TSG-RAN Meeting #11
Palm Springs, CA, USA, 13 - 16 March 2001

RP-010033

Title: **Agreed CRs (Release '99) to TR 25.921**

Source: **TSG-RAN WG2**

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-010208	agreed	25.921	008		R99	Description of backward compatibility consideration rule for RANAP, SABP, RNSAP and NBAP ASN.1	F	3.2.0	3.3.0
R2-010428	agreed	25.921	009		R99	Usage of the Version column	F	3.2.0	3.3.0
R2-010698	agreed	25.921	010	1	R99	Clean-up	F	3.2.0	3.3.0
R2-010700	agreed	25.921	011		R99	Recommendations on the use of the extension mechanism	F	3.2.0	3.3.0

3GPP TSG-RAN WG2 Meeting #18   *R2-010208*
Edinburgh, Scotland, 15ᵗʰ – 19ᵗʰ January 2001

CR-Form-v3

CHANGE REQUEST

⌘   **25.921 CR 008**   ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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 ☐

Title: ⌘	Description of backward compatibility consideration rule for RANAP, SABP, RNSAP and NBAP ASN.1
Source: ⌘	TSG-RAN WG2
Work item code: ⌘	**Date:** ⌘ 21/01/2001
Category: ⌘ **F**	**Release:** ⌘ R99

Use one of the following categories:		*Use one of the following releases:*	
F *(essential correction)*		*2*	*(GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*		*R96*	*(Release 1996)*
B *(Addition of feature),*		*R97*	*(Release 1997)*
C *(Functional modification of feature)*		*R98*	*(Release 1998)*
D *(Editorial modification)*		*R99*	*(Release 1999)*
Detailed explanations of the above categories can		*REL-4*	*(Release 4)*
be found in 3GPP TR 21.900.		*REL-5*	*(Release 5)*

Reason for change: ⌘	Several backward compatibility rules for RANAP, SABP, RNSAP and NBAP for ASN.1 have been clarified in RAN-WG3 #16 and #17 meetings. These rules are for guarantee the inter-operability between different version nodes when enhance or change those protocols in future. This change was requested for RAN WG3.
Summary of change: ⌘	A new chapter to describe the rules has been added.
Consequences if not approved: ⌘	If these rules are not specified there will be no guarantee for interoperability between different version nodes.

Clauses affected: ⌘	10.4, 10.5 (new), 10.5.1 (new), 10.5.2 (new)
Other specs Affected: ⌘	☐ Other core specifications ⌘ ☐ 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.

10.4 Extensions for future releases in RRC

10.4.1 Basic principles

All non critical extensions are shown even if empty as it costs no bits.

 NOTE: Extensions at component level are left FFS.

10.4.2 Naming convention

If non critical extensions for two different roots happen to be identical in contents, their types are still named differently, possibly with the second being declared as synonymous to the first.

The suffixes "-r3" for Release 99, "-r4" for Release 4 and so on are used to differentiate different releases.

An example is given below to illustrate these principles, on the message named 'test-msg'

```
test-msg-r3 ::= CHOICE {
    r3                                  SEQUENCE {
        test-msg-r3                         test-msg-r3-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    criticalExtensions                  SEQUENCE {}
}

test-msg-r4 ::= CHOICE {
    r3                                  SEQUENCE {
        test-msg-r3                         test-msg-r3-IEs,
        test-msg-r3-r4ext                   test-msg-r3-r4ext-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    r4                                  SEQUENCE {
        test-msg-r4                         test-msg-r4-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    criticalExtensions                  SEQUENCE {}
}

test-msg-r5 ::= CHOICE {
    r3                                  SEQUENCE {
        test-msg-r3                         test-msg-r3-IEs,
        test-msg-r3-r4ext                   test-msg-r3-r4ext-IEs,
        test-msg-r3-r5ext                   test-msg-r3-r5ext-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    r4                                  SEQUENCE {
        test-msg-r4                         test-msg-r4-IEs,
        test-msg-r4-r5ext                   test-msg-r4-r5ext-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    r5                                  SEQUENCE {
        test-msg-r5                         test-msg-r5-IEs,
        nonCriticalExtensions               SEQUENCE {}
    },
    criticalExtensions                  SEQUENCE {}
}
```

10.5 RANAP/SABP/RNSAP/NBAP specific extension rules with Backward Compatibility consideration

The following clauses contain rules for extension mechanisums of ASN.1 for RANAP, SABP, RNSAP and NBAP. The purpose of these rules is to guarantee backward compatibility for ASN.1.

10.5.1   Allowed Extension

The allowed extension for ASN.1 description in RANAP, SABP, RNSAP and NBAP are:

1) adding New IEs or IE groups which should be achieved byusing the protocol extension container (extension by using of ellipsis notation(...) should be avoided) for:

 -- adding at the top level of message; and

 -- adding in the SEQUENCE type,

2) extension the range of already define IEs which has ellipsis notation(...);

3) changing the assigned criticality information of already defined IEs; and

4) adding new IEs of IE groups after ellipsis notation (...) in the CHOICE type if the ellipsis notation (...) is present.

10.5.2   Not Allowed Extension

The not allowed extension for ASN.1 description in RANAP, SABP, RNSAP and NBAP are:

1) deleting the already defined IEs or IE groups when no individual criticality information is defined.

2) adding or deleting the criticality information of existing IEs;

3) deleting the already defined values in the ASN.1 type. Instead, a semantic description is added in order to clarify the behavior; and

4) changing the presence of already defined IEs with no assigned criticality.

This is because above changes do not guarantee the backward compatibility.

CR-Form-v3

CHANGE REQUEST

⌘   **25.921** CR **009**   ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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 **X**   Radio Access Network **X**   Core Network ☐

Title: ⌘	Usage of the Version column	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘		***Date:*** ⌘ 2001-02-14
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: ⌘	There is a clarification needed for what to include in the Version column in the tabular description.	
Summary of change: ⌘	The description of the usage of the version column is updated.	
Consequences if not approved: ⌘	In future versions it will be ambiguous what to include in the version column.	

Clauses affected: ⌘	9.1.1.2.5		
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications		
Other comments: ⌘			

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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.

9.1.1.2.5 Version column

When an information element ~~row~~ is added from one version to a latter one, the version, in which the element is added (e.g. : REL-4, REL-5) is included~~added~~ in the version column.

When a new CHOICE group is added from one version to a later one, the version, in which the group is added is included in the version column of all new rows. If some of the information elements in the new CHOICE group were included in the older version (but not inside a CHOICE group), the version column is not updated for those information elements (see also the example at the end of this clause).

When an existing CHOICE group is extended from one version to a later one to include more options, the version, in which the new options are added is included in the version column of the rows describing the new options.

When the type of an information element is modified from one version to a later one to include more values, the version, in which the modification takes place is included in the version column, and the new values are indicated in that column.

By convention ~~it~~the version column is left blank for Release 99.

The example below shows how the version column is used for the cases described above. The first table shows an example of a Release 99 table:

IE/Group Name	Need	Multi	Type and reference	Semantics description	Version
Element1-99	MP		Type1		
Element2-99	MP		Type2		
CHOICE choice1-99	MP				
>first					
>>Element3-99	MP		Type3		
>second					
>>Element4-99	MP		Type4		
Element5-99	MP		Enumerated(a,b)		

The second table shows extensions of the above table in release 4, and where the REL-4 in the version column shall be included:

IE/Group Name	Need	Multi	Type and reference	Semantics description	Version
Element1-99	MP		Type1		
Element6-r4	MP		Type6		REL-4
CHOICE choice2-r4	MP				REL-4
>old					REL-4
>>Element2-99	MP		Type2		
>new					REL-4
>>Element7-r4	MP		Type7		REL-4
CHOICE choice1-99	MP				
>first					
>>Element3-99	MP		Type3		
>second					
>>Element4-99	MP		Type4		
>third					REL-4
>>Element8-r4	MP		Type8		REL-4
Element5-99	MP		Enumerated(a,b,c)		Value c is included in REL-4.

3GPP TSG-RAN2 Meeting #19   *Tdoc R2-010698*

Sophia Antipolis, France, 19-23 February 2001

CHANGE REQUEST

⌘   **25.921 CR 010**   ⌘ rev **r1** ⌘   Curent version: **3.2.0**   ⌘

*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 **X**   Radio Access Network **X**   Core Network ☐

Title: ⌘	Clean-up	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘		***Date:*** ⌘ 22 February 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: ⌘	Removal of any reference on releases that does not allow a copy for REL-4 Correction of ASN.1 mechanism for non critical extensions
Summary of change: ⌘	Removal of references to release 99 replaced by "present version". Removal of FFS.
Consequences if not approved: ⌘	Difficult to create REL-4 version of this TR No compatibility between releases.

Clauses affected: ⌘	4.6, 6, 7.3, 9.1.1.2.5, 10.4.1, 10.4.2

Other specs affected: ⌘	☐ Other core specifications ⌘	
	☐ Test specifications	
	☐ O&M Specifications	

Other comments: ⌘	Section about ECN not updated

4.6   Decision of TSG RAN WG2

Void

~~TSG RAN WG2 decided to use version number for MAC and RLC protocol layers.~~

~~TSG RAN WG2 is not able to decide yet what is the best to ensure compatibility when extending RRC in future releases.~~

6   Specification and Description Language

The groups are encouraged to use of SDL where appropriate. The SDL code included in the standards should follow the descriptive SDL guidelines from ETSI TC-MTS (DEG MTS-00050) as closely as possible.

The groups themselves should decide how SDL is used.

In some protocol parts, text is more adapted (e.g.: algorithm or multiplexing), in some other parts SDL is better.

SDL is adapted for describing the observable behaviour of a protocol layer.

In TSG RAN WG2, ~~release 99 of~~ the specifications shall not use SDL for the normative part of the specifications in the present version. ~~This may be revisited in future releases.~~

7.3   Handling of DS-41

-   Modelling of RRC services is provided by means of primitives.

-   RRC CN dependent info:

-   In broadcast message, neighbour cells are described the same way as for GSM neighbour cells (i.e.: in the same SystemInformationBlock but with a tag to indicate CN type or RTT).

-   In dedicated messages.

    a transparent container as NAS info is used to carry ANSI-41;

    for PLMN Id and Identities used by the RRC, the CN Type info is used;

    NAS binding info is used;

    ~~Routing info is FFS.~~

-   In Paging messages, a tag to indicate CN type is used.

-   Extensions like handover message to Multicarrier is handled the same way as GSM.

-   ~~Ciphering is FFS.~~

9.1.1.2.5   Version column

When a row is added from one version to a latter one, the version (e.g. : REL-4, REL-5) is added in the version column.

By convention it is left blank for the present release~~Release 99~~.

10.4   Extensions for future releases

10.4.1   Basic principles

All non critical extensions are shown even if empty as it costs no bits.

NOTE: ~~Extensions at component level are left FFS.~~

10.4.2   Naming convention

If non critical extensions for two different roots happen to be identical in contents, their types are still named differently, possibly with the second being declared as synonymous to the first.

The suffixes "-r3" for the present release~~Release 99~~, "-r4" for Release 4 and so on are used to differentiate ~~different~~ further releases.

An example is given below to illustrate these principles, on the message named 'test-msg'

```
test-msg-r3 ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     test-msg-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

test-msg-r4 ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     test-msg-r3-IEs,
        test-msg-r3-r4ext               test-msg-r3-r4ext-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    r4                              SEQUENCE {
        test-msg-r4                     test-msg-r4-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}

test-msg-r5 ::= CHOICE {
    r3                              SEQUENCE {
        test-msg-r3                     test-msg-r3-IEs,
        test-msg-r3-r4ext               test-msg-r3-r4ext-IEs,
        test-msg-r3-r5ext               test-msg-r3-r5ext-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    r4                              SEQUENCE {
        test-msg-r4                     test-msg-r4-IEs,
        test-msg-r4-r5ext               test-msg-r4-r5ext-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    r5                              SEQUENCE {
        test-msg-r5                     test-msg-r5-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    criticalExtensions              SEQUENCE {}
}
```

CR-Form-v3

CHANGE REQUEST

| ⌘ | **25.921** CR **011** | ⌘ rev **-** | ⌘ Current version: | **3.2.0** | ⌘ |

*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 **X**   Radio Access Network **X**   Core Network ☐

Title: ⌘	Recommendations on the use of the extension mechanism	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘		***Date:*** ⌘ 2001-02-22
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)
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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: ⌘	When making extensions to the messages in future releases of the specifications, it is in some cases not clear how the extension mechanism can be used to do those extensions in ASN.1. There is a need for some recommendations on how to use the extension mechanism in some cases.
Summary of change: ⌘	A clause is added with some recommendations on how to use the extension mechanism when defining new information elements in future releases.
Consequences if not approved: ⌘	In some cases, when extending the protocols in the future, it will be difficult to do that in ASN.1, without having some recommendations. Not everyone making an extension will do that in a similar way, which can make the ASN.1 code more unreadable and error prone.

Clauses affected: ⌘	10.4.x (NEW)
Other specs affected: ⌘	☐ Other core specifications ⌘
	☐ Test specifications
	☐ O&M Specifications
Other comments: ⌘	

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

10.4.x   Recommendations for extensions for further releases in RRC

10.4.x.1   General

When in RRC an information element group is to be extended, the extension can not be done directly in that IE, but only in the top level of the message, in the extension IEs of the message structure shown in Example 1. For implementing the extension, it has therefore to be investigated, in which messages the element to be extended is included.

Depending on criticality of the extension, this will be done by using the criticalExtension CHOICE branch, or the nonCriticalExtension information element.

The following subclauses provide some recommendations on how to use this elements.

```
MessageA-r3 ::=               CHOICE {
    r3                                SEQUENCE {
        messageA-r3                   MessageA-r3-IEs,
        nonCriticalExtensions         SEQUENCE {} OPTIONAL
    },
    criticalExtensions            SEQUENCE {}
}

MessageA-r3-IEs ::=               SEQUENCE {
    -- All messageA related information elements are included here.
}
```

Example 1

10.4.x.2   Critical Extensions

When the extension is a critical one (i.e. the receiver has to reject the whole message, and handle according to the error procedures of the protocol), the criticalExtension branch of the top-level CHOICE in the message is used. In this case the message information elements can be updated similar to the tabular, providing a message structure for the new release's information elements, similar to the updated structure in the tabular description.

Example 2 shows the structure of MessageA presented above, how it would become after a critical extension in Release 4

In this example, in the criticalExtensions branch a new information element is defined (MessageA-r4-IEs) which will contain all messageA specific elements for Release-4, including the extensions in the place they fit naturally according to the semantics.

Note that in the new structure additional nonCriticalExtensions and criticalExtensions information elements are defined to allow for further extensions in future releases.

```
MessageA-r4 ::= CHOICE {
    r3                                SEQUENCE {
        messageA-r3                   MessageA-r3-IEs,
        nonCriticalExtensions         SEQUENCE {} OPTIONAL
    },
    criticalExtensions            SEQUENCE {
        messageA                      CHOICE {
            r4                                SEQUENCE {
                messageA-r4                   MessageA-r4-IEs,
                nonCriticalExtensions         SEQUENCE {} OPTIONAL
            },
            criticalExtensions        SEQUENCE {}
        }
    }
}

MessageA-r3-IEs ::=               SEQUENCE {
    -- This is not changed compared to the above example. It includes all information
    -- elements used in Release-99 for messageA.
```

```
                    }

MessageA-r4-IEs ::=               SEQUENCE {
    -- Here, the updated information elements used for MessageA in Release 4 are included.
}
```

Example 2

10.4.x.3   Non-critical Extensions

For non-critical extensions (i.e. the receiver shall just ignore the extensions, and use the rest of the message as if the extensions were not present), the approach is to use the nonCriticalExtensions information element, which is encoded at the end of the message, allowing backward compatibility.

The structure of the message of the example above is shown in Example 3 for the Release-4 message.

Examples for special non-critical extensions and MessageA-r4-ext-IEs are given in the following subclauses.

```
MessageA-r4 ::=               CHOICE {
    r3                          SEQUENCE {
        messageA-r3                 MessageA-r3-IEs,
        nonCriticalExtensions       SEQUENCE {
            messageA-r4-ext             MessageA-r4-ext-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        } OPTIONAL
    },
    criticalExtensions          SEQUENCE {}
}

MessageA-r3-IEs ::=               SEQUENCE {
    -- This is not changed compared to the same IE in Release-99. It includes all information
    -- elements used in Release-99 for messageA.
}

MessageA-r4-ext-IEs ::=          SEQUENCE {
    -- Here are additional information elements needed to describe the extensions compared to
    -- the information included in MessageA-r3-IEs.
}
```

Example 3

10.4.x.4   Examples of non-critical extensions

10.4.x.4.1   Addition of a separate IE

If the extension is the addition of an information element (not inside a CHOICE, SEQUENCE OF, SET OF etc.), this new element can be directly included in MessageA-r4-ext-IEs.

Example4 shows how the MessageA is extended to include a new element, "element3".

```
MessageA-r3-IEs ::=               SEQUENCE {
    element1                        Element1,
    element2                        Element2
}

MessageA-r4-ext-IEs ::=           SEQUENCE {
    element3                        Element3
}
```

Example 4

10.4.x.4.2   Addition of an IE to a structured group

If the extension is the addition of an information element inside a CHOICE, SEQUENCE OF, etc. (meaning that the information element can be absent or present more than once, depending on some condition), the structure of the original message should be duplicated in MessageA-r4-ext-IEs using only the elements relevant to the extension

(usually the CHOICEs, SEQUENCE OFs, etc.), and a comment should be included to indicate that the two structures should be used consistently (e.g. when a CHOICE is duplicated, the same branch should be followed in both places, when a SEQUENCE OF is duplicated, the number of occurrences should be the same etc.).

This is illustrated in Example5, where a new element, "element1a-3", has to be included inside the "choice1b" branch of the "choice1" CHOICE. Here "choice1" is included again in MessageA-r4-ext-IEs, and "element1a-3" is included there in the apropriate branch.

```
MessageA-r3-IEs ::=                    SEQUENCE {
-- For the "choice1b" branch of "choice1", an additional information element is
-- defined in MessageA-r4-ext-IEs ("element1a-3").
    choice1                            CHOICE {
        choice1a                       SEQUENCE {
            element1a-1                    Element1a-1
        },
        choice1b                       SEQUENCE {
            element1a-2                    Element1a-2
        }
    }
}

MessageA-r4-ext-IEs ::=               SEQUENCE {
-- In the following CHOICE the same branch shall be used as in choice1 in MessageA-r3-IEs.
    choice1                            CHOICE {
        choice1a                       NULL,
        choice1b                       SEQUENCE {
            element1a-3                    Element1a-3
        }
    }
}
```

Example 5

10.4.x.4.3   Addition of a new CHOICE group

If the extension consists of moving some existing information elements inside a newly created CHOICE, the new branches of the created CHOICE should be included in MessageA-r4-ext-IEs, and the CHOICE marked OPTIONAL, where absence means that the old elements are used. If the CHOICE is present, the old elements should be set to some default values, in order for older equipment to be understood, and new equipment should ignore the information therein.

This is illustrated in Example 6, where "element1" is to be moved inside the branch "choice1a" of a new CHOICE ("choice1").

```
MessageA-r3-IEs ::=                    SEQUENCE {
-- The contents of "element1" shall be ignored, if in "MessageA-r4-ext-IEs" the branch
-- "choice1b" of the CHOICE "choice1" is used.
    element1                           Element1,
    element2                           Element2
}

MessageA-r4-ext-IEs ::=               SEQUENCE {
    choice1                            CHOICE {
        choice1a                       SEQUENCE {},
        choice1b                       SEQUENCE {
            element3                       Element3
        }
    }
}
```

Example 6

10.4.x.4.4   Extension of value range

If the value range of an element is to be extended, an element including the new values should be defined in MessageA-r4-ext-IEs. If one of the new values is to be used, the already existing element from release-99 should be set to some defined value (or be absent if it was OPTIONAL), in order for older equipment to work properly, and the new value should be signalled in the new information element.

In Example 7, "element1" is extended to have a range (0..15).

```
MessageA-r3-IEs ::=                  SEQUENCE {
-- "element1" shall be ignored if "element1" in MessageA-r4-ext-IEs is present, and the
-- value of that element used instead.
    element1                         INTEGER (0..7)
    element2                         Element2
}

MessageA-r4-ext-IEs ::=             SEQUENCE {
    element1                         INTEGER (0..15)         OPTIONAL
}
```

Example 7

In Example 7, "element1" is extended to have a range (0..15).

```
MessageA-r3-IEs ::=                  SEQUENCE {
-- "element1" shall be ignored if "element1" in MessageA-r4-ext-IEs is present, and the
```