonSearchingIndication	INTEGER ::= 17
id-NumberOfSteps	INTEGER ::= 18
id-OMC-ID	INTEGER ::= 19
id-OldBSS-ToNewBSS-Information	INTEGER ::= 20
id-PagingAreaID	INTEGER ::= 21
id-PagingCause	INTEGER ::= 22
id-PermanentNAS-UE-ID	INTEGER ::= 23
id-RAB-ContextItem	INTEGER ::= 24
id-RAB-ContextList	INTEGER ::= 25
id-RAB-DataForwardingItem	INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq	INTEGER ::= 27
id-RAB-DataForwardingList	INTEGER ::= 28
id-RAB-DataForwardingList-SRNS-CtxReq	INTEGER ::= 29
id-RAB-DataVolumeReportItem	INTEGER ::= 30
1d-RAB-DataVolumeReportList	INTEGER ::= 31
id DND Detelle lumeDeneutDenuestitem	INTEGER ::= 32
id DAD Failed them	INTEGER ··= 33
Id-RAB-Falleditem	INTEGER ··= 34
IU-RAB-FAIleuLISC	INTEGER ··= 35
id-RAB-ID	INTEGER ··- 30
id-RAB-Quededitem	INTEGER ··- 37
id-RAB-ReleaseFailedList	INTEGER ::= 39
id-RAB-ReleaseItem	INTEGER ::= 40
id-RAB-ReleaseList	INTEGER ::= 41
id-RAB-ReleasedItem	INTEGER $::= 42$
id-RAB-ReleasedList	INTEGER $::= 43$
id-RAB-ReleasedList-IuRelComp	INTEGER $::= 44$
id-RAB-RelocationReleaseItem	INTEGER ::= 45
id-RAB-RelocationReleaseList	INTEGER ::= 46
id-RAB-SetupItem-RelocReg	INTEGER ::= 47
id-RAB-SetupItem-RelocRegAck	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	::=	64
id-TraceReference	INTEGER	::=	65
id-TraceType	INTEGER	::=	66
id-TransportLayerAddress	INTEGER	::=	67
id-TriggerID	INTEGER	::=	68
id-UE-ID	INTEGER	::=	69
id-UL-GTP-PDU-SequenceNumber	INTEGER	::=	70
id-RAB-FailedtoReportItem	INTEGER	::=	71
id-RAB-FailedtoReportList	INTEGER	::=	72
id-KeyStatus	INTEGER	::=	75
id-DRX-CycleLengthCoefficient	INTEGER	::=	76
id-IuSigConIdList	INTEGER	::=	77
id-IuSigConIdItem	INTEGER	::=	78
id-IuSigConId	INTEGER	::=	79
$id\-Direct Transfer \\ Information \\ Item\-RANAP\-Reloc \\ Inf$	INTEGER	::=	80
$id\-Direct Transfer \\ Information \\ List\-RANAP-Reloc \\ Inf$	INTEGER	::=	81
id-RAB-ContextItem-RANAP-RelocInf	INTEGER	::=	82
id-RAB-ContextList-RANAP-RelocInf	INTEGER	::=	83
id-RAB-ContextFailedtoTransferItem	INTEGER	::=	84
id-RAB-ContextFailedtoTransferList	INTEGER	::=	85
id-GlobalRNC-ID	INTEGER	::=	86
id-RAB-ReleasedItem-IuRelComp	INTEGER	::=	87
id-MessageStructure	INTEGER	::=	88
id-Alt-RAB-Parameters	INTEGER	::=	89
id-Ass-RAB-Parameters	INTEGER	::=	90
id-RAB-ModifyList	INTEGER	::=	91
id-RAB-ModifyItem	INTEGER	::=	92
id-TypeOfError	INTEGER	::=	93
id-BroadcastAssistanceDataDecipheringKeys	INTEGER	::=	94
id-LocationRelatedDataRequestType	INTEGER	::=	95
id-GlobalCN-ID	INTEGER	::=	96
id-LastKnownServiceArea	INTEGER	::=	x1