TSG-RAN Meeting #14
Kyoto, Japan, 11 - 14, December, 2001

TSGRP#14(01) 0852

Title: **Agreed CRs to TS 25.419**

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-010852	R3-013656	25.419	074	2	Rel-4	Addition of amendment to clarify the PER encoding of bitstrings	A	4.2.0	4.3.0	TEI
RP-010852	R3-013637	25.419	080		Rel-4	Correction the Clause 10 Error Handling	A	4.2.0	4.3.0	TEI
RP-010852	R3-013636	25.419	079		R99	Correction the Clause 10 Error Handling	F	3.6.0	3.8.0	TEI
RP-010852	R3-013616	25.419	078	2	Rel-4	CR on 25.419 (R4) Usage of "Number of Broadcasts Completed	A	4.2.0	4.3.0	TEI
RP-010852	R3-013615	25.419	077	2	R99	CR on 25.419 (R99) Usage of "Number of Broadcasts Completed	F	3.6.0	3.7.0	TEI
RP-010852	R3-013400	25.419	076		Rel-4	Section 9.2.0 missing	A	4.2.0	4.2.0	TEI
RP-010852	R3-013399	25.419	075		R99	Section 9.2.0 missing	F	3.6.0	3.7.0	TEI
RP-010852	R3-013295	25.419	072		Rel-4	Procedure Code Criticality in Error Indication	A	4.2.0	4.3.0	TEI
RP-010852	R3-013294	25.419	071		R99	Procedure Code Criticality in Error Indication	F	3.6.0	3.7.0	TEI
RP-010852	R3-013125	25.419	070		Rel-4	Bitstrings ordering	A	4.2.0	4.3.0	TEI
RP-010852	R3-013124	25.419	069		R99	Bitstrings ordering	F	3.6.0	3.7.0	TEI
RP-010852	R3-013520	25.419	068	1	Rel-4	SAI Clarification	A	4.2.0	4.3.0	TEI
RP-010852	R3-013519	25.419	067	1	R99	SAI Clarification	F	3.6.0	3.7.0	TEI
RP-010852	R3-013651	25.419	073	2	R99	Addition of amendment to clarify the PER encoding of bitstrings	F	3.6.0	3.7.0	TEI

3GPP TSG-RAN WG3 Meeting #25
Makuhari, Japan, 26-30 November 2001

Tdoc R3-013519

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **067** ⌘ 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:	⌘	SAI clarification
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	27 November 2001
Category:	⌘	**F**
Release:	⌘	R99

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

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

Reason for change:	⌘	It has been specified in 23.003 that Service Area Identifier (SAI) consist one cell in Broadcast (BC) domain. However, currently the text in 25.419 implies that SAI may consist more than one cell.
Summary of change:	⌘	The definition of SAI is clarified so that it clearly indicates that SAI consist only one cell in BC domain. The TS23.003 is added to the reference list. Impact analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the definition of SAI has been incorrect in BC domain in 25.419.
Consequences if not approved:	⌘	The interperetation of SAI may lead to incompatible implementations.

Clauses affected:	⌘	2, 9.2.11		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.419 CR68 REL-4
Other comments:	⌘			

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TR 23.930: "Iu Principles".

[2] 3GPP TS 25.410: "UTRAN Iu Interface; General Aspects and Principles".

[3] 3GPP TS 25.401: "UTRAN Overall Description".

[4] 3GPP TR 25.931: "UTRAN Functions: Examples on Signalling Procedures".

[5] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[6] 3GPP TS 25.414: "UTRAN Iu Interface Data Transport and Transport Signalling".

[7] ITU-T Recommendation X.680 (12/1997): "Information Technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[8] ITU-T Recommendation X.681 (12/1997): "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification".

[9] ITU-T Recommendation X.691 (12/1997): "Information Technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".

[10] 3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".

[11] 3GPP TS 25.324: "Broadcast/Multicast Control BMC".

[12] 3GPP TS 23.003: “Numbering, addressing and identification”.

3 Definitions and abbreviations

9.2.11 Service Area Identifier

Service Area Identifier IE in BC domain is used to identify an area consisting of one ~~or more~~ cell~~s~~ ~~belonging to the same Location Area~~[12]. Such an area is called a Service Area. For this protocol, only a Service Area that is defined to be applicable to the BC domain shall be used.

IE/Group Name	Presence	Range	IE type and Reference	Semantics description
SAI				
>PLMN identity	M		OCTET STRING (SIZE (3))	- digits 0 to 9, two digits per octet, - each digit encoded 0000 to 1001, - 1111 used as filler - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n -The PLMN identity consists of 3 digits from MCC followed by either -a filler plus 2 digits from MNC (in case of 2 digit MNC) or -3 digits from MNC (in case of a 3 digit MNC).
>LAC	M		OCTET STRING (2)	0000 and FFFE not allowed.
>SAC	M		OCTET STRING (2)	

9.2.12 Failure List

3GPP TSG-RAN WG3 Meeting #25
Makuhari, Japan, 26-30 November 2001

Tdoc R3-013520

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **068** ⌘ rev **1** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	SAI clarification
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	27 November 2001
Category:	⌘	**A**
Release:	⌘	REL-4

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

Reason for change:	⌘	It has been specified in 23.003 that Service Area Identifier (SAI) consist one cell in Broadcast (BC) domain. However, currently the text in 25.419 implies that SAI may consist more than one cell.
Summary of change:	⌘	The definition of SAI is clarified so that it clearly indicates that SAI consist only one cell in BC domain. The TS23.003 is added to the reference list. Impact analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same relase) because the definition of SAI has been incorrect in BC domain in 25.419.
Consequences if not approved:	⌘	The interperetation of SAI may lead to incompatible implementations.

Clauses affected:	⌘	2, 9.2.11		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.419 CR67 R99
Other comments:	⌘			

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

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[4] 3GPP TR 25.931: "UTRAN Functions: Examples on Signalling Procedures".

[5] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[6] 3GPP TS 25.414: "UTRAN Iu Interface Data Transport and Transport Signalling".

[7] ITU-T Recommendation X.680 (12/1997): "Information Technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[8] ITU-T Recommendation X.681 (12/1997): "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification".

[9] ITU-T Recommendation X.691 (12/1997): "Information Technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".

[10] 3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".

[11] 3GPP TS 25.324: "Broadcast/Multicast Control BMC".

[12] 3GPP TS 23.003: “Numbering, addressing and identification”

3 Definitions and abbreviations

9.2.11 Service Area Identifier

Service Area Identifier IE in BC domain is used to identify an area consisting of one ~~or more~~ cell~~s~~ ~~belonging to the same Location Area~~[12]. Such an area is called a Service Area. For this protocol, only a Service Area that is defined to be applicable to the BC domain shall be used.

IE/Group Name	Presence	Range	IE type and Reference	Semantics description
SAI				
>PLMN identity	M		OCTET STRING (SIZE (3))	- digits 0 to 9, two digits per octet, - each digit encoded 0000 to 1001, - 1111 used as filler - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n -The PLMN identity consists of 3 digits from MCC followed by either -a filler plus 2 digits from MNC (in case of 2 digit MNC) or -3 digits from MNC (in case of a 3 digit MNC).
>LAC	M		OCTET STRING (2)	0000 and FFFE not allowed.
>SAC	M		OCTET STRING (2)	

9.2.12 Failure List

3GPP TSG-RAN WG3 Meeting #25
Makuhari, Japan, 26th-30th November 2001

R3-013124

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **069** ⌘ rev **-** ⌘ 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:	⌘	Bitstrings ordering
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-21
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:	⌘	It is important to clarify the bit ordering within IEs of type BIT STRING, i.e. to define how the information is stored in the bitstring to keep the integrity of the bit ordering.
Summary of change:	⌘	A clarification is added in a new subclause 9.2.0. This explains how to interpret the order of bits when specifying bitstrings. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has no impact for implementations that assumed the hereby adopted interpretation.
Consequences if not approved:	⌘	If this CR is not approved, there is a risk of incompatibility due to inconsistent interpretations of the bit ordering.

Clauses affected:	⌘	9.2.0 (new)		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR070 25.419 4.2.0
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 Information Element Definitions

9.2.0 General

When specifying information elements which are to be represented by bitstrings, if not otherwise specifically stated in the semantics description of the concerned IE or elsewhere, the following principle applies with regards to the ordering of bits:

- The first bit (leftmost bit) contains the most significant bit (MSB);
- The last bit (rightmost bit) contains the least significant bit (LSB);
- When importing bitstrings from other specifications, the first bit of the bitstring contains the first bit of the concerned information;

9.2.1 MessageType

3GPP TSG-RAN WG3 Meeting #25
Makuhari, Japan, 26th-30th November 2001

R3-013125

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **070** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Bitstrings ordering
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-21
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:	⌘	It is important to clarify the bit ordering within IEs of type BIT STRING, i.e. to define how the information is stored in the bitstring to keep the integrity of the bit ordering.
Summary of change:	⌘	A clarification is added in a new subclause 9.2.0. This explains how to interpret the order of bits when specifying bitstrings. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has no impact for implementations that assumed the hereby adopted interpretation.
Consequences if not approved:	⌘	If this CR is not approved, there is a risk of incompatibility due to inconsistent interpretations of the bit ordering.

Clauses affected:	⌘	9.2.0 (new)		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR069 25.419 3.6.0
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.

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

9.2 Information Element Definitions

9.2.0 General

When specifying information elements which are to be represented by bitstrings, if not otherwise specifically stated in the semantics description of the concerned IE or elsewhere, the following principle applies with regards to the ordering of bits:

- The first bit (leftmost bit) contains the most significant bit (MSB);
- The last bit (rightmost bit) contains the least significant bit (LSB);
- When importing bitstrings from other specifications, the first bit of the bitstring contains the first bit of the concerned information;

9.2.1 MessageType

3GPP TSG-RAN3 Meeting #25 ***R3-013294***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **071** ⌘ rev ⌘ 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:	⌘	Procedure Code Criticality in Error Indication
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-20
Category:	⌘	**F**
Release:	⌘	R99

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

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

Reason for change:	⌘	It is stated in the semantics description for the Procedure Criticality IE within the Criticality Diagnostics IE that the value "Ignore" shall never be used. This was true as long as this IE was only used when reporting an error on procedure code level. But since it is now also used within the ERROR INDICATION message to identify the message being reported, the value "Ignore" must also be allowed.
Summary of change:	⌘	The statement that the value "Ignore" shall never be used for the Procedure Code IE within the Criticality Diagnostics IE is removed. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has isolated impact because the contradiction between what is stated within the semantics description for the Criticality Diagnostics IE and the description in chapter 10 of the usage of ERROR INDICATION when reporting errors may lead to different implementations. This CR has impact under functional point of view. The impact can be considered isolated because the change only affects one function, i.e. Error Indication.
Consequences if not approved:	⌘	If this CR is not approved, there is a contradiction between what is stated within the semantics description for the Criticality Diagnostics IE and the description in chapter 10 of the usage of ERROR INDICATION when reporting errors.

Clauses affected:	⌘	9.2.17		
Other specs	⌘	**X** Other core specifications	⌘	CR382 25.413 3.7.0 CR383 25.413 4.2.0 CR072 25.419 4.2.0 CR508 25.423 3.7.0 CR509 25.423 4.2.0

			CR561 25.433 3.7.0 CR562 25.433 4.2.1 CR012 25.453 5.1.0
affected:		Test specifications O&M Specifications	
Other comments:	⌘		

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

9.2.17 Criticality Diagnostics

The *Criticality Diagnostics* IE is sent by the RNC or the CN when parts of a received message have not been comprehended or were missing, or if the message contained logical errors. When applicable, it contains information about which IEs that were not comprehended or were missing.

For further details on how to use the *Criticality Diagnostics* IE, see annex A.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
>Procedure Code	O		INTEGER (0..255)	Procedure Code is to be used if Criticality Diagnostics is part of Error Indication procedure, and not within the response message of the same procedure that caused the error
>Triggering Message	O		ENUMERATED(initiating message, successful outcome, unsuccessful outcome, outcome)	The Triggering Message is used only if the Criticality Diagnostics is part of Error Indication procedure.
>Procedure Criticality	O		ENUMERATED(reject, ignore, notify)	This Procedure Criticality is used for reporting the Criticality of the Triggering message (Procedure). ~~The value 'ignore' shall never be used.~~
Information Element Criticality Diagnostics		0 to <maxnoof errors>		
>IE Criticality	M		ENUMERATED(reject, ignore, notify)	The IE Criticality is used for reporting the criticality of the triggering IE. The value 'ignore' shall not be used.
>IE ID	M		INTEGER (0..65535)	The IE Id of the not understood or missing IE
>Repetition Number	O		INTEGER (0..255)	The *Repetition Number* IE gives • in case of a not understood IE: The number of occurrences of the reported IE up to and including the not understood occurrence • in case of a missing IE: The number of occurrences up to but not including the missing occurrence. Note: All the counted occurrences of the reported IE must have the same topdown hierachical message structure of IEs with assigned criticality above them.
>Message Structure	O		9.2.20	The *Message Structure* IE describes the structure where the not understood or missing

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
				IE was detected. This IE is included if the not understood IE is not the top level of the message.
>Type of Error	M		ENUMERATED (not understood, missing, …)	

Range bound	Explanation
Maxnooferrors	Maximum no. of IE errors allowed to be reported with a single message. The value for maxnooferrors is 256.

3GPP TSG-RAN3 Meeting #25 ***R3-013295***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **072** ⌘ rev ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Procedure Code Criticality in Error Indication
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-20
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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C *(functional modification of feature)*
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Reason for change:	⌘	It is stated in the semantics description for the Procedure Criticality IE within the Criticality Diagnostics IE that the value "Ignore" shall never be used. This was true as long as this IE was only used when reporting an error on procedure code level. But since it is now also used within the ERROR INDICATION message to identify the message being reported, the value "Ignore" must also be allowed.
Summary of change:	⌘	The statement that the value "Ignore" shall never be used for the Procedure Code IE within the Criticality Diagnostics IE is removed. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has isolated impact because the contradiction between what is stated within the semantics description for the Criticality Diagnostics IE and the description in chapter 10 of the usage of ERROR INDICATION when reporting errors may lead to different implementations. This CR has impact under functional point of view. The impact can be considered isolated because the change only affects one function, i.e. Error Indication.
Consequences if not approved:	⌘	If this CR is not approved, there is a contradiction between what is stated within the semantics description for the Criticality Diagnostics IE and the description in chapter 10 of the usage of ERROR INDICATION when reporting errors.

Clauses affected:	⌘	9.2.17		
Other specs	⌘	**X** Other core specifications	⌘	CR382 25.413 3.7.0 CR383 25.413 4.2.0 CR071 25.419 3.6.0 CR508 25.423 3.7.0 CR509 25.423 4.2.0

affected:		CR561 25.433 3.7.0 CR562 25.433 4.2.1 CR012 25.453 5.1.0
	Test specifications	
	O&M Specifications	
Other comments: ⌘		

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

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

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

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

9.2.17 Criticality Diagnostics

For further details on how to use the *Criticality Diagnostics* IE, see annex A.

The *Criticality Diagnostics* IE is sent by the RNC or the CN when parts of a received message have not been comprehended or were missing, or if the message contained logical errors. When applicable, it contains information about which IEs that were not comprehended or were missing.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
>Procedure Code	O		INTEGER (0..255)	Procedure Code is to be used if Criticality Diagnostics is part of Error Indication procedure, and not within the response message of the same procedure that caused the error
>Triggering Message	O		ENUMERATED(initiating message, successful outcome, unsuccessful outcome, outcome)	The Triggering Message is used only if the Criticality Diagnostics is part of Error Indication procedure.
>Procedure Criticality	O		ENUMERATED(reject, ignore, notify)	This Procedure Criticality is used for reporting the Criticality of the Triggering message (Procedure). ~~The value 'ignore' shall never be used.~~
Information Element Criticality Diagnostics		0 to <maxnoof errors>		
>IE Criticality	M		ENUMERATED(reject, ignore, notify)	The IE Criticality is used for reporting the criticality of the triggering IE. The value 'ignore' shall not be used.
>IE ID	M		INTEGER (0..65535)	The IE Id of the not understood or missing IE
>Repetition Number	O		INTEGER (0..255)	The *Repetition Number* IE gives • in case of a not understood IE: The number of occurrences of the reported IE up to and including the not understood occurrence • in case of a missing IE: The number of occurrences up to but not including the missing occurrence. Note: All the counted occurrences of the reported IE must have

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
				the same topdown hierachical message structure of IEs with assigned criticality above them.
>Message Structure	O		9.2.20	The *Message Structure* IE describes the structure where the not understood or missing IE was detected. This IE is included if the not understood IE is not the top level of the message.
>Type of Error	M		ENUMERATED(not understood, missing, …)	

Range bound	Explanation
Maxnooferrors	Maximum no. of IE errors allowed to be reported with a single message. The value for maxnooferrors is 256.

3GPP TSG-RAN3 Meeting #25 ***R3-013651***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **073** ⌘ ev **2** ⌘ 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:	⌘	Addition of amendment to clarify the PER encoding of bitstrings
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	November, 2001
Category:	⌘	**F** *Use one of the following categories:* ***F*** *(correction)* ***A*** *(corresponds to a correction in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.
Release:	⌘	R99 *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:	⌘	There is a lack of specification w.r.t. PER encoding of bitstrings in X691. A clarification will appear in the 2002 version of X.691, but as RAN3 specifications refer to the 1997 version, this amendement will not automatically apply to RAN3 specifications. Therefore a specific clarification is needed within the RAN3 TSs. For further reasoning, please refer to document R3-013363.
Summary of change:	⌘	A clarification was added to subclause 9.4. Rev.1: a slight rewording of the added note was performed and the reference to X.680 was reformulated. Rev2: tdoc number was added on the cover page.
Consequences if not approved:	⌘	If this CR is not approved, SABP will still refer to an incomplete specification w.r.t. to the PER encoding of bitstrings. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has no impact on the previous version of the specification (same release) for implementations aligned with the added clarification. For implementations based otherwise on different assumptions, this CR may have isolated/non isolated impact, depending on the single implementation choices. It must be stated that this interpretation is the assumed one in ITU-T and the clarification was added only for completeness.

Clauses affected:	⌘	9.4		
Other specs	⌘	**X** Other core specifications	⌘	CR 074 SABP R4, CR 570 NBAP R99, CR 519 RNSAP R99, CR 571 NBAP R4, CR 520 RNSAP R4, CR 385 RANAP R99, CR 386 RANAP R4, CR 013 PCAP R5

Affected:	☐ Test specifications ☐ O&M Specifications	
Other comments: ⌘		

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

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

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

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

9.4 Message Transfer Syntax

SABP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax as specified in ref. [9].

The following encoding rules apply in addition to what has been specified in X.691 [9]:

When a bitstring value is placed in a bit-field as specified in 15.6 to 15.11 in [9], the leading bit of the bitstring value shall be placed in the leading bit of the bit-field, and the trailing bit of the bitstring value shall be placed in the trailing bit of the bit-field.

NOTE - When using the "bstring" notation, the leading bit of the bitstring value is on the left, and the trailing bit of the bitstring value is on the right. The term ‘leading bit’ is to be interpreted as equal to the term ‘first bit’ defined in [7].

3GPP TSG-RAN3 Meeting #25 ***R3-013656***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.419** **CR** **074** ⌘ ev **2** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Addition of amendment to clarify the PER encoding of bitstrings
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	November, 2001
Category:	⌘	**A**
Release:	⌘	REL-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	There is a lack of specification w.r.t. PER encoding of bitstrings in X691. A clarification will appear in the 2002 version of X.691, but as RAN3 specifications refer to the 1997 version, this amendement will not automatically apply to RAN3 specifications. Therefore a specific clarification is needed within the RAN3 TSs. For further reasoning, please refer to document R3-013363.
Summary of change:	⌘	A clarification was added to subclause 9.4. Rev.1: a slight rewording of the added note was performed and the reference to X.680 was reformulated. Rev2: tdoc number was added on the cover page.
Consequences if not approved:	⌘	If this CR is not approved, SABP will still refer to an incomplete specification w.r.t. to the PER encoding of bitstrings. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has no impact on the previous version of the specification (same release) for implementations aligned with the added clarification. For implementations based otherwise on different assumptions, this CR may have isolated/non isolated impact, depending on the single implementation choices. It must be stated that this interpretation is the assumed one in ITU-T and the clarification was added only for completeness.

Clauses affected:	⌘	9.4		
Other specs	⌘	[X] Other core specifications	⌘	CR 519 RNSAP R99, CR 570 NBAP R99, CR 073 SABP R99, CR 571 NBAP R4, CR 520 RNSAP R4, CR 385 RANAP R99, CR 386 RANAP R4, CR 013 PCAP R5

Affected:	☐ Test specifications ☐ O&M Specifications	
Other comments: ⌘		

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

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

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

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

9.4 Message Transfer Syntax

SABP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax as specified in ref. [9].

The following encoding rules apply in addition to what has been specified in X.691 [9]:

When a bitstring value is placed in a bit-field as specified in 15.6 to 15.11 in [9], the leading bit of the bitstring value shall be placed in the leading bit of the bit-field, and the trailing bit of the bitstring value shall be placed in the trailing bit of the bit-field.

NOTE - When using the "bstring" notation, the leading bit of the bitstring value is on the left, and the trailing bit of the bitstring value is on the right. The term ‘leading bit’ is to be interpreted as equal to the term ‘first bit’ defined in [7].

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Makuhari, Japan, 26th-30th November 2001

R3-013399

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **075** ⌘ rev **-** ⌘ 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:	⌘	Chapter 9.2.0 missing
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-21
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:	⌘	The SABP specification is currently missing rules in case of a contradiction between ASN.1 and tabular format of Information Element definitions.
Summary of change:	⌘	A new subclause 9.2.0 is introduced to clarify that for the definition of Information Elements the ASN.1 definition shall take precedence in case of a contradiction between ASN.1 and tabular format except for conditional presence definitions. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has no impact for implementations that assumed generally agreed RAN3 specification principles.
Consequences if not approved:	⌘	If this CR is not approved no guidelines exist to resolve contradictions between tabular format and ASN.1.

Clauses affected:	⌘	9.2.0 (new)		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR076 25.419 4.2.0
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 Information Element Definitions

9.2.0 General

Section 9.2 presents the SABP IE definitions in tabular format. The corresponding ASN.1 definition is presented in section 9.3. In case there is contradiction between the tabular format in section 9.2 and the ASN.1 definition, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, where the tabular format shall take precedence.

9.2.1 MessageType

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Makuhari, Japan, 26th-30th November 2001

R3-0133400

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **076** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Chapter 9.2.0 missing
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001-11-21
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:	⌘	The SABP specification is currently missing rules in case of a contradiction between ASN.1 and tabular format of Information Element definitions.
Summary of change:	⌘	A new subclause 9.2.0 is introduced to clarify that for the definition of Information Elements the ASN.1 definition shall take precedence in case of a contradiction between ASN.1 and tabular format except for conditional presence definitions. Impact analysis Impact assessment towards the previous version of the specification (same release): This CR has no impact for implementations that assumed generally agreed RAN3 specification principles.
Consequences if not approved:	⌘	If this CR is not approved no guidelines exist to resolve contradictions between tabular format and ASN.1.

Clauses affected:	⌘	9.2.0 (new)		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR075 25.419 3.6.0
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 Information Element Definitions

9.2.0 General

Section 9.2 presents the SABP IE definitions in tabular format. The corresponding ASN.1 definition is presented in section 9.3. In case there is contradiction between the tabular format in section 9.2 and the ASN.1 definition, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, where the tabular format shall take precedence.

9.2.1 MessageType

3GPP TSG-RAN WG3 Meeting #25 ***R3-013615***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **77** ⌘ rev **2** ⌘ 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 *Number of Broadcasts Requested* IE in WRITE-REPLACE Procedure
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	28 November 2001
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:	⌘	The current usage of the *Number of Broadcasts Requested* IE is not clearly defined in the WRITE-REPLACE procedure.
Summary of change:	⌘	This Change Request attempts to not only add clarity to the text in 25.419 with regards to the usage of this IE, but to align this specification with the T2 specification 23.041, upon which this specification should be closely aligned. Impact analysis This Change Request provides clarity to the usage of this IE, and if not agreed could cause an inconsistency with 23.041.
Consequences if not approved:	⌘	Close alignment with 23.041 will not occur, and mis-understanding in the usage of this IE will result.

Clauses affected:	⌘	8.2		
Other specs	⌘	**X** Other core specifications	⌘	25.419 REL-4 v4.2.0, CR 78,
Affected:		☐ Test specifications ☐ O&M Specifications		
Other comments:	⌘			

8.2 Write-Replace

8.2.1 General

The purpose of this Write-Replace procedure is to broadcast new information or replace a message already broadcast to a chosen Service Area(s).

8.2.2 Successful Operation

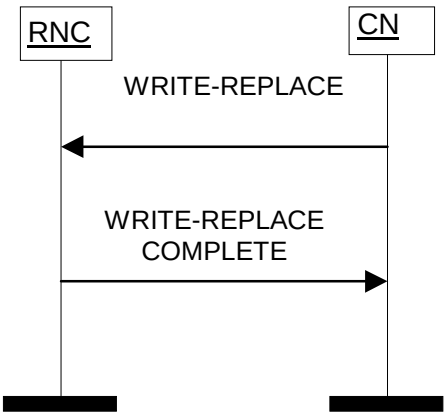

Figure 1: Write-Replace Procedure: Successful Operation

The CN shall initiate the procedure by sending a WRITE-REPLACE message to the RNC.

The presence of a *New Serial Number* IE will indicate that this is a *new* broadcast. The presence of both the *Old Serial Number* IE and a *New Serial Number* IE will indicate that this message is a *replacement* of an existing broadcast.

The RNC will initiate broadcasting of a new message or replace a message already broadcast as requested to the service areas as indicated in the *Service Areas List* IE.

The RNC shall uniquely identify the CBS message by the *Message Identifier* IE together with the serial number in the *New Serial Number* IE and the *Service Areas List* IE.

The RNC shall perform the broadcast according to the value of the *Category* IE as follows:

- The *Category* IE, if given in the WRITE-REPLACE message, shall be treated as follows:

    1. If the value of *Category* IE is indicated as "High Priority", the RNC shall perform the broadcast immediately;

    2. If the value of *Category* IE is indicated as "Background", the RNC shall perform the broadcast when no other broadcast message indicated as "High Priority" or "Normal";

    3. If the value of *Category* IE is indicated as "Normal", the RNC shall perform the broadcast according to the *Repetition Period* IE.

- If the *Category* IE is not given in the WRITE-REPLACE message, the RNC shall perform the broadcast as the same category indicated as "Normal".

The RNC shall pass the *Data Coding Scheme* IE transparently to the radio interface protocol.

The RNC shall pass the *Broadcast Message Content* IE Transparently to the radio interface protocol.

The RNC shall broadcast the message frequently according to the value of the *Number of Broadcasts Requested* IE. If the value is set to "0", the RNC shall broadcast the message until the CN requests otherwise.

Upon receipt of the WRITE-REPLACE message the RNC shall respond using the WRITE-REPLACE COMPLETE message containing a *New Serial Number* IE indicating that resources are available as requested for the Service Area(s) specified and a *Number of Broadcasts Completed List* IE to indicate the number of times the old broadcast message has been successfully broadcast to the particular Service Area(s).

If the WRITE-REPLACE message sent from the CN:

- contained a *New Serial Number* IE but not an *Old Serial Number* IE, the *Number of Broadcasts* IE within the *Number of Broadcasts Completed List* IE is set to "0" for each included Service Area in the corresponding WRITE-REPLACE COMPLETE message

- contained both the *New Serial Number* IE and the *Old Serial Number* IE, an entry is made in the *Number of Broadcasts* IE in the *Number of Broadcasts Completed List* IE for each included Service Area in the corresponding WRITE-REPLACE COMPLETE message.

8.2.3 Unsuccessful Operation

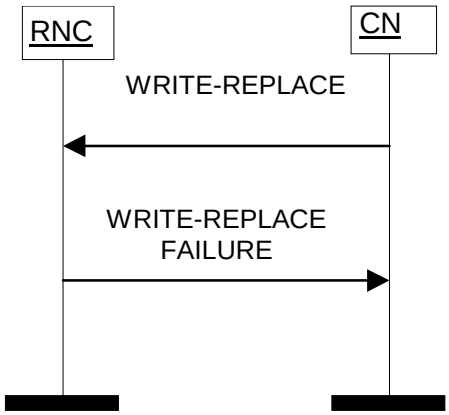

Figure 2: Write-Replace Procedure: Un-Successful Operation

If the RNC cannot allocate all the resources requested for the Service Area(s) specified in the WRITE-REPLACE message, then the RNC shall return a WRITE-REPACE FAILURE message to the CN. A list of Service Area(s) where the requested resources are unavailable and appropriate cause value shall be provided in this WRITE-REPLACE FAILURE message in the *Failure List* IE.

This WRITE-REPLACE FAILURE message may also include those Service Area(s) where the requested resources were available and shall indicate in the *Number of Broadcasts Completed List* IE those Service Area(s) which completed the request.

If the WRITE-REPLACE message sent from the CN:

- contained a *New Serial Number* IE but not an *Old Serial Number* IE, the *Number of Broadcasts* IE within the *Number of Broadcasts Completed List* IE is set to ‘0’ for each included Service Area in the corresponding WRITE-REPLACE FAILURE message.

- contained both the *New Serial Number* IE and the *Old Serial Number* IE, an entry is made in the *Number of Broadcasts* IE in the *Number of Broadcasts Completed List* IE for each included Service Area in the corresponding WRITE-REPLACE FAILURE message.

3GPP TSG-RAN WG3 Meeting #25 ***R3-013616***
Makuhari, Japan, 26th – 30th November, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **78** ⌘ rev **2** ⌘ Current version: **4.2.0** ⌘

*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 *Number of Broadcasts Requested* IE in WRITE-REPLACE Procedure
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	28 November 2001
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:	⌘	The current usage of the *Number of Broadcasts Requested* IE is not clearly defined in the WRITE-REPLACE procedure.
Summary of change:	⌘	This Change Request attempts to not only add clarity to the text in 25.419 with regards to the usage of this IE, but to align this specification with the T2 specification 23.041, upon which this specification should be closely aligned. Impact analysis This Change Request provides clarity to the usage of this IE, and if not agreed could cause an inconsistency with 23.041.
Consequences if not approved:	⌘	Close alignment with 23.041 will not occur, and mis-understanding in the usage of this IE will result.

Clauses affected:	⌘	8.2		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	25.419 R99 v3.6.0, ~~mirror Tdoc R3-01???~~CR 77
Other comments:	⌘			

8.2 Write-Replace

8.2.1 General

The purpose of this Write-Replace procedure is to broadcast new information or replace a message already broadcast to a chosen Service Area(s).

8.2.2 Successful Operation

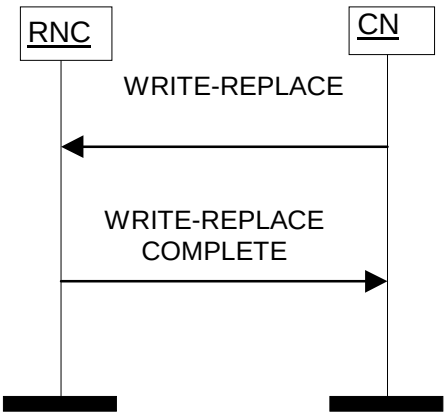

Figure 1: Write-Replace Procedure: Successful Operation

The CN shall initiate the procedure by sending a WRITE-REPLACE message to the RNC.

The presence of a *New Serial Number* IE will indicate that this is a *new* broadcast. The presence of both the *Old Serial Number* IE and a *New Serial Number* IE will indicate that this message is a *replacement* of an existing broadcast.

The RNC will initiate broadcasting of a new message or replace a message already broadcast as requested to the service areas as indicated in the *Service Areas List* IE.

The RNC shall uniquely identify the CBS message by the *Message Identifier* IE together with the serial number in the *New Serial Number* IE and the *Service Areas List* IE.

The RNC shall perform the broadcast according to the value of the *Category* IE as follows:

- The *Category* IE, if given in the WRITE-REPLACE message, shall be treated as follows:

  1. If the value of *Category* IE is indicated as "High Priority", the RNC shall perform the broadcast immediately;

  2. If the value of *Category* IE is indicated as "Background", the RNC shall perform the broadcast when no other broadcast message indicated as "High Priority" or "Normal";

  3. If the value of *Category* IE is indicated as "Normal", the RNC shall perform the broadcast according to the *Repetition Period* IE.

- If the *Category* IE is not given in the WRITE-REPLACE message, the RNC shall perform the broadcast as the same category indicated as "Normal".

The RNC shall pass the *Data Coding Scheme* IE transparently to the radio interface protocol.

The RNC shall pass the *Broadcast Message Content* IE Transparently to the radio interface protocol.

The RNC shall broadcast the message frequently according to the value of the *Number of Broadcasts Requested* IE. If the value is set to "0", the RNC shall broadcast the message until the CN requests otherwise.

Upon receipt of the WRITE-REPLACE message the RNC shall respond using the WRITE-REPLACE COMPLETE message containing a *New Serial Number* IE indicating that resources are available as requested for the Service Area(s) specified and a *Number of Broadcasts Completed List* IE to indicate the number of times the old broadcast message has been successfully broadcast to the particular Service Area(s).

If the WRITE-REPLACE message sent from the CN:

- contained a *New Serial Number* IE but not an *Old Serial Number* IE, the *Number of Broadcasts* IE within the *Number of Broadcasts Completed List* IE is set to "0" for each included Service Area in the corresponding WRITE-REPLACE COMPLETE message

- contained both the *New Serial Number* IE and the *Old Serial Number* IE, an entry is made in the *Number of Broadcasts* IE in the *Number of Broadcasts Completed List* IE for each included Service Area in the corresponding WRITE-REPLACE COMPLETE message.

~~contains each Service Area which successfully performed the requested operation and for each of these Service Area(s), the number of times the broadcast message has been sent to the particular Service Area(s) for broadcast.~~

~~If the *Number of Broadcasts Requested* IE was set to "0" the RNC shall send the WRITE-REPLACE COMPLETE message only once and that is after it has successfully attempted the first broadcast of the message in all the requested Service Area(s).~~

8.2.3 Unsuccessful Operation

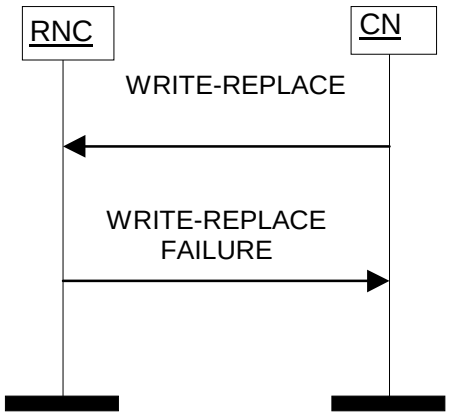

Figure 2: Write-Replace Procedure: Un-Successful Operation

If the RNC cannot allocate all the resources requested for the Service Area(s) specified in the WRITE-REPLACE message, then the RNC shall return a WRITE-REPLACE FAILURE message to the CN. A list of Service Area(s) where the requested resources are unavailable and appropriate cause value shall be provided in this WRITE-REPLACE FAILURE message in the *Failure List* IE.

This WRITE-REPLACE FAILURE message may also include those Service Area(s) where the requested resources were available and shall indicate in the *Number of Broadcasts Completed* List IE those Service Area(s) which completed the request.

If the WRITE-REPLACE message sent from the CN:

- contained a *New Serial Number* IE but not an *Old Serial Number* IE, the *Number of Broadcasts* IE within the *Number of Broadcasts Completed List* IE is set to '0' for each included Service Area in the corresponding WRITE-REPLACE FAILURE message.

- contained both the *New Serial Number* IE and the *Old Serial Number* IE, an entry is made in *Number of Broadcasts* IE in the *Number of Broadcasts Completed List* IE for each included Service Area in the corresponding WRITE-REPLACE FAILURE message.~~If the *Number of Broadcasts Requested* IE was set to "0" and the RNC was not able to send the message at least once to a subset of the requested Service Area(s) indicated in the *Service Areas List* IE, the RNC shall send the WRITE-REPLACE FAILURE message only once and that~~

~~is after it has successfully attempted the first broadcast of the message in all the Service Area(s) where it was able to allocate resources.~~

8.2.4 Abnormal Conditions

3GPP TSG-RAN3 Meeting #25
Makuhari, Japan, 26th – 30th November, 2001

Tdoc R3-013636

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **079** ⌘ rev ⌘ 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:	⌘	Correction the Clause 10 Error Handling
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001 November
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: ⌘ If the receiver detect an error (e.g. transfer syntax error, abstract syntax error) in the receiving message but there is no unsuccessful response message to report the error, the Error Indication procedure is specified to use to report the error. The *Procedure Code* IE and the *Triggering Message* Criticality IE in the Diagnostics IE is specified to include in the Error Indication procedure so that the sender who sent the erroneous message can understand which procedure had the error. However, this was not clearly specified in error cases such as “transfer syntax error (Subclause 10.2)”, “not comprehended Type of Message IE (Subclause 10.3.4.1A)” and “IEs or IE groups received in wrong order or with too many occurrences or erroneously present (Subclause 10.3.6)”.This could lead to a situation e.g. the sender who sent the erroneous message can not understand what was the Error Indication procedure corresponding to and cause the traffic load if the sender resent the initiating (erroneous) message unlimitedly.

A figure of showing the protocol error in SABP is missing.

Other corrections are needed in the case of “Ignore and Notify Sender” and “Notify” in Missing IE or IE group (10.3.5) to have consistency description with 10.3.4.2.

Summary of change: ⌘ This CR is to state that optional information elements other than those which have been currently stated may also be included if available, within the message that is used to report the error.

Add a figure to show the protocol error in SABP to align with other specifications.

The corrections are also done in the case of “Ignore and Notify Sender” and “Notify” in Missing IE or IE group (10.3.5).

Consequences if not approved: ⌘ If this is not approved, in some error cases it would be not possible for the node who receives the ERROR INDICATION message to know which procedure is the ERROR INDICATION message corresponding to.

	Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has [isolated impact] with the previous version of the specification (same release) because some existing implementation may interpret that optional information can not be included when reporting the error. ONLY if there is impact: This CR has an impact under [functional/protocol] point of view. The impact [can] be considered isolated because the change affects error handling.

Clauses affected:	⌘	10.1, 10.3.5			
Other specs	⌘	X	Other core specifications	⌘	25.413 v3.7.0 CR399 25.413 v4.2.0 CR400 25.419 v4.2.0 CR080 25.423 v3.7.0 CR533 25.423 v4.2.0 CR534 25.433 v3.7.0 CR539 25.433 v4.2.1 CR540 25.453 v5.1.0 CR015
affected:			Test specifications		
			O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at:
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.

9.4 Message Transfer Syntax

SABP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax as specified in ref. [9].

10 Handling of Unknown, Unforeseen or Erroneous Protocol Data

10.1 General

Protocol Error cases can be divided into three classes:

- Transfer Syntax Error;
- Abstract Syntax Error;
- Logical Error.

Protocol errors can occur in the following functions within a receiving node:

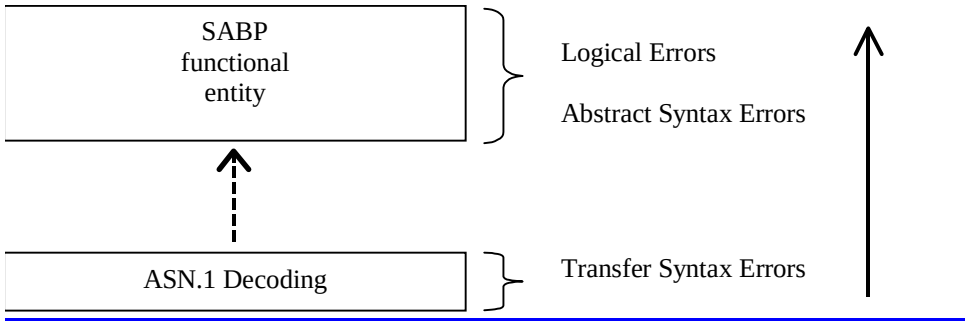

Figure XX: Protocol Errors in SABP

The information stated in subclauses 10.2, 10.3 and 10.4, to be included in the message used when reporting an error, is what at minimum shall be included. Other optional information elements within the message may also be included, if available. This is also valid for the case when the reporting is done with a response message. The latter is an exception to what is stated in subclause 4.1.

10.2 Transfer Syntax Error

A Transfer Syntax Error occurs when the receiver is not able to decode the received physical message Transfer syntax errors are always detected in the process of ASN.1 decoding. If a Transfer Syntax Error occurs, the receiver should initiate Error Indication procedure with appropriate cause value for the Transfer Syntax protocol error.

10.3 Abstract Syntax Error

10.3.1 General

An Abstract Syntax Error occurs when the receiving functional SABP entity:

1. receives IEs or IE groups that cannot be understood (unknown IE id);
2. receives IEs for which the logical range is violated (e.g.: ASN.1 definition: 0 to 15, the logical range is 0 to 10 (values 11 to 15 are undefined), and 12 will be received; this case will be handled as an abstract syntax error using criticality information sent by the originator of the message);

3. does not receive IEs or IE groups but according to the specified presence of the concerning object, the IEs or IE groups should have been present in the received message.

4. receives IEs or IE groups that are defined to be part of that message in wrong order or with too many occurrences of the same IE or IE group

5. receives IEs or IE groups but according to the conditional presence of the concerning object and the specified condition, the IEs or IE groups should not have been present in the received message.

Cases 1 and 2 (not comprehended IE/IE group) are handled based on received Criticality information. Case 3 (missing IE/IE group) is handled based on Criticality information and Presence information for the missing IE/IE group specified in the version of the specification used by the receiver. Case 4 (IEs or IE groups in wrong order or with too many occurrences) and Case 5 (erroneously present conditional IEs or IE groups) result in rejecting the procedure.

If an Abstract Syntax Error occurs, the receiver shall read the remaining message and shall then for each detected Abstract Syntax Error act according to the Criticality Information and Presence Information for the IE/IE group due to which Abstract Syntax Error occurred in accordance with subclauses 10.3.4 and 10.3.5. The handling of cases 4 and 5 is specified in subclause 10.3.6.

10.3.2 Criticality Information

In the SABP messages there is criticality information set for individual IEs and/or IE groups. This criticality information instructs the receiver how to act when receiving an IE or an IE group that is not comprehended i.e. the entire item (IE or IE group) which is not (fully or partially) comprehended shall be treated in accordance with its own criticality information as specified in subclause 10.3.4.

In addition, the criticality information is used in case of the missing IE/IE group abstract syntax error (see subclause 10.3.5).

The receiving node shall take different actions depending on the value of the Criticality Information. The three possible values of the Criticality Information for an IE/IE group are:

- Reject IE;

- Ignore IE and Notify Sender;

- Ignore IE.

The following rules restrict when a receiving entity may consider an IE, an IE group or an EP not comprehended (not implemented), and when action based on criticality information is applicable:

1. IE or IE group: When one new or modified IE or IE group is implemented for one EP from a standard version, then other new or modified IEs or IE groups specified for that EP in that standard version shall be considered comprehended by the receiving entity (some may still remain unsupported).

   Note that this restriction is applicable to a sending entity for constructing messages.

2. EP: The comprehension of different EPs within a standard version or between different standard versions is not mandated. Any EP that is not supported may be considered not comprehended, even if another EP from that standard version is comprehended, and action based on criticality shall be applied.

When the criticality information cannot even be decoded in a not comprehended IE or IE group, the Error Indication procedure shall be initiated with an appropriate cause value.

10.3.3 Presence Information

For many IEs/IE groups which are optional according to the ASN.1 transfer syntax, SABP specifies separately if the presence of these IEs/IE groups is optional or mandatory with respect to RNS application by means of the presence field of the concerning object of class SABP-PROTOCOL-IES, SABP-PROTOCOL-IES-PAIR, SABP-PROTOCOL-EXTENSION or SABP-PRIVATE-IES.

The presence field of the indicated classes supports three values:

1. Optional;
2. Conditional;
3. Mandatory.

If an IE/IE group is not included in a received message and the presence of the IE/IE group is mandatory or the presence is conditional and the condition is true according to the version of the specification used by the receiver, an abstract syntax error occurs due to a missing IE/IE group.

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* according to the following:

Reject IE:

- If a message is received with a *Procedure Code* 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* 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* 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 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 IE/IE group other than the *Procedure Code* according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups 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 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 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*" which the receiving node does no 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 IE/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 only 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. In the *Information Element Criticality Diagnostics* IE 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 A) 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. In the *Information Element Criticality Diagnostics* IE 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 A) 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 the present document 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 ignore that those IEs are missing and 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 ignore that those IEs are missing and 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 are missing and 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 ignore that those IEs are missing and 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 A) 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 A) also the *Message Structure* IE shall be included.

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

If a message with IEs or IE groups in wrong order or with too many occurrences is received or if IEs or IE groups with a conditional presence are present when the condition is not met (i.e. erroneously present), 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 or erroneously present, 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 or erroneously present, 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 or erroneously present, 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.

3GPP TSG-RAN3 Meeting #25
Makuhari, Japan, 26th – 30th November, 2001

Tdoc R3-013637

CR-Form-v3

CHANGE REQUEST

⌘ **25.419** **CR** **080** ⌘ rev ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Correction the Clause 10 Error Handling
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	2001 November
Category:	⌘	**A**
Release:	⌘	Rel4

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: ⌘ If the receiver detect an error (e.g. transfer syntax error, abstract syntax error) in the receiving message but there is no unsuccessful response message to report the error, the Error Indication procedure is specified to use to report the error. The *Procedure Code* IE and the *Triggering Message* Criticality IE in the Diagnostics IE is specified to include in the Error Indication procedure so that the sender who sent the erroneous message can understand which procedure had the error. However, this was not clearly specified in error cases such as “transfer syntax error (Subclause 10.2)”, “not comprehended Type of Message IE (Subclause 10.3.4.1A)” and “IEs or IE groups received in wrong order or with too many occurrences or erroneously present (Subclause 10.3.6)”.This could lead to a situation e.g. the sender who sent the erroneous message can not understand what was the Error Indication procedure corresponding to and cause the traffic load if the sender resent the initiating (erroneous) message unlimitedly.

A figure of showing the protocol error in SABP is missing.

Other corrections are needed in the case of “Ignore and Notify Sender” and “Notify” in Missing IE or IE group (10.3.5) to have consistency description with 10.3.4.2.

Summary of change: ⌘ This CR is to state that optional information elements other than those which have been currently stated may also be included if available, within the message that is used to report the error.

Add a figure to show the protocol error in SABP to align with other specifications.

The corrections are also done in the case of “Ignore and Notify Sender” and “Notify” in Missing IE or IE group (10.3.5).

Consequences if not approved: ⌘ If this is not approved, in some error cases it would be not possible for the node who receives the ERROR INDICATION message to know which procedure is the

	ERROR INDICATION message corresponding to. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has [isolated impact] with the previous version of the specification (same release) because some existing implementation may interpret that optional information can not be included when reporting the error. ONLY if there is impact: This CR has an impact under [functional/protocol] point of view. The impact [can] be considered isolated because the change affects error handling.

Clauses affected:	⌘	10.1, 10.3.5			
Other specs	⌘	X	Other core specifications	⌘	25.413 v3.7.0 CR399 25.413 v4.2.0 CR400 25.419 v3.6.0 CR079 25.423 v3.7.0 CR533 25.423 v4.2.0 CR534 25.433 v3.7.0 CR539 25.433 v4.2.1 CR540 25.453 v5.1.0 CR015
affected:			Test specifications		
			O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at:
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.

9.4 Message Transfer Syntax

SABP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax as specified in ref. [9].

10 Handling of Unknown, Unforeseen or Erroneous Protocol Data

10.1 General

Protocol Error cases can be divided into three classes:

- Transfer Syntax Error;
- Abstract Syntax Error;
- Logical Error.

Protocol errors can occur in the following functions within a receiving node:

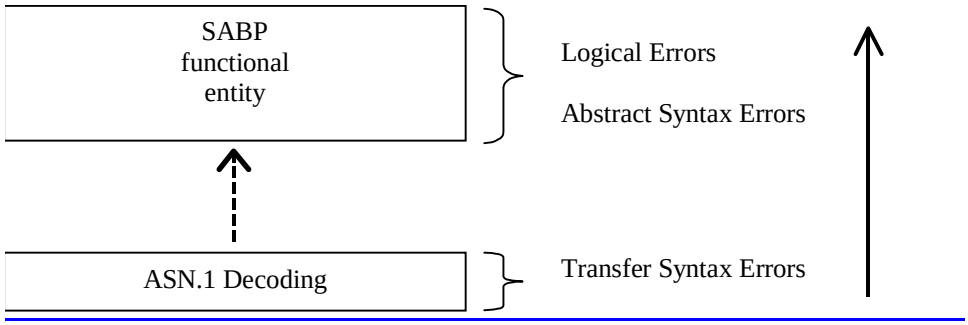

Figure XX: Protocol Errors in SABP

The information stated in subclauses 10.2, 10.3 and 10.4, to be included in the message used when reporting an error, is what at minimum shall be included. Other optional information elements within the message may also be included, if available. This is also valid for the case when the reporting is done with a response message. The latter is an exception to what is stated in subclause 4.1.

10.2 Transfer Syntax Error

A Transfer Syntax Error occurs when the receiver is not able to decode the received physical message Transfer syntax errors are always detected in the process of ASN.1 decoding. If a Transfer Syntax Error occurs, the receiver should initiate Error Indication procedure with appropriate cause value for the Transfer Syntax protocol error.

10.3 Abstract Syntax Error

10.3.1 General

An Abstract Syntax Error occurs when the receiving functional SABP entity:

1. receives IEs or IE groups that cannot be understood (unknown IE id);
2. receives IEs for which the logical range is violated (e.g.: ASN.1 definition: 0 to 15, the logical range is 0 to 10 (values 11 to 15 are undefined), and 12 will be received; this case will be handled as an abstract syntax error using criticality information sent by the originator of the message);

3. does not receive IEs or IE groups but according to the specified presence of the concerning object, the IEs or IE groups should have been present in the received message;

4. receives IEs or IE groups that are defined to be part of that message in wrong order or with too many occurrences of the same IE or IE group;

5. receives IEs or IE groups but according to the conditional presence of the concerning object and the specified condition, the IEs or IE groups should not have been present in the received message.

Cases 1 and 2 (not comprehended IE/IE group) are handled based on received Criticality information. Case 3 (missing IE/IE group) is handled based on Criticality information and Presence information for the missing IE/IE group specified in the version of the specification used by the receiver. Case 4 (IEs or IE groups in wrong order or with too many occurrences) and Case 5 (erroneously present conditional IEs or IE groups) result in rejecting the procedure.

If an Abstract Syntax Error occurs, the receiver shall read the remaining message and shall then for each detected Abstract Syntax Error act according to the Criticality Information and Presence Information for the IE/IE group due to which Abstract Syntax Error occurred in accordance with subclauses 10.3.4 and 10.3.5. The handling of cases 4 and 5 is specified in subclause 10.3.6.

10.3.2 Criticality Information

In the SABP messages there is criticality information set for individual IEs and/or IE groups. This criticality information instructs the receiver how to act when receiving an IE or an IE group that is not comprehended i.e. the entire item (IE or IE group) which is not (fully or partially) comprehended shall be treated in accordance with its own criticality information as specified in subclause 10.3.4.

In addition, the criticality information is used in case of the missing IE/IE group abstract syntax error (see subclause 10.3.5).

The receiving node shall take different actions depending on the value of the Criticality Information. The three possible values of the Criticality Information for an IE/IE group are:

- Reject IE;
- Ignore IE and Notify Sender;
- Ignore IE.

The following rules restrict when a receiving entity may consider an IE, an IE group or an EP not comprehended (not implemented), and when action based on criticality information is applicable:

1. IE or IE group: When one new or modified IE or IE group is implemented for one EP from a standard version, then other new or modified IEs or IE groups specified for that EP in that standard version shall be considered comprehended by the receiving entity (some may still remain unsupported).

   Note that this restriction is applicable to a sending entity for constructing messages.

2. EP: The comprehension of different EPs within a standard version or between different standard versions is not mandated. Any EP that is not supported may be considered not comprehended, even if another EP from that standard version is comprehended, and action based on criticality shall be applied.

When the criticality information cannot even be decoded in a not comprehended IE or IE group, the Error Indication procedure shall be initiated with an appropriate cause value.

10.3.3 Presence Information

For many IEs/IE groups which are optional according to the ASN.1 transfer syntax, SABP specifies separately if the presence of these IEs/IE groups is optional or mandatory with respect to RNS application by means of the presence field of the concerning object of class SABP-PROTOCOL-IES, SABP-PROTOCOL-IES-PAIR, SABP-PROTOCOL-EXTENSION or SABP-PRIVATE-IES.

The presence field of the indicated classes supports three values:

1. Optional;
2. Conditional;
3. Mandatory.

If an IE/IE group is not included in a received message and the presence of the IE/IE group is mandatory or the presence is conditional and the condition is true according to the version of the specification used by the receiver, an abstract syntax error occurs due to a missing IE/IE group.

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* according to the following:

Reject IE:

- If a message is received with a *Procedure Code* 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* 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* 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 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 IE/IE group other than the *Procedure Code* according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups 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 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 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*" which the receiving node does no 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 IE/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 only 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. In the *Information Element Criticality Diagnostics* IE 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 A) 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. In the *Information Element Criticality Diagnostics* IE 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 A) 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 the present document 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 ignore that those IEs are missing and 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 ignore that those IEs are missing and 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 are missing and 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 ignore that those IEs are missing and 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 A) 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 A) also the *Message Structure* IE shall be included.

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

If a message with IEs or IE groups in wrong order or with too many occurrences is received or if IEs or IE groups with a conditional presence are present when the condition is not met (i.e. erroneously present), 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 or erroneously present, 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 or erroneously present, 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 or erroneously present, 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.