3GPP TSG CN Plenary Meeting #15 **NP-020039**
6th – 8th March 2002. Jeju, Korea.

Source: **TSG CN WG 1**

Title: **CR to R99 (with mirror CR) on Work Item TEI towards 29.018**

Agenda item: **7.22**

Document for: **APPROVAL**

Introduction:

This document contains **3** CRs on **R99 (with mirror CR) to** Work Item **"TEI"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #15 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level
24.008	544		R99	Missing 3rd MNC definition	F	3.10.0	3.11.0	N1-020214
24.008	545		Rel-4	Missing 3rd MNC definition	A	4.5.0	4.6.0	N1-020215
24.008	546		Rel-5	Missing 3rd MNC definition	A	5.2.0	5.3.0	N1-020216

3GPP TSG-CN1 Meeting #22 ***Tdoc N1-020214***
Sophia Antipolis, France, 28. January - 1. February 2002

CR-Form-v5

CHANGE REQUEST

⌘ **24.008** **CR** 544 ⌘ **rev** **-** ⌘ Current version: **3.10.0** ⌘

*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 ☐ Core Network **X**

Title:	⌘	Missing 3rd MNC definition
Source:	⌘	Siemens AG
Work item code:	⌘	~~PCS Harmonisation~~TEI
Date:	⌘	22.01.2002
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:	⌘	The modification made in the description of the Routing area identification IE in Table 10.5.148/3GPP TS 24.008 when introducing the 3rd MNC digit made in the R98 version are missing in this version of the specification.
Summary of change:	⌘	The changes made in the R98 version are introduced in this version of the specification.
Consequences if not approved:	⌘	Wrong description of the RAI IE which could lead to wrong MS and network implementations.

Clauses affected:	⌘	10.5.5.15
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

*** *next section for information only* ***

10.5.1.3 Location Area Identification

The purpose of the *Location Area Identification* information element is to provide an unambiguous identification of location areas within the area covered by the GSM system.

The *Location Area Identification* information element is coded as shown in figure 10.5.3/3GPP TS 24.008 and table 10.5.3/3GPP TS 24.008.

The *Location Area Identification* is a type 3 information element with 6 octets length.

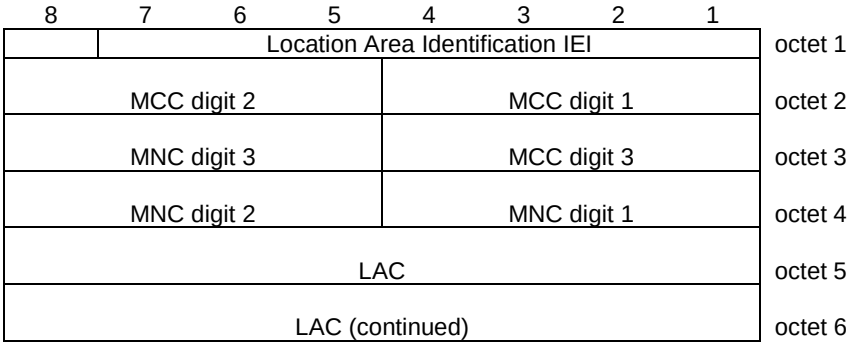

Figure 10.5.3/3GPP TS 24.008 *Location Area Identification* information element

Table 10.5.3/3GPP TS 24.008: *Location Area Identification* information element

MCC, Mobile country code (octet 2 and 3)
The MCC field is coded as in ITU-T Rec. E212, Annex A.

If the LAI is deleted the MCC and MNC shall take the value from the deleted LAI.

In abnormal cases, the MCC stored in the mobile station can contain elements not in the set {0, 1 ... 9}. In such cases the mobile station should transmit the stored values using full hexadecimal encoding. When receiving such an MCC, the network shall treat the LAI as deleted.

MNC, Mobile network code (octet 3 bits 5 to 8, octet 4)
The coding of this field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for NA, Federal regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC in the LAI over the radio interface. In this case, bits 5 to 8 of octet 3 shall be coded as "1111". Mobile equipment shall accept LAI coded in such a way.

Note 1: In earlier versions of this protocol, the possibility to use a one digit MNC in LAI was provided on the radio interface. However as this was not used this possibility has been deleted.

Note 2: In earlier versions of this protocol, bits 5 to 8 of octet 3 were coded as "1111". Mobile equipment compliant with these earlier versions of the protocol may be unable to understand the 3-digit MNC format of the LAI, and therefore unable to register on a network broadcasting the LAI in this format.

In abnormal cases, the MNC stored in the mobile station can have:
- digit 1 or 2 not in the set {0, 1 ... 9}, or
- digit 3 not in the set {0, 1 ...9, F} hex.

In such cases the mobile station shall transmit the stored values using full hexadecimal encoding. When receiving such an MNC, the network shall treat the LAI as deleted.

The same handling shall apply for the network, if a 3-digit MNC is sent by the mobile station to a network using only a 2-digit MNC.

LAC, Location area code (octet 5 and 6)
In the LAC field bit 8 of octet 5 is the most significant bit and bit 1 of octet 6 the least significant bit.
The coding of the location area code is the responsibility of each administration except that two values are used to mark the LAC, and hence the LAI, as deleted. Coding using full hexadecimal representation may be used. The location area code consists of 2 octets.
If a LAI has to be deleted then all bits of the location area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a SIM is inserted in a Mobile Equipment with the location area code containing all zeros, then the Mobile Equipment shall recognise this LAC as part of a deleted LAI

10.5.5.15 Routing area identification

The purpose of the *routing area identification* information element is to provide an unambiguous identification of routing areas within the GPRS coverage area.

The *routing area identification* is a type 3 information element with 7 octets length.

The *routing area identification* information element is coded as shown in figure 10.5.130/3GPP TS 24.008 and table 10.5.148/3GPP TS 24.008.

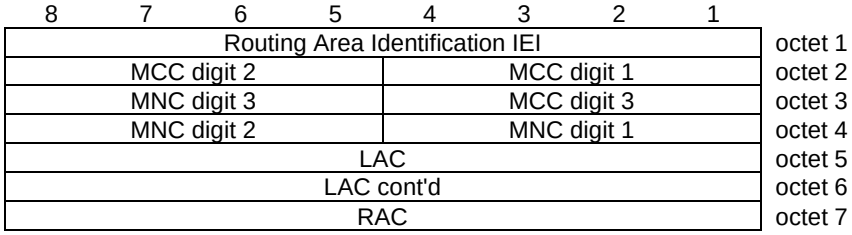

Figure 10.5.130/3GPP TS 24.008: *Routing area identification* information element

Table 10.5.148/3GPP TS 24.008: *Routing area identification* information element

MCC, Mobile country code (octet 2 and 3)

The MCC field is coded as in ITU-T Rec. E212, Annex A.
If the RAI is deleted, the MCC and MNC shall take the value from the deleted RAI.

In abnormal cases, the MCC stored in the mobile station can contain elements not in the set {0, 1 ... 9}. In such cases the mobile station should transmit the stored values using full hexadecimal encoding. When receiving such an MCC, the network shall treat the RAI as deleted.

MNC, Mobile network code (octet 3 bits 5 to 8, octet 4)

The coding of this field is the responsibility of each
administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for NA, Federal regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC in the RAI over the radio interface. In this case, bits 5 to 8 of octet 3 shall be coded as "1111". Mobile equipment shall accept RAI coded in such a way. ~~If an administration decides to include only one digit in the MNC, then bits 5 to 8 of octet 4 are coded as "1111".~~

Note 1: In earlier versions of this protocol, the possibility to use a one digit MNC in RAI was provided on the radio interface. However as this was not used this possibility has been deleted.

Note 2: In earlier versions of this protocol, bits 5 to 8 of octet 3 were coded as "1111". Mobile equipment compliant with these earlier versions of the protocol may be unable to understand the 3-digit MNC format of the RAI, and therefore unable to register on a network broadcasting the RAI in this format.

~~Note: 3GPP TS 23.003 defines that a 2 digit MNC shall be used, however the possibility to use a one digit MNC in LAI is provided on the radio interface~~

In abnormal cases, the MNC stored in the mobile station can have:
- digit 1 or 2 not in the set {0, 1 ... 9}, ~~and/~~or
- digit ~~2~~3 not in the set {0, 1 ...9, F} hex.

In such cases the mobile station shall~~ould~~ transmit the stored values using full hexadecimal encoding. When receiving such an MNC, the network shall treat the RAI as deleted.

The same handling shall apply for the network, if a 3-digit MNC is sent by the mobile station to a network using only a 2-digit MNC.

LAC, Location area code (octet 5 and 6)

In the LAC field bit 8 of octet 5 is the most significant bit and bit 1 of octet 6 the least significant bit.
The coding of the location area code is the responsibility of each administration except that two values are used to mark the LAC, and hence the RAI, as deleted. Coding using full hexadecimal representation may be used. The location area code consists of 2 octets.
If a RAI has to be deleted then all bits of the location area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a SIM is inserted in a Mobile Equipment with the location area code containing all zeros, then the Mobile Equipment shall recognise this LAC as part of a deleted RAI.

RAC, Routing area code (octet 7)

In the RAC field bit 8 of octet 7 is the most significant. The coding of the routing area code is the responsibility of each administration. Coding using full hexadecimal
representation may be used. The routing area code consists of 1 octet.

**** *next sextion from 04.08 v.7.16.0 fro information only* ****

10.5.5.15 Routing area identification

The purpose of the *routing area identification* information element is to provide an unambiguous identification of routing areas within the area covered by the GSM system.

The *routing area identification* is a type 3 information element with 7 octets length.

The *routing area identification* information element is coded as shown in figure 10.5.130/GSM 04.08 and table 10.5.148/GSM 04.08.

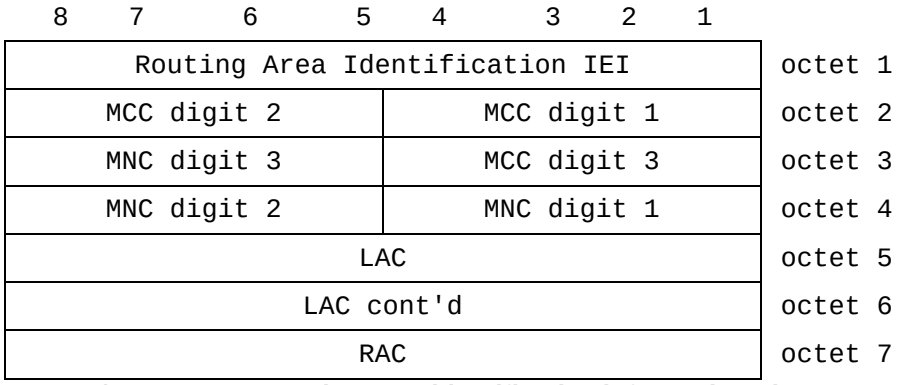

Figure 10.5.130/GSM 04.08: *Routing area identification* information element

Table 10.5.148/GSM 04.08: *Routing area identification* information element

MCC, Mobile country code (octet 2 and 3)

The MCC field is coded as in ITU-T Rec. E212, Annex A.
If the RAI is deleted, the MCC and MNC shall take the value from the deleted RAI.

In abnormal cases, the MCC stored in the mobile station can contain elements not in the set {0, 1 ... 9}. In such cases the mobile station should transmit the stored values using full hexadecimal encoding. When receiving such an MCC, the network shall treat the RAI as deleted.

MNC, Mobile network code (octet 3 bits 5 to 8, octet 4)

The coding of this field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for NA, Federal regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC in the RAI over the radio interface. In this case, bits 5 to 8 of octet 3 shall be coded as "1111". Mobile equipment shall accept RAI coded in such a way.

Note 1: In earlier versions of this protocol, the possibility to use a one digit MNC in RAI was provided on the radio interface. However as this was not used this possibility has been deleted.

Note 2: In earlier versions of this protocol, bits 5 to 8 of octet 3 were coded as "1111". Mobile equipment compliant with these earlier versions of the protocol may be unable to understand the 3-digit MNC format of the RAI, and therefore unable to attach to a network broadcasting the RAI in this format.

In abnormal cases, the MNC stored in the mobile station can have
- digit 1 or 2 not in the set {0, 1 ... 9} or
- digit 3 not in the set {0, 1 ...9, F} hex.

In such cases the mobile station shall transmit the stored values using full hexadecimal encoding. When receiving such an MNC, the network shall treat the RAI as deleted.

The same handling shall apply for the network, if a 3-digit MNC is sent by the mobile station to a network using only a 2-digit MNC.

LAC, Location area code (octet 5 and 6)

In the LAC field bit 8 of octet 5 is the most significant bit and bit 1 of octet 6 the least significant bit.
The coding of the location area code is the responsibility of each administration except that two values are used to mark the LAC, and hence the RAI, as deleted. Coding using full hexadecimal representation may be used. The location area code consists of 2 octets.
If a RAI has to be deleted then all bits of the location area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a SIM is inserted in a Mobile Equipment with the location area code containing all zeros, then the Mobile Equipment shall recognise this LAC as part of a deleted RAI.

RAC, Routing area code (octet 7)

In the RAC field bit 8 of octet 7 is the most significant. The coding of the routing area code is the responsibility of each administration. Coding using full hexadecimal representation may be used. The routing area code consists of 1 octet.

3GPP TSG-CN1 Meeting #22 ***Tdoc N1-020216***
Sophia Antipolis, France, 28. January - 1. February 2002

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CHANGE REQUEST

⌘ **24.008** **CR** 546 ⌘ **rev** **-** ⌘ Current version: **5.2.0** ⌘

*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 ☐ Core Network **X**

Title:	⌘	Missing 3rd MNC definition
Source:	⌘	Siemens AG
Work item code:	⌘	~~PCS Harmonisation~~TEI
Date:	⌘	22.01.2002
Category:	⌘	**A**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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)
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R99 (Release 1999)
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REL-5 (Release 5)

Reason for change:	⌘	The modification made in the description of the Routing area identification IE in Table 10.5.148/3GPP TS 24.008 when introducing the 3rd MNC digit made in the R98 version are missing in this version of the specification.
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Clauses affected:	⌘	10.5.5.15
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

10.5.5.15 Routing area identification

The purpose of the *routing area identification* information element is to provide an unambiguous identification of routing areas within the GPRS coverage area.

The *routing area identification* is a type 3 information element with 7 octets length.

The *routing area identification* information element is coded as shown in figure 10.5.130/3GPP TS 24.008 and table 10.5.148/3GPP TS 24.008.

8	7	6	5	4	3	2	1	
Routing Area Identification IEI								octet 1
MCC digit 2				MCC digit 1				octet 2
MNC digit 3				MCC digit 3				octet 3
MNC digit 2				MNC digit 1				octet 4
LAC								octet 5
LAC cont'd								octet 6
RAC								octet 7

Figure 10.5.130/3GPP TS 24.008: *Routing area identification* information element

Table 10.5.148/3GPP TS 24.008: *Routing area identification* information element

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If a RAI has to be deleted then all bits of the location area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a SIM is inserted in a Mobile Equipment with the location area code containing all zeros, then the Mobile Equipment shall recognise this LAC as part of a deleted RAI.

RAC, Routing area code (octet 7)

In the RAC field bit 8 of octet 7 is the most significant. The coding of the routing area code is ~~-~~the responsibility of each administration. Coding using full hexadecimal
representation may be used. The routing area code consists of 1 octet.

3GPP TSG-CN1 Meeting #22 ***Tdoc N1-020215***
Sophia Antipolis, France, 28. January - 1. February 2002

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CHANGE REQUEST

⌘ **24.008** **CR** 545 ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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Source:	⌘	Siemens AG
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Date:	⌘	22.01.2002
Category:	⌘	**A**
Release:	⌘	REL-4

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

Reason for change:	⌘	The modification made in the description of the Routing area identification IE in Table 10.5.148/3GPP TS 24.008 when introducing the 3rd MNC digit made in the R98 version are missing in this version of the specification.
Summary of change:	⌘	The changes made in the R98 version are introduced in this version of the specification.
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Clauses affected:	⌘	10.5.5.15
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

10.5.5.15 Routing area identification

The purpose of the *routing area identification* information element is to provide an unambiguous identification of routing areas within the GPRS coverage area.

The *routing area identification* is a type 3 information element with 7 octets length.

The *routing area identification* information element is coded as shown in figure 10.5.130/3GPP TS 24.008 and table 10.5.148/3GPP TS 24.008.

8	7	6	5	4	3	2	1	
Routing Area Identification IEI								octet 1
MCC digit 2				MCC digit 1				octet 2
MNC digit 3				MCC digit 3				octet 3
MNC digit 2				MNC digit 1				octet 4
LAC								octet 5
LAC cont'd								octet 6
RAC								octet 7

Figure 10.5.130/3GPP TS 24.008: *Routing area identification* information element

Table 10.5.148/3GPP TS 24.008: *Routing area identification* information element

MCC, Mobile country code (octet 2 and 3)

The MCC field is coded as in ITU-T Rec. E212, Annex A.
If the RAI is deleted, the MCC and MNC shall take the value from the deleted RAI.

In abnormal cases, the MCC stored in the mobile station can contain elements not in the set {0, 1 ... 9}. In such cases the mobile station should transmit the stored values using full hexadecimal encoding. When receiving such an MCC, the network shall treat the RAI as deleted.

MNC, Mobile network code (octet 3 bits 5 to 8, octet 4)

The coding of this field is the responsibility of each
administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for NA, Federal regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC in the RAI over the radio interface. In this case, bits 5 to 8 of octet 3 shall be coded as "1111". Mobile equipment shall accept RAI coded in such a way. ~~If an administration decides to include only one digit in the MNC, then bits 5 to 8 of octet 4 are coded as "1111".~~

Note 1: In earlier versions of this protocol, the possibility to use a one digit MNC in RAI was provided on the radio interface. However as this was not used this possibility has been deleted.

Note 2: In earlier versions of this protocol, bits 5 to 8 of octet 3 were coded as "1111". Mobile equipment compliant with these earlier versions of the protocol may be unable to understand the 3-digit MNC format of the RAI, and therefore unable to register on a network broadcasting the RAI in this format.

~~Note: 3GPP TS 23.003 defines that a 2 digit MNC shall be used, however the possibility to use a one digit MNC in LAI is provided on the radio interface~~

In abnormal cases, the MNC stored in the mobile station can have:
- digit 1 or 2 not in the set {0, 1 ... 9}, ~~and/~~or
- digit ~~2~~3 not in the set {0, 1 ...9, F} hex.

In such cases the mobile station shall~~ould~~ transmit the stored values using full ~~-~~hexadecimal encoding. When receiving such an MNC, the ~~-~~network shall treat the RAI as deleted.

The same handling shall apply for the network, if a 3-digit MNC is sent by the mobile station to a network using only a 2-digit MNC.

LAC, Location area code (octet 5 and 6)

In the LAC field bit 8 of octet 5 is the most significant bit and bit 1 of octet 6 the least significant bit.
The coding of the location area code is the responsibility of each administration except that two values are used to mark the LAC, and hence the RAI, as deleted. Coding using full hexadecimal representation may be used. The location area code consists of 2 octets.
If a RAI has to be deleted then all bits of the location area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a SIM is inserted in a Mobile Equipment with the location area code containing all zeros, then the Mobile Equipment shall recognise this LAC as part of a deleted RAI.

RAC, Routing area code (octet 7)

In the RAC field bit 8 of octet 7 is the most significant. The coding of the routing area code is ~~-~~the responsibility of each administration. Coding using full hexadecimal
representation may be used. The routing area code consists of 1 octet.