Source:	Ericsson
Title:	CR on R99 Work Item CAMEL3, Pack 11
Agenda item:	7.2
Document for:	APPROVAL

Introduction:

This document contains 2 CRs on R99 WI CAMEL3 (CR for R99 and the mirror CR for Rel-4). These CRs have been sent for e-mail approval after CN2#21 with a deadline for objections till end of 7th of December. Since Rel-4 mirror CR was not available till 6th of December, the source of this CR package is Ericsson

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.078	221		N2-010970	R99	Correction to GPRS parameters encoding	F	3.9.0
29.078	230		N2-011045	Rel-4	Correction to GPRS parameters encoding	A	4.2.0

CHANGE REQUEST

⌘ **29.078** CR **221** ⌘**rev** ⌘ Current version: **3.9.0** ⌘

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

Title: ⌘	Correction to GPRS parameters encoding	
Source: ⌘	Ericsson	
Work item code:⌘	CAMEL3	**Date:** ⌘ 22 November 2001

Category: ⌘ **F** (essential correction)   **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)*

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 following errors need to be corrected in TS 29.078. These errors are all related to the encoding of GPRS parameters in CAP.

<u>MSNetworkCapability</u>

```
< extract from TS 29.078 >
MSNetworkCapability                     ::= OCTET STRING (SIZE (8))
--  MS Network Capability describes the GPRS terminal capabilites related
to the network, i.e. SMS
--  point to point service over packet data channels. For encoding refer to
3GPP TS 24.008 [12].
< end of extract >
```

The encoding of this element is specified in TS 24.008. TS 24.008 specifies that the value part of this parameter may have a length of 1..8 octets. Hence, the corresponding parameter in CAP shall also have a variable length of 1..8 octets.

Furthermore, TS 29.078 shall specify that the MSNetworkCapability in CAP shall contain the value part of the corresponding element in Ts 24.008 only. I.e. CAP shall not contain the "MS network capability IEI" and shall not contain the "Length of MS network capability contents".

<u>MSRadioAccessCapability</u>

```
< extract from TS 29.078 >
MSRadioAccessCapability                 ::= OCTET STRING (SIZE (3..32))
-- MS Radio Access Capability describes the terminal capabilites relevant
for the radio network,
-- which may affect the way the network handles the mobile.
-- For encoding refer to 3GPP TS 24.008 [12].
< end of extract >
```

The encoding of this element is specified in TS 24.008. TS 24.008 specifies that the value part of this parameter may have a length of 1..50 octets. Hence, the corresponding parameter in CAP shall also have a variable length of 1..50 octets.

Furthermore, TS 29.078 shall specify that the `MSRadioAccessCapability` in CAP shall contain the value part of the corresponding element in Ts 24.008 only.

I.e. CAP shall not contain the "MS Radio Access capability IEI" and shall not contain the "Length of MS RA capability".

RAIdentity

```
< extract from TS 29.078 >
RAIdentity                              ::= OCTET STRING (SIZE (7))
--  Routing Area Identity coded according to 3GPP TS 29.060 [43].
< end of extract >
```

The encoding of this element is specified in TS 29.060. TS 29.060 specifies that the value part of this parameter has a fixed length of 6 octets. Hence, the corresponding parameter in CAP shall also have a fixed length of 6 octets.

Furthermore, TS 29.078 shall specify that the RAIdentity in CAP shall contain the value part of the corresponding element in TS 29.060 only. I.e. CAP shall not contain the RAIdentity type identifier octet.

General conventions

The present CR is based on the following two general conventions:

1. Reformatting of parameters bwteen 24.008 and CAP and between GTP and CAP shall be minimised;
2. When parameters that are carried over TS 24.008 or over GTP need to be mapped to CAP, then the corresponding CAP parameter shall contain the value part of that parameter only. The Information Element Identifier and Information Element Length (24.008) as well as the Type Identifier and Length Indicator (29.060) shall not be included in the CAP parameter.

These conventions shall be applied consistently to all applicable CAP parameters.

Summary of change:⌘	Correct the encoding definitions of MSNetworkCapability, MSRadioAccessCapability and RAIdentity.
Consequences if not approved: ⌘	• Interworking problems; SCPs from different vendors may receive these information elements in different encoding formats. • Implementation difficulties; gprsSSF designers and SCP designers may not know how to encode/decode these information elements. • The SCP would not be able to determine the length of MS Network Capability. • MS Radio Access Capability values in access of 32 octets can not be sent to the SCP. • The RAIdentity would be encoded ambiguously.

Clauses affected: ⌘	5.1	

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

Other comments:	⌘	

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*** For Information ***

</div>

< Extract from TS 24.008 >

10.5.5.12   MS network capability

The purpose of the *MS network capability* information element is to provide the network with information concerning aspects of the mobile station related to GPRS. The contents might affect the manner in which the network handles the operation of the mobile station. The *MS network capability* information indicates general mobile station characteristics and it shall therefore, except for fields explicitly indicated, be independent of the frequency band of the channel it is sent on.

The *MS network capability* is a type 4 information element with a maximum of 10 octets length.

The value part of a *MS network capability* information element is coded as shown in figure 10.5.128/3GPP TS 24.008 and table 10.5.145/3GPP TS 24.008.
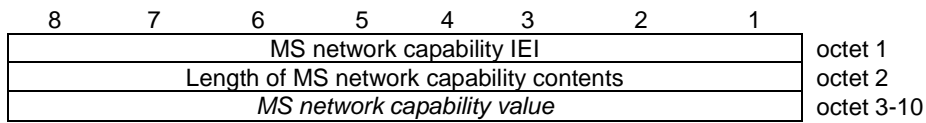
8	7	6	5	4	3	2	1	
MS network capability IEI								octet 1
Length of MS network capability contents								octet 2
MS network capability value								octet 3-10

Figure 10.5.128/3GPP TS 24.008 MS network capability information element

< Extract from TS 24.008 >

10.5.5.12a   MS Radio Access capability

The purpose of the *MS RA capability* information element is to provide the radio part of the network with information concerning radio aspects of the mobile station. The contents might affect the manner in which the network handles the operation of the mobile station.

The *MS RA capability* is a type 4 information element, with a maximum length of 52 octets.

The value part of a *MS RA capability* information element is coded a shown table 10.5.146/3GPP TS 24.008.

Table 10.5.146/3GPP TS 24.008 : *Mobile Station Radio Access Capability* **Information Element**

< MS Radio Access capability IE > ::=
<**MS Radio Access capability IEI** : 00100100 >
<**Length of MS RA capability**: <octet>> -- *length in octets of MS RA capability value part and spare bits*
<**MS RA capability value part** : < MS RA capability value part struct >>
<spare bits>**; -- *may be used for future enhancements*
…

<div align="center">**< Extract from TS 29.060 >**</div>

7.7.3   Routeing Area Identity (RAI)

The RAI information element is given by:

<div align="center">

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 3 (Decimal)							
2	MCC digit 2				MCC digit 1			
3	MNC digit 3				MCC digit 3			
4	MNC digit 2				MNC digit 1			
5-6	LAC							
7	RAC							

The MCC, MNC, LAC and RAC are defined in
TS 23.003
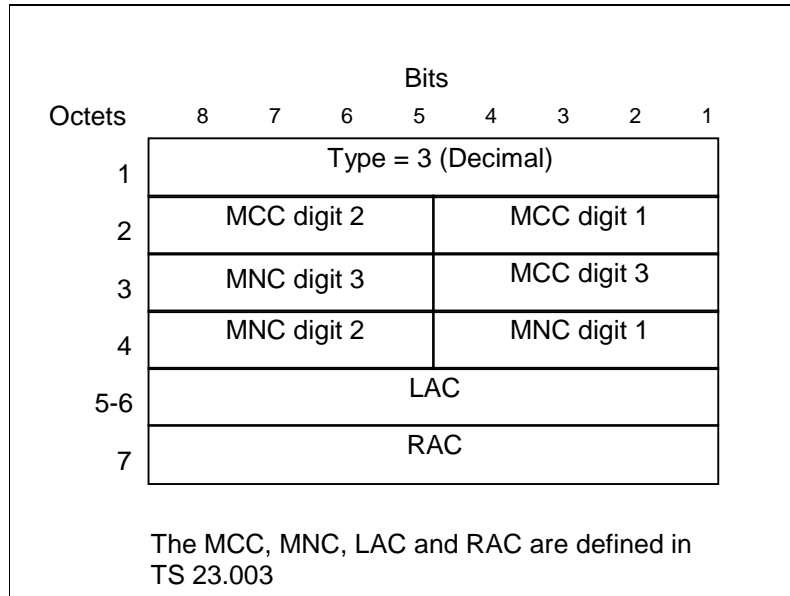
</div>

<div align="center">**Figure 11: RAI Information Element**</div>

If an Administration decides to include only two digits in the MNC, then bits 5 to 8 of octet 3 are coded as "1111".

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*** First Modification ***

</div>

5   Common CAP Types

5.1   Data types

```
-- The Definition of Common Data Types follows

CAP-datatypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-datatypes(52) version3(2)}
-- This module contains the type definitions for the CAP v.3 data types.

DEFINITIONS IMPLICIT TAGS ::= BEGIN


...


GPRSMSClass                                        ::= SEQUENCE {
    mSNetworkCapability                    [0] MSNetworkCapability,
    mSRadioAccessCapability                [1] MSRadioAccessCapability
    }
-- GPRS MS class mark describes the terminal capabilites.
-- For encoding refer to 3GPP TS 24.008 [12].
-- Refer to 3GPP TS 24.008 [12] for an explanation of these elements.
...


MSNetworkCapability                                ::= OCTET STRING (SIZE (81..8))
-- MS Network Capability describes the GPRS terminal capabilites related to the network, i.e. SMS
-- point to point service over packet data channels. For encoding refer to 3GPP TS 24.008 [12].
-- It shall contain the value part defined in 3GPP TS 24.008 only. I.e. the 3GPP TS 24.008 IEI
-- and 3GPP TS 24.008 octet length indicator shall not be included.

MSRadioAccessCapability                   ::= OCTET STRING (SIZE (3..321..50))
-- MS Radio Access Capability describes the terminal capabilites relevant for the radio network,
-- which may affect the way the network handles the mobile.
-- For encoding refer to 3GPP TS 24.008 [12].
-- It shall contain the value part defined in 3GPP TS 24.008 only. I.e. the 3GPP TS 24.008 IEI
-- and 3GPP TS 24.008 octet length indicator shall not be included.

...


RAIdentity                                ::= OCTET STRING (SIZE (76))
-- Routing Area Identity coded according to 3GPP TS 29.060 [43].
-- It shall contain the value part defined in 3GPP TS 29.060 only. I.e. the 3GPP TS 29.060
-- type identifier octet shall not be included.

...
```

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*** End of Document ***

</div>

CHANGE REQUEST

| ⌘ | **29.078** CR | **230** | ⌘**rev** | | ⌘ Current version: | **4.2.0** | ⌘ |

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

Title: ⌘	Correction to GPRS parameters encoding	
Source: ⌘	Ericsson	
Work item code:⌘	CAMEL3	**Date:** ⌘ 30 November 2001
Category: ⌘ A		**Release:** ⌘ Rel-4

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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Other specs affected:	⌘		Other core specifications	⌘
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			O&M Specifications	

Other comments: ⌘	

*** For Information ***

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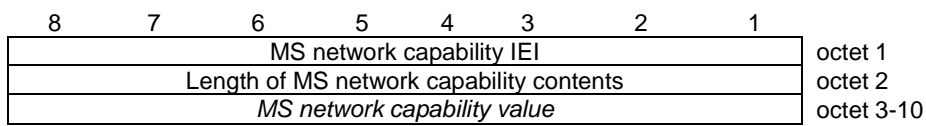
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<spare bits>**; -- may be used for future enhancements
…
```

< Extract from TS 29.060 >

7.7.3 Routeing Area Identity (RAI)

The RAI information element is given by:

```
                              Bits
        Octets    8    7    6    5    4    3    2    1
                 ┌──────────────────────────────────────┐
           1     │           Type = 3 (Decimal)          │
                 ├────────────────────┬─────────────────┤
           2     │    MCC digit 2     │    MCC digit 1   │
                 ├────────────────────┼─────────────────┤
           3     │    MNC digit 3     │    MCC digit 3   │
                 ├────────────────────┼─────────────────┤
           4     │    MNC digit 2     │    MNC digit 1   │
                 ├────────────────────┴─────────────────┤
          5-6    │                 LAC                   │
                 ├──────────────────────────────────────┤
           7     │                 RAC                   │
                 └──────────────────────────────────────┘

            The MCC, MNC, LAC and RAC are defined in
            TS 23.003
```
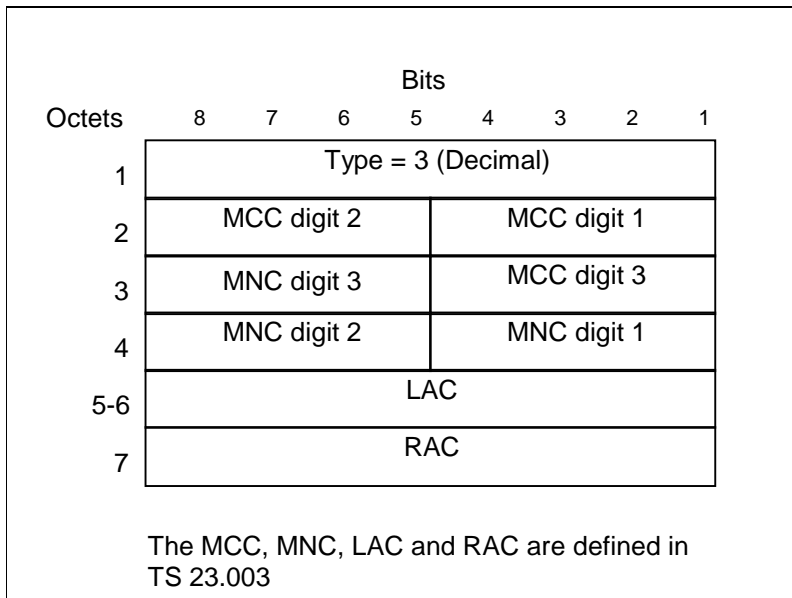
Figure 11: RAI Information Element

If an Administration decides to include only two digits in the MNC, then bits 5 to 8 of octet 3 are coded as "1111".

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*** First Modification ***

</div>

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