TSG-RAN Meeting #13
Beijing, China, 18 - 21, September, 2001

TSGRP#13(01) 0579

Title: **Agreed CRs to TS 25.413**

Source: **TSG-RAN WG3**

Agenda item: **8.3.3/8.3.4/9.4.3**

RP Tdoc	R3 Tdoc	Spec	CR_Num	Rev	Release	CR_Subject	Cat	Cur_Ver	New_Ver	Workitem
RP-010579	R3-012647	25.413	358	1	R99	Clarification of chapter 10	F	3.6.0	3.7.0	TEI
RP-010579	R3-012648	25.413	359	1	Rel-4	Clarification of chapter 10	A	4.1.0	4.2.0	TEI
RP-010579	R3-012534	25.413	363	1	R99	Condition of SDU format information IE	F	3.6.0	3.7.0	TEI
RP-010579	R3-012535	25.413	364	1	Rel-4	Condition of SDU format information IE	A	4.1.0	4.2.0	TEI
RP-010579	R3-012717	25.413	367	1	R99	Relocation Requirement not to be used	F	3.6.0	3.7.0	TEI
RP-010579	R3-012718	25.413	368	1	Rel-4	Relocation Requirement not to be used	A	4.1.0	4.2.0	TEI

3GPP TSG-RAN3 Meeting #23
Helsinki, Finland, 27th – 31st August, 2001

Tdoc R3-012647

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **358** ⌘ rev **1** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘	Clarification of chapter 10
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-08-29
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential 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)*

Reason for change: ⌘ Several unclarities w.r.t. error handling were detected.

Summary of change: ⌘ This CR makes the following updates:

- 10.3.4 - 10.4: ~~Redundant information regarding "ignore the content of the not comprehended IEs/IEgroups" and "ignore that those IEs/IEgroups are missing" has been deleted, and s~~Several clarifications have been added.
- 10.3.4.2, 10.3.5: The inclusion of IEs is aligned with annex A2.
- 10.5 (new): A new sentence is added in an Exception~~general~~ section concerning the case when the information to indentify the initiator of the procedure is not available in case the peer node has to return a message in reponse (e.g. corrupted RNC-id).

Consequences if not approved: ⌘ This CR is backward compatible with the intended behaviour of the specifications.

Clauses affected: ⌘ 10.3.4, 10.3.5, 10.3.6, 10.4, 10.5(new)

Other specs affected:	⌘	**X**	Other core specifications	⌘ 25.413 v4.1.0 CR359 25.419 v3.5.0 CR057 25.419 v4.1.0 CR058 25.423 v3.6.0 CR469 25.423 v4.1.0 CR470 25.433 v3.6.0 CR523 25.433 v4.1.0 CR524 25.453 v5.0.0 CR006
		☐	Test specifications	
		☐	O&M Specifications	

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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

10.3.4 Not comprehended IE/IE group

10.3.4.1 Procedure Code

The receiving node shall treat the different types of received criticality information of the *Procedure Code* IE according to the following:

Reject IE:

- If a message is received with a *Procedure Code* IE marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall reject the procedure using the Error Indication procedure.

Ignore IE and Notify Sender:

- If a message is received with a *Procedure Code* IE marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the procedure and initiate the Error Indication procedure.

Ignore IE:

- If a message is received with a *Procedure Code* IE marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the procedure.

When using the Error Indication procedure to reject a procedure or to report an ignored procedure it shall include the *Procedure Code* IE, the *Triggering Message* IE, and the *Procedure Criticality* IE in the *Criticality Diagnostics* IE.

10.3.4.1A Type of Message

When the receiving node cannot ~~even~~ decode the *Type of Message* IE, the Error Indication procedure shall be initiated with an appropriate cause value.

10.3.4.2 IEs other than the Procedure Code and Type of Message

The receiving node shall treat the different types of received criticality information of an IEs/IE group other than the *Procedure Code* IE according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE group marked with "*Reject IE*" which the receiving node does not comprehend; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the rejection of one or more IEs/IE group using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing one or more IEs/IE groups marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall terminate the procedure and initiate the Error Indication procedure.

- If a *response* message is received containing one or more IEs marked with "*Reject IE*", that the receiving node does not comprehend, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

Ignore IE and Notify Sender:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and report in the response message of the procedure that one or more IEs/IE groups have been ignored. In case the information received in the initiating

message was insufficient to determine a value for all IEs that are required to be present in the response message, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a message *initiating* a procedure that does not have a message to report the outcome of the procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and initiate the Error Indication procedure to report that one or more IEs/IE groups have been ignored.

- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups and initiate the Error Indication procedure.

Ignore IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. ~~The *Repetition Number* IE shall be included i~~In the *Information Element Criticality Diagnostics* IE ~~if the reported IE/IE group was part of a "SEQUENCE OF" definition~~the *Repetition Number* IE shall be included and in addition, if the not comprehended IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. ~~The *Repetition Number* IE shall be included i~~In the *Information Element Criticality Diagnostics* IE ~~if the reported IE/IE group was part of a "SEQUENCE OF" definition~~the *Repetition Number* IE shall be included and in addition, if the not comprehended IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

10.3.5 Missing IE or IE group

The receiving node shall treat the missing IE/IE group according to the criticality information for the missing IE/IE group in the received message specified in the version of this specification used by the receiver:

Reject IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Reject IE*"; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the missing IEs/IE groups using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a received message *initiating* a procedure that does not have a message to report unsuccessful outcome is missing one or more IEs/IE groups with specified criticality "*Reject IE*", the receiving node shall terminate the procedure and initiate the Error Indication procedure.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Reject IE*, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

Ignore IE and Notify Sender:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and report in the response message of the procedure that one or more IEs/IE groups were missing. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the response message, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a received message *initiating* a procedure that does not have a message to report the outcome of the procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and initiate the Error Indication procedure to report that one or more IEs/IE groups were missing.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall ignore that those IEs/IE groups are missing, continue with the procedure based on the other IEs/IE groups present in the message and initiate the Error Indication procedure to report that one or more IEs/IE groups were missing.

Ignore IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall ignore that those IEs/IE groups are missing and continue with the procedure based on the other IEs/IE groups present in the message.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. In the *Information Element Criticality Diagnostics* IE the *Repetition Number* IE shall be included and in addition, if the missing IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. In the *Information Element Criticality Diagnostics* IE the *Repetition Number* IE shall be included and in addition, if the missing IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

10.3.6 IEs or IE groups received in wrong order or with too many occurrences

If a message with IEs or IE groups in wrong order or with too many occurrences is received, the receiving node shall behave according to the following:

- If a message *initiating* a procedure is received containing IEs or IE groups in wrong order or with too many occurrences, none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the cause value "Abstract Syntax Error (Falsely Constructed Message)" using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall terminate the

procedure and initiate the Error Indication procedure, and use cause value "Abstract Syntax Error (Falsely Constructed Message)".

- If a *response* message is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

When determining the correct order only the IEs specified in the specification version used by the receiver shall be considered.

10.4 Logical Error

Logical error situations occur when a message is comprehended correctly, but the information contained within the message is not valid (i.e. semantic error), or describes a procedure which is not compatible with the state of the receiver. In these conditions, the following behaviour shall be performed (unless otherwise specified) as defined by the class of the elementary procedure, irrespective of the criticality information of the IEs/IE groups containing the erroneous values.

Class 1:

Where the logical error occurs in a request message of a class 1 procedure, and the procedure has a failure message, the failure message shall be sent with an appropriate cause value. Typical cause values are:

- Semantic Error.
- Message not compatible with receiver state.

Where the logical error is contained in a request message of a class 1 procedure, and the procedure does not have a failure message, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Where the logical error exists in a response message of a class 1 procedure, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

Class 2:

Where the logical error occurs in a message of a class 2 procedure, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Class 3:

Where the logical error occurs in a request message of a class 3 procedure, and the procedure has a failure message, the failure message shall be sent with an appropriate cause value. Typical cause values are:

- Semantic Error.
- Message not compatible with receiver state.

Where the logical error is contained in a request message of a class 3 procedure, and the procedure does not have a failure message, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Where the logical error exists in a response message of a class 3 procedure, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

10.5 Exceptions

The error handling for all the cases described hereafter shall take precedence over any other error handling described in the other sub-sections of chapter 10.

- In case a response message, failure message or Error Indication message needs to be returned, but the information necessary to determine the receiver of that message is missing, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

3GPP TSG-RAN3 Meeting #23
Helsinki, Finland, 27th – 31st August, 2001

Tdoc R3-012648

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **359** ⌘ rev **1** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Clarification of chapter 10
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-08-29
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential correction)*
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Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

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R98	*(Release 1998)*
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REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change: ⌘ Several unclarities w.r.t. error handling were detected.

Summary of change: ⌘ This CR makes the following updates:

- 10.3.4 - 10.4: ~~Redundant information regarding "ignore the content of the not comprehended IEs/IEgroups" and "ignore that those IEs/IEgroups are missing" has been deleted, and s~~S everal clarifications have been added.
- 10.3.4.2, 10.3.5: The inclusion of IEs is aligned with annex A2.
- 10.5 (new): A new sentence is added in an Exception~~general~~ section concerning the case when the information to indentify the initiator of the procedure is not available in case the peer node has to return a message in reponse (e.g. corrupted RNC-id).

Consequences if not approved: ⌘ This CR is backward compatible with the intended behaviour of the specifications.

Clauses affected: ⌘ 10.3.4, 10.3.5, 10.3.6, 10.4, 10.5(new)

Other specs affected:	⌘	**X**	Other core specifications	⌘ 25.413 v3.6.0 CR358 25.419 v3.5.0 CR057 25.419 v4.1.0 CR058 25.423 v3.6.0 CR469 25.423 v4.1.0 CR470 25.433 v3.6.0 CR523 25.433 v4.1.0 CR524 25.453 v5.0.0 CR006
		☐	Test specifications	
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Other comments: ⌘

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10.3.4 Not comprehended IE/IE group

10.3.4.1 Procedure Code

The receiving node shall treat the different types of received criticality information of the *Procedure Code* IE according to the following:

Reject IE:

- If a message is received with a *Procedure Code* IE marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall reject the procedure using the Error Indication procedure.

Ignore IE and Notify Sender:

- If a message is received with a *Procedure Code* IE marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the procedure and initiate the Error Indication procedure.

Ignore IE:

- If a message is received with a *Procedure Code* IE marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the procedure.

When using the Error Indication procedure to reject a procedure or to report an ignored procedure it shall include the *Procedure Code* IE, the *Triggering Message* IE, and the *Procedure Criticality* IE in the *Criticality Diagnostics* IE.

10.3.4.1A Type of Message

When the receiving node cannot ~~even~~ decode the *Type of Message* IE, the Error Indication procedure shall be initiated with an appropriate cause value.

10.3.4.2 IEs other than the Procedure Code and Type of Message

The receiving node shall treat the different types of received criticality information of an IEs/IE group other than the *Procedure Code* IE according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE group marked with "*Reject IE*" which the receiving node does not comprehend; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the rejection of one or more IEs/IE group using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing one or more IEs/IE groups marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall terminate the procedure and initiate the Error Indication procedure.

- If a *response* message is received containing one or more IEs marked with "*Reject IE*", that the receiving node does not comprehend, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

Ignore IE and Notify Sender:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and report in the response message of the procedure that one or more IEs/IE groups have been ignored. In case the information received in the initiating

message was insufficient to determine a value for all IEs that are required to be present in the response message, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a message *initiating* a procedure that does not have a message to report the outcome of the procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and initiate the Error Indication procedure to report that one or more IEs/IE groups have been ignored.

- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups and initiate the Error Indication procedure.

Ignore IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. ~~The *Repetition Number* IE shall be included i~~In the *Information Element Criticality Diagnostics* IE ~~if the reported IE/IE group was part of a "SEQUENCE OF" definition~~the *Repetition Number* IE shall be included and in addition, if the not comprehended IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. ~~The *Repetition Number* IE shall be included i~~In the *Information Element Criticality Diagnostics* IE ~~if the reported IE/IE group was part of a "SEQUENCE OF" definition~~the *Repetition Number* IE shall be included and in addition, if the not comprehended IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

10.3.5 Missing IE or IE group

The receiving node shall treat the missing IE/IE group according to the criticality information for the missing IE/IE group in the received message specified in the version of this specification used by the receiver:

Reject IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Reject IE*"; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the missing IEs/IE groups using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a received message *initiating* a procedure that does not have a message to report unsuccessful outcome is missing one or more IEs/IE groups with specified criticality "*Reject IE*", the receiving node shall terminate the procedure and initiate the Error Indication procedure.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Reject IE*, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

Ignore IE and Notify Sender:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and report in the response message of the procedure that one or more IEs/IE groups were missing. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the response message, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- if a received message *initiating* a procedure that does not have a message to report the outcome of the procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and initiate the Error Indication procedure to report that one or more IEs/IE groups were missing.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and initiate the Error Indication procedure to report that one or more IEs/IE groups were missing.

Ignore IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall ignore that those IEs/IE groups are missing and continue with the procedure based on the other IEs/IE groups present in the message.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. In the *Information Element Criticality Diagnostics* IE the *Repetition Number* IE shall be included and in addition, if the missing IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. In the *Information Element Criticality Diagnostics* IE the *Repetition Number* IE shall be included and in addition, if the missing IE/IE group is not at message hierarchy level 1 (top level; see annex A2) also the *Message Structure* IE shall be included.

10.3.6 IEs or IE groups received in wrong order or with too many occurrences

If a message with IEs or IE groups in wrong order or with too many occurrences is received, the receiving node shall behave according to the following:

- If a message *initiating* a procedure is received containing IEs or IE groups in wrong order or with too many occurrences, none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the cause value "Abstract Syntax Error (Falsely Constructed Message)" using the message normally used to report unsuccessful outcome of the procedure. In case the information received in the initiating message was insufficient to determine a value for all IEs that are required to be present in the message used to report the unsuccessful outcome of the procedure, the receiving node shall instead terminate the procedure and initiate the Error Indication procedure.

- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall terminate the

procedure and initiate the Error Indication procedure, and use cause value "Abstract Syntax Error (Falsely Constructed Message)".

- If a *response* message is received containing IEs or IE groups in wrong order or with too many occurrences, the receiving node shall consider the procedure as unsuccessfully terminated and initiate local error handling.

When determining the correct order only the IEs specified in the specification version used by the receiver shall be considered.

10.4 Logical Error

Logical error situations occur when a message is comprehended correctly, but the information contained within the message is not valid (i.e. semantic error), or describes a procedure which is not compatible with the state of the receiver. In these conditions, the following behaviour shall be performed (unless otherwise specified) as defined by the class of the elementary procedure, irrespective of the criticality information of the IEs/IE groups containing the erroneous values.

Class 1:

Where the logical error occurs in a request message of a class 1 procedure, and the procedure has a failure message, the failure message shall be sent with an appropriate cause value. Typical cause values are:

- Semantic Error.
- Message not compatible with receiver state.

Where the logical error is contained in a request message of a class 1 procedure, and the procedure does not have a failure message, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Where the logical error exists in a response message of a class 1 procedure, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

Class 2:

Where the logical error occurs in a message of a class 2 procedure, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Class 3:

Where the logical error occurs in a request message of a class 3 procedure, and the procedure has a failure message, the failure message shall be sent with an appropriate cause value. Typical cause values are:

- Semantic Error.
- Message not compatible with receiver state.

Where the logical error is contained in a request message of a class 3 procedure, and the procedure does not have a failure message, the procedure shall be terminated and the Error Indication procedure shall be initiated with an appropriate cause value. The *Procedure Code* IE and the *Triggering Message* IE within the *Criticality Diagnostics* IE shall then be included in order to identify the message containing the logical error.

Where the logical error exists in a response message of a class 3 procedure, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

10.5 Exceptions

The error handling for all the cases described hereafter shall take precedence over any other error handling described in the other sub-sections of chapter 10.

- In case a response message, failure message or Error Indication message needs to be returned, but the information necessary to determine the receiver of that message is missing, the procedure shall be considered as unsuccessfully terminated and local error handling shall be initiated.

3GPP TSG-RAN WG3 Meeting #23 ***R3-012534***
Helsinki, Finland, 27th – 31st August, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **363** ⌘ rev **1** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘	Condition of SDU format information IE
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-08-28
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	Problems with the condition of SDU format information IE. Transparent CS data service will not work according to the specifications. Discussions on RAN3 mail reflector regarding CR245 has also pointed that the current specification is ambiguous regarding the presence of SDU format information parameter.
Summary of change:	⌘	The condition of SDU format information is made conditional of the value of User Plane Mode IE, so that for support mode for predefined SDU sizes the SDU format information shall be present.
Consequences if not approved:	⌘	RANAP is not aligned with the description of Transparent data service in 23.910 specification. This misalignment was introduced together with CR245r1. Additional information: The proposed change is not backwards compatible with the current specification because the current specification is ambiguous. This CR is correcting the problems introduced by CR245r1 on 25.413v3.4.0.

Clauses affected:	⌘	9.2.1.3, 9.3.4		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.413 v4.1.0 CR364r1
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/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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: Set to lowest rate controllable bitrate, where bitrate is either – one of the RAB subflow combination bitrate IEs (when present) or – one of the calculated values given when dividing the compound Subflow combination SDU sizes by the value of the IE Maximum SDU Size and then multiplying this result by the value of the IE Maximum Bit Rate.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU Size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: Set to largest RAB Subflow Combination compound SDU size (when present) among the different RAB Subflow Combinations
> SDU parameters		1 to <maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** -
>Traffic Handling Priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the pre-emption process and it is vulnerable to the pre-emption process.
>Source Statistics Descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -
>Relocation Requirement	C-ifPS		ENUMERATED (lossless, none, …)	**Desc.:** This IE specifies in which way the radio access bearer shall be treated in case of relocation **Usage:** Lossless : lossless relocation is required for this RAB, as defined in [21].

Range Bound	Explanation
nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately. Set to 2 if RAB asymmetry indicator is asymmetric bidirectional. Set to 1 in all other cases.

Range Bound	Explanation
maxRABSubflows	Maximum number of Subflows per RAB. Value is 7

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates “Conversational” or “Streaming”
IftrafficInteractiv	This IE is only present when traffic class indicates “Interactive”
IfPS	This IE is only present for RABs towards the PS domain.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
> SDU Error Ratio	C-ifErroneousSDU			**Desc.:** This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			**Desc.:** This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery Of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	**Desc.:** This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute **Usage:** Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - IfSMPredefinedSDUSize	1 to <maxRABSubflowCombinations>	See below	**Desc.:** This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bit rates. Given per RAB Subflow Combination with first occurence corresponding to RAB Subflow Combination number 1. It shall always be present for rate controllable RABs.

Range Bound	Explanation
maxRABSubflowCombinations	Maximum number of RAB Subflow Combinations. Value is 64.

Condition	Explanation
IfErroneousSDU	This IE is not present when Delivery Of Erroneous SDU is set to "no-error-detection-consideration "
IfSMPredefinedSDUSize	This IE shall be present for RABs with the IE User Plane Mode set to 'support mode for pre-defined SDU sizes'.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU Format Information Parameter				
>Subflow SDU Size	C-ifalone		INTEGER (0…4095)	**Desc.:** This IE indicates the exact size of the SDU. The unit is: bit. **Usage:** This IE is only used for RABs that have predefined SDU size(s). It shall be present for RABs having more than one subflow. When this IE is not present and SDU format information Parameter is present, then the Subflow SDU size for the only existing subflow takes the value of the IE Maximum SDU size.
>RAB Subflow Combination Bit Rate	C-ifalone		INTEGER (0..16,000,000)	**Desc.**: This IE indicates the RAB Subflow Combination bit rate. The unit is: bit/s. **Usage:** This IE is only present for RABs that have predefined rate controllable bit rates. When this IE is not present and SDU format information parameter is present then all Subflow SDUs are transmitted (when there is data to be transmitted) at a constant time interval. The value of this IE shall not exceed the maximum value of the IEs 'Maximum Bit Rate'. The value 0 of RAB Subflow Combination bitrate indicates that the RAB uses discontinuous transfer of the SDUs.

Condition	Explanation
Ifalone	At least either of Subflow SDU size IE or RAB Subflow Combination bit rate IE shall be present when SDU format information parameter is present

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Allocation/Retention Priority				
>Priority Level	M		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0..15)	**Desc.**: This IE indicates the priority of the request. **Usage:** The priority level and the preemption indicators may be used to determine whether the request has to be performed unconditionally and immediately
>Pre-emption Capability	M		ENUMERATED(shall not trigger pre-emption, may trigger pre-emption)	**Descr.:** This IE indicates the pre-emption capability of the request on other RABs **Usage:** The RAB shall not pre-empt other RABs or, the RAB may pre-empt other RABs The Pre-emption Capability indicator applies to the allocation of resources for a RAB and as such it provides the trigger to the pre-emption procedures/processes of the RNS.
>Pre-emption Vulnerability	M		ENUMERATED(not pre-emptable, pre-emptable)	**Desc.:** This IE indicates the vulnerability of the RAB to preemption of other RABs. **Usage**: The RAB shall not be pre-empted by other RABs or the RAB may be pre-empted by other RABs. Pre-emption Vulnerability indicator applies for the entire duration of the RAB, unless modified and as such indicates whether the RAB is a target of the pre-emption procedures/processes of the RNS
>Queuing Allowed	M		ENUMERATED(queuing not allowed, queuing allowed)	**Desc.:** This IE indicates whether the request can be placed into a resource allocation queue or not. **Usage:** Queuing of the RAB is allowed Queuing of the RAB is not allowed Queuing allowed indicator applies for the entire duration of the RAB, unless modified.

9.3.4 Information Element Definitions

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

Lots of unchanged lines in this chapter not shown after previous line and before next line

```
SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    SEQUENCE {
        sDU-ErrorRatio          SDU-ErrorRatio OPTIONAL
        -- This IE is not present when DeliveryOfErroneousSDU is set to no-error-detection-consideration --,
        residualBitErrorRatio       ResidualBitErrorRatio,
        deliveryOfErroneousSDU      DeliveryOfErroneousSDU,
        sDU-FormatInformationParameters SDU-FormatInformationParameters OPTIONAL
        -- This IE shall be present for RABs with the IE User Plane Mode set to support mode for predefined SDU sizes --,
        iE-Extensions           ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
        ...
    }
```

Lots of unchanged lines in this chapter not shown after previous line

3GPP TSG-RAN WG3 Meeting #23 ***R3-012535***
Helsinki, Finland, 27th – 31st August, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **364** ⌘ rev **1** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Condition of SDU format information IE
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-08-28
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	Problems with the condition of SDU format information IE. Transparent CS data service will not work according to the specifications. Discussions on RAN3 mail reflector regarding CR245 has also pointed that the current specification is ambiguous regarding the presence of SDU format information parameter.
Summary of change:	⌘	The condition of SDU format information is made conditional of the value of User Plane Mode IE, so that for support mode for predefined SDU sizes the SDU format information shall be present.
Consequences if not approved:	⌘	RANAP is not aligned with the description of Transparent data service in 23.910 specification. This misalignment was introduced together with CR245r1. Additional information: The proposed change is not backwards compatible with the current specification because the current specification is ambiguous. This CR is correcting the problems introduced by CR245r1 on 25.413v3.4.0.

Clauses affected:	⌘	9.2.1.3, 9.3.4		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.413 v3.6.0 CR363r1
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/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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: Set to lowest rate controllable bitrate, where bitrate is either – one of the RAB subflow combination bitrate IEs (when present) or – one of the calculated values given when dividing the compound Subflow combination SDU sizes by the value of the IE Maximum SDU Size and then multiplying this result by the value of the IE Maximum Bit Rate.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU Size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: Set to largest RAB Subflow Combination compound SDU size (when present) among the different RAB Subflow Combinations
> SDU parameters		1 to <maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** -
>Traffic Handling Priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the pre-emption process and it is vulnerable to the pre-emption process.
>Source Statistics Descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -
>Relocation Requirement	C-ifPS		ENUMERATED (lossless, none, …, realtime)	**Desc.:** This IE specifies in which way the radio access bearer shall be treated in case of relocation **Usage:** Lossless : lossless relocation is required for this RAB, as defined in [21]. Realtime : realtime relocation is required for this RAB, as defined

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
				in [21].

Range Bound	Explanation
nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately. Set to 2 if RAB asymmetry indicator is asymmetric bidirectional. Set to 1 in all other cases.

Range Bound	Explanation
maxRABSubflows	Maximum number of Subflows per RAB. Value is 7

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates “Conversational” or “Streaming”
IftrafficInteractiv	This IE is only present when traffic class indicates “Interactive”
IfPS	This IE is only present for RABs towards the PS domain.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
> SDU Error Ratio	C-ifErroneousSDU			**Desc.:** This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			**Desc.:** This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery Of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	**Desc.:** This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute **Usage:** Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - IfSMPredefinedSDUSize	1 to <maxRABSubflowCombinations>	See below	**Desc.:** This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bit rates. Given per RAB Subflow Combination with first occurence corresponding to RAB Subflow Combination number 1.

				It shall always be present for rate controllable RABs.

Range Bound	Explanation
maxRABSubflowCombinations	Maximum number of RAB Subflow Combinations. Value is 64.

Condition	Explanation
IfErroneousSDU	This IE is not present when Delivery Of Erroneous SDU is set to "no-error-detection-consideration "
IfSMPredefinedSDUSize	This IE shall be present for RABs with the IE User Plane Mode set to 'support mode for pre-defined SDU sizes'.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU Format Information Parameter				
>Subflow SDU Size	C-ifalone		INTEGER (0…4095)	**Desc.:** This IE indicates the exact size of the SDU. The unit is: bit. **Usage:** This IE is only used for RABs that have predefined SDU size(s). It shall be present for RABs having more than one subflow. When this IE is not present and SDU format information Parameter is present, then the Subflow SDU size for the only existing subflow takes the value of the IE Maximum SDU size.
>RAB Subflow Combination Bit Rate	C-ifalone		INTEGER (0..16,000,000)	**Desc.**: This IE indicates the RAB Subflow Combination bit rate. The unit is: bit/s. **Usage:** This IE is only present for RABs that have predefined rate controllable bit rates. When this IE is not present and SDU format information parameter is present then all Subflow SDUs are transmitted (when there is data to be transmitted) at a constant time interval. The value of this IE shall not exceed the maximum value of the IEs 'Maximum Bit Rate'. The value 0 of RAB Subflow Combination bitrate indicates that the RAB uses discontinuous transfer of the SDUs.

Condition	Explanation
Ifalone	At least either of Subflow SDU size IE or RAB Subflow Combination bit rate IE shall be present when SDU format information parameter is present

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Allocation/Retention Priority				
>Priority Level	M		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0..15)	**Desc.**: This IE indicates the priority of the request. **Usage:** The priority level and the preemption indicators may be used to determine whether the request has to be performed unconditionally and immediately
>Pre-emption Capability	M		ENUMERATED(shall not trigger pre-emption, may trigger pre-emption)	**Descr.:** This IE indicates the pre-emption capability of the request on other RABs **Usage:** The RAB shall not pre-empt other RABs or, the RAB may pre-empt other RABs The Pre-emption Capability indicator applies to the allocation of resources for a RAB and as such it provides the trigger to the pre-emption procedures/processes of the RNS.
>Pre-emption Vulnerability	M		ENUMERATED(not pre-emptable, pre-emptable)	**Desc.:** This IE indicates the vulnerability of the RAB to preemption of other RABs. **Usage**: The RAB shall not be pre-empted by other RABs or the RAB may be pre-empted by other RABs. Pre-emption Vulnerability indicator applies for the entire duration of the RAB, unless modified and as such indicates whether the RAB is a target of the pre-emption procedures/processes of the RNS
>Queuing Allowed	M		ENUMERATED(queuing not allowed, queuing allowed)	**Desc.:** This IE indicates whether the request can be placed into a resource allocation queue or not. **Usage:** Queuing of the RAB is allowed Queuing of the RAB is not allowed Queuing allowed indicator applies for the entire duration of the RAB, unless modified.

9.3.4 Information Element Definitions

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

Lots of unchanged lines in this chapter not shown after previous line and before next line

```
SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    SEQUENCE {
        sDU-ErrorRatio          SDU-ErrorRatio OPTIONAL
        -- This IE is not present when DeliveryOfErroneousSDU is set to no-error-detection-consideration --,
        residualBitErrorRatio       ResidualBitErrorRatio,
        deliveryOfErroneousSDU      DeliveryOfErroneousSDU,
        sDU-FormatInformationParameters SDU-FormatInformationParameters OPTIONAL
        -- This IE shall be present for RABs with the IE User Plane Mode set to support mode for predefined SDU sizes --,
        iE-Extensions           ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
        ...
    }
```

Lots of unchanged lines in this chapter not shown after previous line

3GPP TSG-RAN WG3 Meeting #23 ***R3-012717***
Helsinki, Finland, 27th – 31st August, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **367** ⌘ rev **1** ⌘ Current version: **3.6.0** ⌘

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

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

Title:	⌘	Relocation Requirement not to be used
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-09-07
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	TSG SA2 has decided to remove the usage of the RAB parameter Relocation Requirement.
Summary of change:	⌘	It is clarified that the RAB parameter Relocation Requirement is no longer used and when sent by the CN it shall be set to “none” and when received by the RNC, it shall be ignored.
Consequences if not approved:	⌘	There will be a misalignment between 25.413 and 23.060. Additional information: The change is backwards compatible.

Clauses affected:	⌘	9.2.1.3		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.413 v4.1.0 CR368
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/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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: Set to lowest rate controllable bitrate, where bitrate is either – one of the RAB subflow combination bitrate IEs (when present) or – one of the calculated values given when dividing the compound Subflow combination SDU sizes by the value of the IE Maximum SDU Size and then multiplying this result by the value of the IE Maximum Bit Rate.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU Size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: Set to largest RAB Subflow Combination compound SDU size (when present) among the different RAB Subflow Combinations
> SDU parameters		1 to <maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** -
>Traffic Handling Priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the pre-emption process and it is vulnerable to the pre-emption process.
>Source Statistics Descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -
>Relocation Requirement	C-ifPS		ENUMERATED (lossless, none, …)	**Desc.:** This IE ~~specifies in which way the radio access bearer shall be treated in case of relocation~~ is no longer used. **Usage:** ~~Lossless : lossless relocation is required for this RAB, as defined in [21].~~It shall always be set to "none" when sent and it shall always be ignored when

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
				received.

Range Bound	Explanation
nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately. Set to 2 if RAB asymmetry indicator is asymmetric bidirectional. Set to 1 in all other cases.

Range Bound	Explanation
maxRABSubflows	Maximum number of Subflows per RAB. Value is 7

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates “Conversational” or “Streaming”
IftrafficInteractiv	This IE is only present when traffic class indicates “Interactive”
IfPS	This IE is only present for RABs towards the PS domain.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
> SDU Error Ratio	C-ifErroneousSDU			**Desc.:** This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			**Desc.:** This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery Of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	**Desc.:** This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute **Usage:** Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - IfPredefinedSDUSize	1 to <maxRABSubflowCombinations>	See below	**Desc.:** This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bit rates. Given per RAB Subflow Combination with first occurence corresponding to RAB Subflow Combination number 1.

				It shall always be present for rate controllable RABs.

Range Bound	Explanation
maxRABSubflowCombinations	Maximum number of RAB Subflow Combinations. Value is 64.

Condition	Explanation
IfErroneousSDU	This IE is not present when Delivery Of Erroneous SDU is set to "no-error-detection-consideration "
IfPredefinedSDUSize	This IE shall be present for RABs with pre-defined SDU sizes.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU Format Information Parameter				
>Subflow SDU Size	C-ifalone		INTEGER (0…4095)	**Desc.:** This IE indicates the exact size of the SDU. The unit is: bit. **Usage:** This IE is only used for RABs that have predefined SDU size(s). It shall be present for RABs having more than one subflow. When this IE is not present and SDU format information Parameter is present, then the Subflow SDU size for the only existing subflow takes the value of the IE Maximum SDU size.
>RAB Subflow Combination Bit Rate	C-ifalone		INTEGER (0..16,000,000)	**Desc.**: This IE indicates the RAB Subflow Combination bit rate. The unit is: bit/s. **Usage:** This IE is only present for RABs that have predefined rate controllable bit rates. When this IE is not present and SDU format information parameter is present then all Subflow SDUs are transmitted (when there is data to be transmitted) at a constant time interval. The value of this IE shall not exceed the maximum value of the IEs 'Maximum Bit Rate'. The value 0 of RAB Subflow Combination bitrate indicates that the RAB uses discontinuous transfer of the SDUs.

Condition	Explanation
Ifalone	At least either of Subflow SDU size IE or RAB Subflow Combination bit rate IE shall be present when SDU format information parameter is present

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Allocation/Retention Priority				
>Priority Level	M		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0..15)	**Desc.**: This IE indicates the priority of the request. **Usage:** The priority level and the preemption indicators may be used to determine whether the request has to be performed unconditionally and immediately
>Pre-emption Capability	M		ENUMERATED(shall not trigger pre-emption, may trigger pre-emption)	**Descr.:** This IE indicates the pre-emption capability of the request on other RABs **Usage:** The RAB shall not pre-empt other RABs or, the RAB may pre-empt other RABs The Pre-emption Capability indicator applies to the allocation of resources for a RAB and as such it provides the trigger to the pre-emption procedures/processes of the RNS.
>Pre-emption Vulnerability	M		ENUMERATED(not pre-emptable, pre-emptable)	**Desc.:** This IE indicates the vulnerability of the RAB to preemption of other RABs. **Usage**: The RAB shall not be pre-empted by other RABs or the RAB may be pre-empted by other RABs. Pre-emption Vulnerability indicator applies for the entire duration of the RAB, unless modified and as such indicates whether the RAB is a target of the pre-emption procedures/processes of the RNS
>Queuing Allowed	M		ENUMERATED(queuing not allowed, queuing allowed)	**Desc.:** This IE indicates whether the request can be placed into a resource allocation queue or not. **Usage:** Queuing of the RAB is allowed Queuing of the RAB is not allowed Queuing allowed indicator applies for the entire duration of the RAB, unless modified.

3GPP TSG-RAN WG3 Meeting #23 ***R3-012718***
Helsinki, Finland, 27th – 31st August, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **368** ⌘ rev **1** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Relocation Requirement not to be used
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-09-07
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	TSG SA2 has decided to remove the usage of the RAB parameter Relocation Requirement.
Summary of change:	⌘	It is clarified that the RAB parameter Relocation Requirement is no longer used and when sent by the CN it shall be set to “none” and when received by the RNC, it shall be ignored.
Consequences if not approved:	⌘	There will be a misalignment between 25.413 and 23.060. Additional information: The change is backwards compatible.

Clauses affected:	⌘	9.2.1.3		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.413 v3.6.0 CR367
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/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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: Set to lowest rate controllable bitrate, where bitrate is either – one of the RAB subflow combination bitrate IEs (when present) or – one of the calculated values given when dividing the compound Subflow combination SDU sizes by the value of the IE Maximum SDU Size and then multiplying this result by the value of the IE Maximum Bit Rate.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU Size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: Set to largest RAB Subflow Combination compound SDU size (when present) among the different RAB Subflow Combinations
> SDU parameters		1 to <maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** -
>Traffic Handling Priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the pre-emption process and it is vulnerable to the pre-emption process.
>Source Statistics Descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -
>Relocation Requirement	C-ifPS		ENUMERATED (lossless, none, …, realtime)	**Desc.:** This IE is no longer used. ~~specifies in which way the radio access bearer shall be treated in case of relocation~~ **Usage:** It shall always be set to "none" when sent and it shall always be ignored when received.~~Lossless : lossless relocation is required for this~~

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
				~~RAB, as defined in [21].~~ ~~Realtime : realtime relocation is required for this RAB, as defined in [21].~~

Range Bound	Explanation
nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately. Set to 2 if RAB asymmetry indicator is asymmetric bidirectional. Set to 1 in all other cases.

Range Bound	Explanation
maxRABSubflows	Maximum number of Subflows per RAB. Value is 7

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates “Conversational” or “Streaming”
IftrafficInteractiv	This IE is only present when traffic class indicates “Interactive”
IfPS	This IE is only present for RABs towards the PS domain.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
> SDU Error Ratio	C-ifErroneousSDU			**Desc.:** This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			**Desc.:** This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. **Usage:** The attribute is coded as follows: Mantissa * $10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery Of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	**Desc.:** This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute **Usage:** Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - IfPredefinedSDUSize	1 to <maxRABSubflowCombinations>	See below	**Desc.:** This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bit rates. Given per RAB Subflow

				Combination with first occurence corresponding to RAB Subflow Combination number 1. It shall always be present for rate controllable RABs.

Range Bound	Explanation
maxRABSubflowCombinations	Maximum number of RAB Subflow Combinations. Value is 64.

Condition	Explanation
IfErroneousSDU	This IE is not present when Delivery Of Erroneous SDU is set to "no-error-detection-consideration "
IfPredefinedSDUSize	This IE shall be present for RABs with pre-defined SDU sizes.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU Format Information Parameter				
>Subflow SDU Size	C-ifalone		INTEGER (0…4095)	**Desc.:** This IE indicates the exact size of the SDU. The unit is: bit. **Usage:** This IE is only used for RABs that have predefined SDU size(s). It shall be present for RABs having more than one subflow. When this IE is not present and SDU format information Parameter is present, then the Subflow SDU size for the only existing subflow takes the value of the IE Maximum SDU size.
>RAB Subflow Combination Bit Rate	C-ifalone		INTEGER (0..16,000,000)	**Desc.**: This IE indicates the RAB Subflow Combination bit rate. The unit is: bit/s. **Usage:** This IE is only present for RABs that have predefined rate controllable bit rates. When this IE is not present and SDU format information parameter is present then all Subflow SDUs are transmitted (when there is data to be transmitted) at a constant time interval. The value of this IE shall not exceed the maximum value of the IEs 'Maximum Bit Rate'. The value 0 of RAB Subflow Combination bitrate indicates that the RAB uses discontinuous transfer of the SDUs.

Condition	Explanation
Ifalone	At least either of Subflow SDU size IE or RAB Subflow Combination bit rate IE shall be present when SDU format information parameter is present

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Allocation/Retention Priority				
>Priority Level	M		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0..15)	**Desc.**: This IE indicates the priority of the request. **Usage:** The priority level and the preemption indicators may be used to determine whether the request has to be performed unconditionally and immediately
>Pre-emption Capability	M		ENUMERATED(shall not trigger pre-emption, may trigger pre-emption)	**Descr.:** This IE indicates the pre-emption capability of the request on other RABs **Usage:** The RAB shall not pre-empt other RABs or, the RAB may pre-empt other RABs The Pre-emption Capability indicator applies to the allocation of resources for a RAB and as such it provides the trigger to the pre-emption procedures/processes of the RNS.
>Pre-emption Vulnerability	M		ENUMERATED(not pre-emptable, pre-emptable)	**Desc.:** This IE indicates the vulnerability of the RAB to preemption of other RABs. **Usage**: The RAB shall not be pre-empted by other RABs or the RAB may be pre-empted by other RABs. Pre-emption Vulnerability indicator applies for the entire duration of the RAB, unless modified and as such indicates whether the RAB is a target of the pre-emption procedures/processes of the RNS
>Queuing Allowed	M		ENUMERATED(queuing not allowed, queuing allowed)	**Desc.:** This IE indicates whether the request can be placed into a resource allocation queue or not. **Usage:** Queuing of the RAB is allowed Queuing of the RAB is not allowed Queuing allowed indicator applies for the entire duration of the RAB, unless modified.