TSG RAN Meeting #17 **RP-020606**
Biarritz, France, 3 - 6 September, 2002

Title **CRs (Rel-4 and Rel-5 Category A) to TS 25.413**
Source **TSG RAN WG3**
Agenda Item **7.3.4**

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	REL	CR	Rev	Cat	Title	Work item
R3-021837	25.413	4.5.0	4.6.0	REL-4	480	-	F	Erroneous criticality in DATA VOLUME REPORT REQUEST a.o.	TEI4
R3-021838	25.413	5.1.0	5.2.0	REL-5	481	-	A	Erroneous criticality in DATA VOLUME REPORT REQUEST a.o.	TEI4
R3-022099	25.413	4.5.0	4.6.0	REL-4	512	-	F	LCS alignment with stage 2	TEI4
R3-022100	25.413	5.1.0	5.2.0	REL-5	513	-	A	LCS alignment with stage 2	TEI4
R3-022098	25.413	4.5.0	4.6.0	REL-4	511	-	F	New cause value for RAB release request	TEI4
R3-022097	25.413	5.1.0	5.2.0	REL-5	503	1	A	New cause value for RAB release request	TEI4

3GPP TSG-RAN WG3 Meeting #31
Stockholm, Sweden, 19th – 23rd August, 2002

Tdoc ⌘R3-021837

CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **480** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☒

Title:	⌘	Erroneous criticality in DATA VOLUME REPORT REQUEST a.o.
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	2002-08-06
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	There is a misalignment between the criticality in the tabular format and the ASN.1 code for a number of IEs in the RANAP specification.
Summary of change:	⌘	The criticality in the tabular format for the IEs where there is a mismatch between the criticality in the tabular format and in the ASN.1 code is changed to comply with the ASN.1 code. Impact assessment towards the previous version of the specification (same release): This CR has no impact towards the previous version of the specification (same release) since according to subclause 9.1.1 of RANAP the criticality in the ASN.1 code takes precedence over the criticality in the tabular format in case of misalignment.
Consequences if not approved:	⌘	RANAP will contain confusing information. This should, however, not result in any implementation errors, since subclause 9.1.1 clarifies which information that is valid.

Clauses affected:	⌘	9.1.11, 9.1.19, 9.1.31, 9.1.44, 9.1.45

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		25.413 V.5.1.0 CR481
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.1.11 RELOCATION REQUEST ACKNOWLEDGE

This message is sent by the target RNC to inform the CN about the result of the resource allocation for the requested relocation.

Direction: RNC → 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	reject
Target RNC To Source RNC Transparent Container	O		9.2.1.30		YES	ignore
RABs Setup List	O				YES	~~reject~~ignore
>RABs Setup Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	
>>Transport Layer Address	O		9.2.2.1		-	
>>Iu Transport Association	O		9.2.2.2		-	
>>Assigned RAB Parameter Values	O		9.2.1.44		YES	ignore
RABs Failed To Setup List	O				YES	ignore
>RABs Failed To Setup Item IEs		1 to <maxnoofRABs>			EACH	ignore
>>RAB ID	M		9.2.1.2		-	
>>Cause	M		9.2.1.4		-	
Chosen Integrity Protection Algorithm	O		9.2.1.13	Indicates the Integrity Protection algorithm that will be used by the target RNC.	YES	ignore
Chosen Encryption Algorithm	O		9.2.1.14	Indicates the Encryption algorithm that will be used by the target RNC.	YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.19 SRNS CONTEXT REQUEST

This message is sent by the CN to source RNC to indicate the PS RABs for which context transfer shall be performed.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
RABs Subject To Data Forwarding List	M				YES	~~reject~~ignore
>RABs Subject To Data Forwarding Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.31 DATA VOLUME REPORT REQUEST

This message is sent by the CN to request unsuccessfully transmitted data volumes for specific RABs.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
RABs Data Volume Report List	M				YES	~~reject~~ignore
>RABs Data Volume Report Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.44 RESET RESOURCE

This message is sent by either CN or RNC. The sending entity informs the receiving entity that the sending requests the receiving entity to release resources and references associated to Iu signalling connection identifiers in the message.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
CN Domain Indicator	M		9.2.1.5		YES	reject
Cause	M		9.2.1.4		YES	ignore
Reset Resource List	M				YES	~~reject~~ignore
>Reset Resource Item IEs		1 to <maxnoofIuSigConIds>			EACH	reject
>>Iu Signalling Connection Identifier	M		9.2.1.38		-	
Global RNC-ID	O		9.2.1.39		YES	ignore
Global CN-ID	O		9.2.1.46		YES	ignore

Range bound	Explanation
maxnoofIuSigConIds	Maximum no. of Iu signalling connection identifiers. Value is 250.

9.1.45 RESET RESOURCE ACKNOWLEDGE

This message is sent by either the CN or RNC inform the CN or RNC that the RESET RESOURCE message has been received.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
CN Domain Indicator	M		9.2.1.5		YES	reject
Reset Resource List	M				YES	~~reject~~ignore
>Reset Resource Item IEs		1 to <maxnoofIuSigConIds>		This list shall be in the same order as the list received in the RESET RESOURCE message.	EACH	reject
>>Iu Signalling Connection Identifier	M		9.2.1.38		-	
Global RNC-ID	O		9.2.1.39		YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore
Global CN-ID	O		9.2.1.46		YES	ignore

Range bound	Explanation
maxnoofIuSigConIds	Maximum no. of Iu signalling connection identifiers. Value is 250.

3GPP TSG-RAN WG3 Meeting #31
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CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **481** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☒

Title:	⌘	Erroneous criticality in DATA VOLUME REPORT REQUEST a.o.
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	2002-08-06
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
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R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
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Rel-6 (Release 6)

Reason for change:	⌘	There is a misalignment between the criticality in the tabular format and the ASN.1 code for a number of IEs in the RANAP specification.
Summary of change:	⌘	The criticality in the tabular format for the IEs where there is a mismatch between the criticality in the tabular format and in the ASN.1 code is changed to comply with the ASN.1 code. Impact assessment towards the previous version of the specification (same release): This CR has no impact towards the previous version of the specification (same release) since according to subclause 9.1.1 of RANAP the criticality in the ASN.1 code takes precedence over the criticality in the tabular format in case of misalignment.
Consequences if not approved:	⌘	RANAP will contain confusing information. This should, however, not result in any implementation errors, since subclause 9.1.1 clarifies which information that is valid.

Clauses affected:	⌘	9.1.11, 9.1.19, 9.1.31, 9.1.44, 9.1.45

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		25.413 V.4.5.0 CR480
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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9.1.11 RELOCATION REQUEST ACKNOWLEDGE

This message is sent by the target RNC to inform the CN about the result of the resource allocation for the requested relocation.

Direction: RNC → 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	reject
Target RNC To Source RNC Transparent Container	O		9.2.1.30		YES	ignore
New BSS To Old BSS Information	O		9.2.1.47	Defined in [11].	YES	ignore
RABs Setup List	O				YES	~~reject~~ignore
>RABs Setup Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	
>>Transport Layer Address	O		9.2.2.1	IPv6 or IPv4 address if no other TLA included. IPv4 address if other TLA included.	-	
>>Iu Transport Association	O		9.2.2.2	Related to TLA above.	-	
>>Assigned RAB Parameter Values	O		9.2.1.44		YES	ignore
>>Transport Layer Address	O		9.2.2.1	IPv6 address if included.	YES	ignore
>>Iu Transport Association	O		9.2.2.2	Related to TLA above.	YES	ignore
RABs Failed To Setup List	O				YES	ignore
>RABs Failed To Setup Item IEs		1 to <maxnoofRABs>			EACH	ignore
>>RAB ID	M		9.2.1.2		-	
>>Cause	M		9.2.1.4		-	
Chosen Integrity Protection Algorithm	O		9.2.1.13	Indicates the Integrity Protection algorithm that will be used by the target RNC.	YES	ignore
Chosen Encryption Algorithm	O		9.2.1.14	Indicates the Encryption algorithm that will be used by the target RNC.	YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.19 SRNS CONTEXT REQUEST

This message is sent by the CN to source RNC to indicate the PS RABs for which context transfer shall be performed.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
RABs Subject To Data Forwarding List	M				YES	~~reject~~ignore
>RABs Subject To Data Forwarding Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.31 DATA VOLUME REPORT REQUEST

This message is sent by the CN to request unsuccessfully transmitted data volumes for specific RABs.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
RABs Data Volume Report List	M				YES	~~reject~~ignore
>RABs Data Volume Report Item IEs		1 to <maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.44 RESET RESOURCE

This message is sent by either CN or RNC. The sending entity informs the receiving entity that the sending requests the receiving entity to release resources and references associated to Iu signalling connection identifiers in the message.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
CN Domain Indicator	M		9.2.1.5		YES	reject
Cause	M		9.2.1.4		YES	ignore
Reset Resource List	M				YES	~~reject~~ignore
>Reset Resource Item IEs		1 to <maxnoofIuSigConIds>			EACH	reject
>>Iu Signalling Connection Identifier	M		9.2.1.38		-	
Global RNC-ID	O		9.2.1.39		YES	ignore
Global CN-ID	O		9.2.1.46		YES	ignore

Range bound	Explanation
maxnoofIuSigConIds	Maximum no. of Iu signalling connection identifiers. Value is 250.

9.1.45 RESET RESOURCE ACKNOWLEDGE

This message is sent by either the CN or RNC inform the CN or RNC that the RESET RESOURCE message has been received.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	reject
CN Domain Indicator	M		9.2.1.5		YES	reject
Reset Resource List	M				YES	~~reject~~ignore
>Reset Resource Item IEs		1 to <maxnoofIuSigConIds>		This list shall be in the same order as the list received in the RESET RESOURCE message.	EACH	reject
>>Iu Signalling Connection Identifier	M		9.2.1.38		-	
Global RNC-ID	O		9.2.1.39		YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore
Global CN-ID	O		9.2.1.46		YES	ignore

Range bound	Explanation
maxnoofIuSigConIds	Maximum no. of Iu signalling connection identifiers. Value is 250.

3GPP TSG-RAN3 Meeting #31
Arlanda, Sweden, 19th-23th August 2002

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CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **503** ⌘ **rev** **1** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	New cause value for RAB release request
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	19/08/2002
Category:	⌘	**A**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ RRC specifications allow two timers for RAB release. The first could for example be used to release real time RABs when there is a failure in the radio link of a short duration, and the second could be used to release the background RABs and Iu when there is a long term break in radio link. Thus the RABs associated with the first timer should be released by the network so the network and UE are in sync before the second timer requests the release of Iu connection. A RAB release request could thus be triggered due to a radio connection failure.

This topic was discussed in SA2#25 and on email reflector . 23.060 § 9.2.3.5 defines the behaviour of the CN and UE on receiving a RAB release due to loss of radio coverage and states that both UE and SGSN shall set maximum bit rate to 0kb/s. The absence of explicit mention of the "radio connection with UE lost" cause value in RANAP RAB Release Request caused some misunderstanding in SA2.

It is hence clarified that "radio connection with UE lost" can be used with RAB Release Request. ~~The current specification does not indicate this possibility.~~

Summary of change: ⌘ An additional cause value Radio connection failure is added to the list of typical causes in the RAB release request

Consequences if not approved: ⌘ Mismatch of RANAP with RRC specification (TS 25.331) and TS 23.060 will remain. RAB R~~r~~elease Request with ~~due to~~ cause "radio connection with UE lost" failure ~~cannot~~ may not be properly signalled to the CN to take appropriate action. This can result in unsyncronised PDP context states in UE and SGSN.

	Backward compatibility: No impact on previous version of the specification; this is a new addition in release 4~~5~~.

Clauses affected:	⌘	8.3.2			
Other specs affected:	⌘	Y: X Y: Y:	N: N: X N: X	Other core specifications Test specifications O&M Specifications	⌘ 25.413 Rel 4 CR 511
Other comments:	⌘				

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8.3 RAB Release Request

8.3.1 General

The purpose of the RAB Release Request procedure is to enable UTRAN to request the release of one or several radio access bearers. The procedure uses connection oriented signalling.

8.3.2 Successful Operation

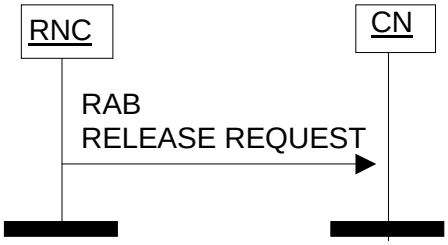

Figure 2: RAB Release Request procedure. Successful operation.

The RNC shall initiate the procedure by generating a RAB RELEASE REQUEST message towards the CN. The *RABs To Be Released* IE shall indicate the list of RABs requested to release and the *Cause* IE associated to each RAB shall indicate the reason for the release, e.g. "RAB pre-empted", "Release due to UTRAN Generated Reason", "Radio Connection With UE Lost".

Upon reception of the RAB RELEASE REQUEST message, the CN should initiate the appropriate release procedure for the identified RABs in the RAB RELEASE REQUEST message. It is up to the CN to decide how to react to the request.

Interaction with Iu Release Command:

If no RABs will remain according to the RAB RELEASE REQUEST message, the CN may decide to initiate the Iu Release procedure if it does not want to keep the Iu signalling connection. The cause value to use is "No Remaining RAB".

Interaction with RAB Assignment (release RAB):

If the CN decides to release some or all indicated RABs, the CN may decide to invoke the RAB Assignment procedure (release RAB) to this effect.

8.3.3 Abnormal Conditions

Not applicable.

3GPP TSG-RAN3 Meeting #31
Arlanda, Sweden, 19th-23th August 2002

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CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **511** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☒

Title:	⌘	New cause value for RAB release request
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	19/08/2002
Category:	⌘	**F**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
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R98 (Release 1998)
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Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

RRC specifications allow two timers for RAB release. The first could for example be used to release real time RABs when there is a failure in the radio link of a short duration, and the second could be used to release the background RABs and Iu when there is a long term break in radio link. Thus the RABs associated with the first timer should be released by the network so the network and UE are in sync before the second timer requests the release of Iu connection. A RAB release request could thus be triggered due to a radio connection failure.

This was discussed in SA2#25 and on email reflector . 23.060 § 9.2.3.5 defines the behaviour of the CN and UE on receiving a RAB release due to loss of radio coverage and states that both UE and SGSN shall set maximum bit rate to 0kb/s. The absence of explicit mention of the “radio connection with UE lost” cause value in RANAP RAB Release Request caused some misunderstanding in SA2.

It is hence clarified that “radio connection with UE lost” can be used with RAB Release Request.

Summary of change: ⌘ An additional cause value Radio connection failure is added to the list of typical causes in the RAB release request

Consequences if not approved: ⌘ Mismatch of RANAP with RRC specification (TS 25.331) and TS 23.060 will remain. RAB Release Request with cause “radio connection with UE lost” failure may not be properly signalled to the CN to take appropriate action. This can result in unsyncronised PDP context states in UE and SGSN.

Backward compatibility:

	No impact on previous version of the specification; this is a new addition in release 4.

Clauses affected:	⌘	8.3.2			
Other specs affected:	⌘	Y: X Y: Y:	N: N: X N: X	Other core specifications Test specifications O&M Specifications	⌘ 25.413 Rel 5 CR 503
Other comments:	⌘				

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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.

[page break]

8.3 RAB Release Request

8.3.1 General

The purpose of the RAB Release Request procedure is to enable UTRAN to request the release of one or several radio access bearers. The procedure uses connection oriented signalling.

8.3.2 Successful Operation

Figure 2: RAB Release Request procedure. Successful operation.

The RNC shall initiate the procedure by generating a RAB RELEASE REQUEST message towards the CN. The *RABs To Be Released* IE shall indicate the list of RABs requested to release and the *Cause* IE associated to each RAB shall indicate the reason for the release, e.g. "RAB pre-empted", "Release due to UTRAN Generated Reason", "Radio Connection With UE Lost".

Upon reception of the RAB RELEASE REQUEST message, the CN should initiate the appropriate release procedure for the identified RABs in the RAB RELEASE REQUEST message. It is up to the CN to decide how to react to the request.

Interaction with Iu Release Command:

If no RABs will remain according to the RAB RELEASE REQUEST message, the CN may decide to initiate the Iu Release procedure if it does not want to keep the Iu signalling connection. The cause value to use is "No Remaining RAB".

Interaction with RAB Assignment (release RAB):

If the CN decides to release some or all indicated RABs, the CN may decide to invoke the RAB Assignment procedure (release RAB) to this effect.

8.3.3 Abnormal Conditions

Not applicable.

3GPP TSG-RAN3 Meeting #31
Arlanda, Sweden, 19th – 23rd August 2002

Tdoc R3-022099

CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **512** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	LCS alignment with stage 2
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	22/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Alignment with Rel4 LCS stage 1 and stage 2 [TS 22.071]/[TS 23.271]. This was forgotten in the initial introduction of the LCS support over Iu for Rel4.
Summary of change:	⌘	**New LCS client types and indication of Congestion can also apply in UTRAN case according to actual LCS stage 1 and 2 specifications [TS 22.071]/[TS 23.271].** 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&M, PLMN Operator - anonymous statistics, PLMN Operator - Target MS service support). The Cause IE in the Location Report message should allow the RAN to return an indication of Congestion. 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 of completion/correction of the Iu LCS functionality. The CR has an impact under functional and protocol point of view. The impact can be considered isolated because the change affects the Location Report function.
Consequences if not approved:	⌘	RANAP LCS functionality will not be aligned with LCS stage 2 and then will not fulfill what was expected from it i.e. those client types and indication of congestion would not be supported in Rel4.

Clauses affected:	⌘	8.20, 9.2.1.4, 9.2.1.16 and 9.3.4
Other specs	⌘	Y: **X** N: ☐ Other core specifications ⌘ CR071 29.010 REL-5 and REL-4

affected:			CR513 25.413 REL-5
		X	Test specifications
		X	O&M Specifications
Other comments:	⌘		

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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 22: 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" or "Location Reporting Congestion". 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 or if RNC is currently not able to reach the UE, 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, the LOCATION REPORT message shall

include the *Geographical Area* IE within the *Area Identity* IE, the reported *Geographical Area* IE may include an accuracy.

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
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), 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), Conflict with already existing Integrity protection and/or Ciphering information (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	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			not Available(20), Requested Maximum Bit Rate for DL not Available(33), Requested Maximum Bit Rate for UL not Available(34), Requested Guaranteed Bit Rate not Available(21), Requested Guaranteed Bit Rate for DL not Available(35), Requested Guaranteed Bit Rate for UL not Available(36), 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), TRELOCalloc Expiry (7), Relocation Failure in Target CN/RNC or Target System (29), Invalid RAB ID(30), No remaining RAB(31),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Interaction with other procedure(32), 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))	

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.

Radio Network Layer cause	Meaning
Deciphering Keys Not Available	The action failed because RNC is not able to provide requested deciphering keys.
Conflict with already existing Integrity protection and/or Ciphering information	The action was not performed due to that the requested security mode configuration was in conflict with the already existing security mode configuration.
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.
Location Reporting Congestion	The action was not performed due to an inability to support location reporting caused by overload.

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	The reason for requesting relocation is resource optimisation.
Successful Relocation	The reason for the action is completion of successful relocation.
Time Critical Relocation	Relocation is requested for time critical reason.
$T_{QUEUING}$ Expiry	The action failed due to expiry of the timer $T_{QUEUING}$.
$T_{RELOCalloc}$ Expiry	Relocation Resource Allocation procedure failed due to expiry of the timer $T_{RELOCalloc}$.
$T_{RELOCcomplete}$ Expiry	The reason for the action is expiry of timer $T_{RELOCcomplete}$.
$T_{RELOCoverall}$ Expiry	The reason for the action is expiry of timer $T_{RELOCoverall}$.
$T_{RELOCprep}$ Expiry	Relocation Preparation procedure is cancelled when timer $T_{RELOCprep}$ 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 *RAB Parameters* 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
Request Type				
>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 $r = 10x(1.1^k-1)$
>Vertical Accuracy Code	O		INTEGER(0..127)	The requested accuracy "v" is derived from the "accuracy code" k by $v = 45x(1.025^k-1)$.
>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, …, PLMN Operator - broadcast services, PLMN Operator - O&M, PLMN Operator - anonymous statistics, PLMN Operator - Target MS service support)	Identifies the type of client

Condition	Explanation
IfDirect&GeoAreaReportArea	This IE shall be present if the *Event* IE is set to ‘Direct’ and the *Report Area* IE is set to 'Geographical Area'.
IfDirect	This IE shall be present if the *Event* IE is set to ‘Direct’.
IfDirect&ChangeArea	This IE shall be present if the *Event* IE is set to ‘Direct’ or “Change of Service Area”.

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

```
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),
    conflict-with-already-existing-integrity-protection-and-or-ciphering-information (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-et-M,
    pLMN-Operator-Anonymous-Statistics,
    pLMN-Operator-Target-MS-Service-Support
}
```

Lots of unaffected ASN1 in 9.3.4 not shown

3GPP TSG-RAN3 Meeting #31
Arlanda, Sweden, 19th – 23rd August 2002

Tdoc R3-022100

CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **513** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	LCS alignment with stage 2
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	22/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
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Reason for change:	⌘	Alignment with Rel4 LCS stage 1 and stage 2 [TS 22.071]/[TS 23.271]. This was forgotten in the initial introduction of the LCS support over Iu for Rel4.
Summary of change:	⌘	**New LCS client types and indication of Congestion can also apply in UTRAN case according to actual LCS stage 1 and 2 specifications [TS 22.071]/[TS 23.271].** 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&M, PLMN Operator - anonymous statistics, PLMN Operator - Target MS service support). The Cause IE in the Location Report message should allow the RAN to return an indication of Congestion. 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 of completion/correction of the Iu LCS functionality. The CR has an impact under functional and protocol point of view. The impact can be considered isolated because the change affects the Location Report function.
Consequences if not approved:	⌘	RANAP LCS functionality will not be aligned with LCS stage 2 and then will not fulfill what was expected from it i.e. those client types and indication of congestion would not be supported in Rel4.

Clauses affected:	⌘	8.20, 9.2.1.4, 9.2.1.16 and 9.3.4

		Y	N			
Other specs	⌘	**X**		Other core specifications	⌘	CR071 29.010 REL-5 and REL-4

affected:			CR512 25.413 REL-4
		X	Test specifications
		X	O&M Specifications
Other comments:	⌘		

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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.

8.20 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 22: 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" or "Location Reporting Congestion". 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 or if RNC is currently not able to reach the UE, 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, the LOCATION REPORT message shall

include the *Geographical Area* IE within the *Area Identity* IE, the reported *Geographical Area* IE may include an accuracy.

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
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), 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), Conflict with already existing Integrity protection and/or Ciphering information (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	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			not Available(20), Requested Maximum Bit Rate for DL not Available(33), Requested Maximum Bit Rate for UL not Available(34), Requested Guaranteed Bit Rate not Available(21), Requested Guaranteed Bit Rate for DL not Available(35), Requested Guaranteed Bit Rate for UL not Available(36), 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), TRELOCalloc Expiry (7), Relocation Failure in Target CN/RNC or Target System (29), Invalid RAB ID(30), No remaining RAB(31),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Interaction with other procedure(32), 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), Reduce Load in Serving Cell (~~51~~52),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			No Radio Resources Available in Target cell (~~52~~53))	

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.

Radio Network Layer cause	Meaning
Deciphering Keys Not Available	The action failed because RNC is not able to provide requested deciphering keys.
Conflict with already existing Integrity protection and/or Ciphering information	The action was not performed due to that the requested security mode configuration was in conflict with the already existing security mode configuration.
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.
Location Reporting Congestion	The action was not performed due to an inability to support location reporting caused by overload.

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	The reason for requesting relocation is resource optimisation.
Successful Relocation	The reason for the action is completion of successful relocation.
Time Critical Relocation	Relocation is requested for time critical reason.
$T_{QUEUING}$ Expiry	The action failed due to expiry of the timer $T_{QUEUING}$.
$T_{RELOCalloc}$ Expiry	Relocation Resource Allocation procedure failed due to expiry of the timer $T_{RELOCalloc}$.
$T_{RELOCcomplete}$ Expiry	The reason for the action is expiry of timer $T_{RELOCcomplete}$.
$T_{RELOCoverall}$ Expiry	The reason for the action is expiry of timer $T_{RELOCoverall}$.
$T_{RELOCprep}$ Expiry	Relocation Preparation procedure is cancelled when timer $T_{RELOCprep}$ 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 *RAB Parameters* IE.
Reduce Load in Serving Cell	Load on serving cell needs to be reduced.
No Radio Resources Available in Target Cell	Load on target cell is too high.

```
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
Request Type				
>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 $r = 10x(1.1^k-1)$
>Vertical Accuracy Code	O		INTEGER(0..127)	The requested accuracy "v" is derived from the "accuracy code" k by $v = 45x(1.025^k-1)$.
>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, …, PLMN Operator - broadcast services, PLMN Operator - O&M, PLMN Operator - anonymous statistics, PLMN Operator - Target MS service support)	Identifies the type of client

Condition	Explanation
IfDirect&GeoAreaReportArea	This IE shall be present if the *Event* IE is set to ‘Direct’ and the *Report Area* IE is set to 'Geographical Area'.
IfDirect	This IE shall be present if the *Event* IE is set to ‘Direct’.
IfDirect&ChangeArea	This IE shall be present if the *Event* IE is set to ‘Direct’ or “Change of Service Area”.

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

```
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),
    conflict-with-already-existing-integrity-protection-and-or-ciphering-information (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),
    reduce-load-in-serving-cell (~~51~~52),
    no-radio-resources-available-in-target-cell (~~52~~53)
} (1..64)

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

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

CellCapacityClass ::= INTEGER (1..100)

CellLoad    ::= INTEGER (0..100)

CellLoadInformation ::= SEQUENCE {
    cellCapacityClass           CellCapacityClass,
    cellLoad                    CellLoad,
    realTimeLoad                RealTimeLoad                        OPTIONAL,
    nonRealTimeLoadInformation  NonRealTimeLoadInformation          OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { CellLoadInformation-ExtIEs } }    OPTIONAL,
    ...
}

CellLoadInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ClientType ::= ENUMERATED {
    emergency-Services,
    value-Added-Services,
    pLMN-Operator-Services,
    lawful-Intercept-Services,
    ...,
```

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

Lots of unaffected ASN1 in 9.3.4 not shown