3GPP TSG CN Plenary Meeting #14 **Tdoc NP-010584**
Japan, Kyoto, 12th – 14th December 2001

Source: TSG CN WG2

Title: CR on R99 Work Item CAMEL3, Pack 5

Agenda item: 7.2

Document for: APPROVAL

Introduction:

This document contains 10 CRs on R99 WI CAMEL3 (5 CRs for R99 and the 5 mirror CRs for Rel-4). These CRs have been agreed by TSG CN WG2 and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.078	202		N2-010761	R99	Correction of the MAXIMUM-FOR-FCI-BILLING-CHARGING value	F	3.9.0
29.078	203		N2-010762	Rel-4	Correction of the MAXIMUM-FOR-FCI-BILLING-CHARGING value	A	4.2.0
29.078	204	1	N2-010813	R99	Correction of the MAXIMUM-FOR-SCI-BILLING-CHARGING value	F	3.9.0
29.078	205	1	N2-010814	Rel-4	Correction of the MAXIMUM-FOR-SCI-BILLING-CHARGING value	A	4.2.0
29.078	206	2	N2-010844	R99	Precision about default values for ServiceInteractionIndicatorsTwo parameters	F	3.9.0
29.078	211		N2-010854	Rel-4	Precision about default values for ServiceInteractionIndicatorsTwo parameters	A	4.2.0
29.078	207		N2-010759	R99	Encoding of the InitialDPGPRS ChargingID parameter	F	3.9.0
29.078	208		N2-010760	Rel-4	Encoding of the InitialDPGPRS ChargingID parameter	A	4.2.0
29.078	209	1	N2-010826	R99	Introduction of SMS Reference Number	F	3.9.0
29.078	210		N2-010849	Rel-4	Introduction of SMS Reference Number	A	4.2.0

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010759

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 207** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

*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 **X**

Title:	⌘	Encoding of the InitialDPGPRS ChargingID parameter
Source:	⌘	Nokia
Work item code:	⌘	CAMEL3
Date:	⌘	04.10.2001
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)*
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 encoding of the ChargingID is not clear specified in stage 3. The procedures refers to the 32.015 where the variable length INTEGER (0..4294967295) is used, but the exact CAP coding uses fixed lengt OCTET STRING (SIZE(4)).
Summary of change:	⌘	This CR proposes to refer the 29.060 instead the existing 32.015.
Consequences if not approved:	⌘	Existing specification will affect the different implementations of the ChargingID.

Clauses affected:	⌘	11.31.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	For information the existing ChargingID coding in specifications 29.078 (CAP), 29.060 (GTP) and in 32.015 (PS: Charging and billing).

29.078 coding:

```
GPRSChargingID                          ::= OCTET STRING (SIZE (4))
--  The Charging ID is a unique four octet value generated by the GGSN when
-- a PDP Context is activated. A Charging ID is generated for each activated
context.
```

29.060 coding:

7.7.26 Charging ID

The Charging ID is a unique four-octet value generated by the GGSN when a PDP context is activated. A Charging ID is generated for each activated context. The Charging ID value 0 is reserved and shall not be assigned by the GGSN.

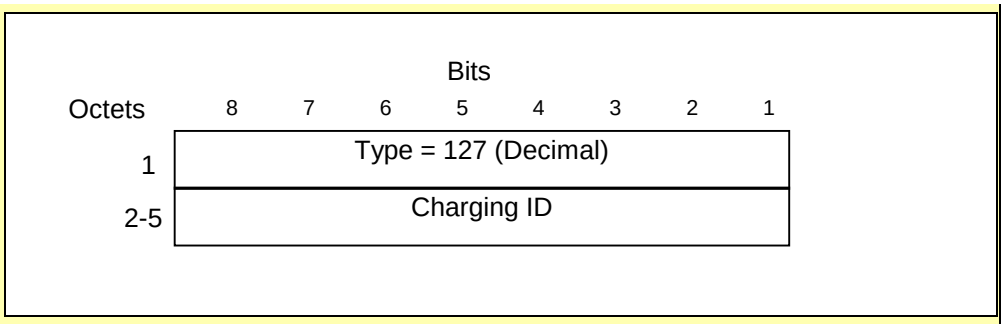

Figure 34: Charging ID Information Element

32.015 coding:

```
ChargingID  ::= INTEGER (0..4294967295)
    --
    -- generated in GGSN, part of PDP context, see TS 23.060
    -- 0..4294967295 is equivalent to 0..2**32-1
```

Proposed solution:

Due the samekind fixed lengt coding used in CAP and interface GTP, we propoces to change the reference in CAP procedures from 32.015 to 29.060.

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.

****** First Change ******

11.31 InitialDPGPRS procedure

11.31.1 General description

This operation is used by the gprsSSF after detection of a TDP-R in the GPRS session or PDP context state machine, to request the gsmSCF for instructions to complete the GPRS session or PDP context.

For a GPRS Session, the 'Attach' and 'Change of Position Session' TDP's may result in the InitialDPGPRS Procedure.

For a PDP Context, the 'PDP Context Establishment', the 'PDP Context Establishment Acknowledgement' and the 'Change of Position Context' TDP's may result in the InitialDPGPRS Procedure.

If a PDP Context related TDP is met, and there is at that moment a GPRS dialogue for the GPRS Session, then the gprsSSF shall not initiate the InitialDPGPRS Procedure for that PDP Context.

If the 'PDP Context Establishment Acknowledgement' event occurs and this event is armed as a TDP, and there is at that moment a GPRS dialogue for the PDP Context, then the gprsSSF shall not initiate a new InitialDPGPRS Procedure for that PDP Context.

11.31.1.1 Parameters

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for SCP addressing).

- gPRSEventType:
  This parameter indicates the armed GPRS Attach/Detach SM or PDP Context SM DP event, resulting in the InitialDPGPRS operation.

- mSISDN:
  MSISDN of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3GPP TS 29.002 [13].

- iMSI:
  IMSI of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3GPP TS 29.002 [13].

- timeAndTimezone:
  This parameter contains the time that the gprsSSF was triggered, and the time zone that the invoking gprsSSF resides in.

- gPRSMSClass:
  This parameter contains the MS Station capabilites of the mobile subscriber for which the CAMEL service is invoked.

  - MSNetworkCapabilities:
    This parameter contains the Network Capabilities of the GPRS session.

  - MSRadioAccessCapabilities:
    This parameter contains the Radio Access Capabilities of the MS.

- endUserAddress:
  This parameter identifies the PDP type, PDP type organisation and the actual PDP address. For encoding see 3GPP TS 29.060 [43].

- qualityOfService:
  This parameter contains the Quality of Service.
  If the InitialDPGPRS operation is sent as a result of the 'PDP Context Establishment' TDP, then the Quality of

Service parameter shall contain the Requested QoS and the Subscribed QoS.
If the InitialDPGPRS operation is sent as a result of the 'PDP Context Establishment Ackonwledgement' TDP, then the Quality of Service parameter shall contain the Requested QoS, the Subscribed QoS and the Negotiated QoS.

- accessPointName:
  This parameter contains the requested address that the MS for which the CAMEL service is invoked for wants to connect to. For encoding see 3GPP TS 29.060 [43].

- routeingAreaIdentity:
  This parameter contains the location information of the MS for which the CAMEL service is invoked from. For encoding see 3GPP TS 29.060 [43].

- chargingID:
  This parameter contains the charging ID that uniquely identifies together with the gGSNAddress the PDP context for the MS for which the CAMEL service is invoked from. For encoding see 3GPP TS ~~32.015~~29.060 [43].

- sGSNcapabilities:
  This parameter specifies the capabilities which the SGSN node can provide for the CAMEL service control.

- locationInformationInSGSN:
  This parameter indicates the location of the sending MS.

- pDPInitiationType:
  This parameter indicates whether a PDP context was established as a result of a network-initiated request or as a result of a subscriber request.

- gGSNAddress:
  This parameter refers to the IP address of the GGSN where the PDP context terminates. It is used together with the chargingID for uniquely identification of the PDP context for which the CAMEL service is invoked from. For encoding see 3GPP TS 23.003.

- secondaryPDP-context
  This parameter indicates that the PDP context is requested as a secondary PDP context.

11.31.2 Invoking entity (gprsSSF)

11.31.2.1 Normal procedure

gprsSSF preconditions:

(1) An event has been met that is armed as TDP.

(2) There is no GPRS dialogue active for that PDP Context or for the GPRS Session.

gprsSSF postcondition:

(1) A control relationship has been established and the gprsSSF is in state "waiting for instructions".

The address of the gsmSCF that the InitialDPGPRS operation shall be sent to is fetched from the valid CSI. The gprsSSF provides all available parameters.

The gprsSSF shall memorise the address of the response message and use it in the future TC dialogues.

A control relationship is established with the gsmSCF. The gprsSSF application timer T_{SSF} is set when the gprsSSF sends InitialDPGPRS for requesting instructions from the gsmSCF. It is used to prevent from excessive GPRS session or PDP context duration or volume usage.

11.31.2.2 Error handling

If the destination gsmSCF is not accessible then the gprsSSF instructs the SGSN to handle the GPRS session or PDP context according to the Default GPRS handling parameter of the valid CSI.

On expiration of T_{SSF} before receiving any operation, the gprsSSF aborts the interaction with the gsmSCF and instructs the SGSN to handle the call according to the Default GPRS handling parameter of the valid CSI.

If the MS abandons the establishment of a GPRS session or PDP context after the sending of InitialGPRSEvent, then the gprsSSF aborts the control relationship after the first response from the gsmSCF has been received.

Generic error handling for the operation related errors is described in clause 10 and the TC services which are used for reporting operation errors are described in clause 12.

****** End of Document ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010760

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 208** ⌘ 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 **X**

Title:	⌘	Encoding of the InitialDPGPRS ChargingID parameter
Source:	⌘	Nokia
Work item code:	⌘	CAMEL3
Date:	⌘	09.10.2001
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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R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	The encoding of the ChargingID is not clear specified in stage 3. The procedures refers to the 32.015 where the variable length INTEGER (0..4294967295) is used, but the exact CAP coding uses fixed lengt OCTET STRING (SIZE(4)).
Summary of change:	⌘	This CR proposes to refer the 29.060 instead the existing 32.015.
Consequences if not approved:	⌘	Existing specification will affect the different implementations of the ChargingID.

Clauses affected:	⌘	11.31.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	For information the existing ChargingID coding in specifications 29.078 (CAP), 29.060 (GTP) and in 32.015 (PS: Charging and billing).

29.078 coding:

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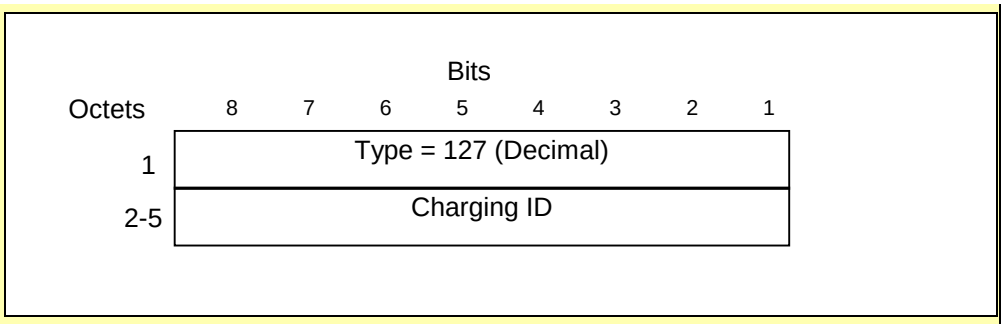

Figure 34: Charging ID Information Element

32.015 coding:

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****** First Change ******

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11.31.1.1 Parameters

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for SCP addressing).

- gPRSEventType:
  This parameter indicates the armed GPRS Attach/Detach SM or PDP Context SM DP event, resulting in the InitialDPGPRS operation.

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  This parameter contains the time that the gprsSSF was triggered, and the time zone that the invoking gprsSSF resides in.

- gPRSMSClass:
  This parameter contains the MS Station capabilites of the mobile subscriber for which the CAMEL service is invoked.

  - MSNetworkCapabilities:
    This parameter contains the Network Capabilities of the GPRS session.

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  This parameter contains the Quality of Service.
  If the InitialDPGPRS operation is sent as a result of the 'PDP Context Establishment' TDP, then the Quality of

Service parameter shall contain the Requested QoS and the Subscribed QoS.
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- accessPointName:
  This parameter contains the requested address that the MS for which the CAMEL service is invoked for wants to connect to. For encoding see 3GPP TS 29.060 [43].

- routeingAreaIdentity:
  This parameter contains the location information of the MS for which the CAMEL service is invoked from. For encoding see 3GPP TS 29.060 [43].

- chargingID:
  This parameter contains the charging ID that uniquely identifies together with the gGSNAddress the PDP context for the MS for which the CAMEL service is invoked from. For encoding see 3GPP TS 29.060 [43]~~32.015~~.

- sGSNcapabilities:
  This parameter specifies the capabilities which the SGSN node can provide for the CAMEL service control.

- locationInformationInSGSN:
  This parameter indicates the location of the sending MS.

- pDPInitiationType:
  This parameter indicates whether a PDP context was established as a result of a network-initiated request or as a result of a subscriber request.

- gGSNAddress:
  This parameter refers to the IP address of the GGSN where the PDP context terminates. It is used together with the chargingID for uniquely identification of the PDP context for which the CAMEL service is invoked from. For encoding see 3GPP TS 23.003.

- secondaryPDP-context
  This parameter indicates that the PDP context is requested as a secondary PDP context.

11.31.2 Invoking entity (gprsSSF)

11.31.2.1 Normal procedure

gprsSSF preconditions:

(1) An event has been met that is armed as TDP.

(2) There is no GPRS dialogue active for that PDP Context or for the GPRS Session.

gprsSSF postcondition:

(1) A control relationship has been established and the gprsSSF is in state "waiting for instructions".

The address of the gsmSCF that the InitialDPGPRS operation shall be sent to is fetched from the valid CSI. The gprsSSF provides all available parameters.

The gprsSSF shall memorise the address of the response message and use it in the future TC dialogues.

A control relationship is established with the gsmSCF. The gprsSSF application timer T_{SSF} is set when the gprsSSF sends InitialDPGPRS for requesting instructions from the gsmSCF. It is used to prevent from excessive GPRS session or PDP context duration or volume usage.

11.31.2.2 Error handling

If the destination gsmSCF is not accessible then the gprsSSF instructs the SGSN to handle the GPRS session or PDP context according to the Default GPRS handling parameter of the valid CSI.

On expiration of T_{SSF} before receiving any operation, the gprsSSF aborts the interaction with the gsmSCF and instructs the SGSN to handle the call according to the Default GPRS handling parameter of the valid CSI.

If the MS abandons the establishment of a GPRS session or PDP context after the sending of InitialGPRSEvent, then the gprsSSF aborts the control relationship after the first response from the gsmSCF has been received.

Generic error handling for the operation related errors is described in clause 10 and the TC services which are used for reporting operation errors are described in clause 12.

****** End of Document ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010761

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 202** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

*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 **X**

Title:	⌘	Correction of the MAXIMUM-FOR-FCI-BILLING-CHARGING value
Source:	⌘	Nokia
Work item code:	⌘	CAMEL phase 3
Date:	⌘	05.10.2001
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)*
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 value of 174 for MAXIMUM-FOR-FCI-BILLING-CHARGING does not allow the gsmSCF to send the maximum of 160 octets free format data to the gprsSSF in the FurnishChargingInformationGPRS operation. See the *Informative section* of the present CR for coding example. On the other hand, the MAXIMUM-FOR-FCI-BILLING-CHARGING does not allow specify new parameters after ellipsis, this CR therefore proposes to add 50 octets for the future expansions.
Summary of change:	⌘	The maximum length is corrected to the value 175+50=225.
Consequences if not approved:	⌘	Inconsistency between stage 2 and stage 3 and incorrect ASN.1 syntax. The result will be that the gsmSCF can not send the full 160 octets of free format data and the future expansions after ellipsis are not possible.

Clauses affected:	⌘	5.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	The GPRS case example belove was also presented in N2-010441 in CN2 #18 but unfortunately there was missing one SEQUENCE level. Errors are presented belove in GPRS example using revision marks. Note that the SCCP segmentation, will be available 1st July 2002, allows the usage of new expansions after ellipsis.

How to create CRs using this form:
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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.

****** FOR INFORMATION ******

1. GPRS case

The maximum length of FCIGPRSBillingChargingCharacteristics follows from the encoding of CAMEL-FCIGPRSBillingChargingCharacteristics. See ASN.1 syntax below.

```
FurnishChargingInformationGPRSArg {PARAMETERS-BOUND : bound} ::=
    FCIGPRSBillingChargingCharacteristics{bound}

FCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= OCTET STRING (SIZE(
    bound.&minFCIBillingChargingLength .. bound.&maxFCIBillingChargingLength))
    (CONSTRAINED BY {-- shall be the result of the BER-encoded value of type -
    CAMEL-FCIGPRSBillingChargingCharacteristics {bound}})
-- This parameter indicates the GPRS billing and/or charging characteristics.
-- The violation of the UserDefinedConstraint shall be handled as an ASN.1 syntax error.

CAMEL-FCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= SEQUENCE{
    fCIBCCCAMELsequence1        [0] SEQUENCE {
        freeFormatData              [0] OCTET STRING (SIZE(
            bound.&minFCIBillingChargingDataLength .. bound.&maxFCIBillingChargingDataLength)),
        pDPID                   [1] PDPID OPTIONAL,
        appendFreeFormatData    [2] AppendFreeFormatData    DEFAULT overwrite,
        ...
        }
    }
```

The maximum length of the CAMEL-FCIGPRSBillingChargingCharacteristics for is in following example ~~172~~ at least 175 octets.

SEQUENCE{
30 81 AC <-- length 172
fCIBCCCAMELsequence1
A0 81 A9 <-- length 169
freeFormatData
80 81 A0 <-- length 160, maximum length is 160
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
pDPID
80 01 12
AppendFreeFormatData
82 01 00
…
?? ?? ??

2. Conclusion

The constant MAXIMUM-FOR-FCI-BILLING-CHARGING is used for the FCI operation for circuit switch call control (>=174), MO-SMS (>=169) control and GPRS control (>=175). The value of MAXIMUM-FOR-FCI-BILLING-CHARGING shall therefore be set to 175+ <reservation for future expansions>.

****** FIRST MODIFIED SECTION ******

5.5 Classes

```
cAPSpecificBoundSet PARAMETERS-BOUND ::=
{
    MINIMUM-FOR-ACCESS-POINT-NAME               1
    MAXIMUM-FOR-ACCESS-POINT-NAME               100
    MINIMUM-FOR-ACH-BILLING-CHARGING            5
    MAXIMUM-FOR-ACH-BILLING-CHARGING            177
    MINIMUM-FOR-ATTRIBUTES                      2
    MAXIMUM-FOR-ATTRIBUTES                      10
    MAXIMUM-FOR-BEARER-CAPABILITY               11
    MINIMUM-FOR-CALLED-PARTY-BCD-NUMBER         1
    MAXIMUM-FOR-CALLED-PARTY-BCD-NUMBER         41
    MINIMUM-FOR-CALLED-PARTY-NUMBER             3
    MAXIMUM-FOR-CALLED-PARTY-NUMBER             18
    MINIMUM-FOR-CALLING-PARTY-NUMBER            2
    MAXIMUM-FOR-CALLING-PARTY-NUMBER            10
    MINIMUM-FOR-CALL-RESULT                     12
    MAXIMUM-FOR-CALL-RESULT                     186
    MINIMUM-FOR-CARRIER                         4
    MAXIMUM-FOR-CARRIER                         4
    MINIMUM-FOR-CAUSE                           2
    MAXIMUM-FOR-CAUSE                           32
    MINIMUM-FOR-DIGITS                          2
    MAXIMUM-FOR-DIGITS                          16
    MINIMUM-FOR-FCI-BILLING-CHARGING-DATA       1
    MAXIMUM-FOR-FCI-BILLING-CHARGING-DATA       160
    MINIMUM-FOR-FCI-BILLING-CHARGING            5
    MAXIMUM-FOR-FCI-BILLING-CHARGING            ~~174~~225
    MINIMUM-FOR-GENERIC-NUMBER                  3
    MAXIMUM-FOR-GENERIC-NUMBER                  11
    MINIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MAXIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MINIMUM-FOR-IP-SSP-CAPABILITIES             1
    MAXIMUM-FOR-IP-SSP-CAPABILITIES             4
    MINIMUM-FOR-LOCATION-NUMBER                 2
    MAXIMUM-FOR-LOCATION-NUMBER                 10
    MINIMUM-FOR-MESSAGE-CONTENT                 1
    MAXIMUM-FOR-MESSAGE-CONTENT                 127
    MINIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        2
    MAXIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        10
    MINIMUM-FOR-PDP-ADDRESS-LENGTH              1
    MAXIMUM-FOR-PDP-ADDRESS-LENGTH              63
    MINIMUM-FOR-REDIRECTING-ID                  2
    MAXIMUM-FOR-REDIRECTING-ID                  10
    MINIMUM-FOR-GSMSCF-ID                       2
    MAXIMUM-FOR-GSMSCF-ID                       10
    MINIMUM-FOR-SCI-BILLING-CHARGING            4
    MAXIMUM-FOR-SCI-BILLING-CHARGING            69
    MINIMUM-FOR-TIME-AND-TIMEZONE               8
    MAXIMUM-FOR-TIME-AND-TIMEZONE               8
    NUM-OF-BCSM-EVENT                           10
    NUM-OF-SMS-EVENTS                           10
    NUM-OF-GPRS-EVENTS                          10
    NUM-OF-EXTENSIONS                           10
    NUM-OF-GENERIC-NUMBERS                      5
    NUM-OF-MESSAGE-IDS                          16
}
END
```

****** END OF DOCUMENT ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010762

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 203** ⌘ 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 **X**

Title:	⌘	Correction of the MAXIMUM-FOR-FCI-BILLING-CHARGING value
Source:	⌘	Nokia
Work item code:	⌘	CAMEL phase 3
Date:	⌘	05.10.2001
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:	⌘	The current value of 174 for MAXIMUM-FOR-FCI-BILLING-CHARGING does not allow the gsmSCF to send the maximum of 160 octets free format data to the gprsSSF in the FurnishChargingInformationGPRS operation. See the *Informative section* of the present CR for coding example. On the other hand, the MAXIMUM-FOR-FCI-BILLING-CHARGING does not allow specify new parameters after ellipsis, this CR therefore proposes to add 50 octets for the future expansions.
Summary of change:	⌘	The maximum length is corrected to the value 175+50=225.
Consequences if not approved:	⌘	Inconsistency between stage 2 and stage 3 and incorrect ASN.1 syntax. The result will be that the gsmSCF can not send the full 160 octets of free format data.

Clauses affected:	⌘	5.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	The R99 GPRS case example belove was also presented in N2-010441 in CN2 #18 but unfortunately there was missing one SEQUENCE level. Errors are presented belove in GPRS example using revision marks. Note that the SCCP segmentation, will be available 1st July 2002, allows the usage of new expansions after ellipsis.

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.

****** FOR INFORMATION ******

1. GPRS case

The maximum length of FCIGPRSBillingChargingCharacteristics follows from the encoding of CAMEL-FCIGPRSBillingChargingCharacteristics. See ASN.1 syntax below.

```
FurnishChargingInformationGPRSArg {PARAMETERS-BOUND : bound} ::=
    FCIGPRSBillingChargingCharacteristics{bound}

FCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= OCTET STRING (SIZE(
    bound.&minFCIBillingChargingLength .. bound.&maxFCIBillingChargingLength))
    (CONSTRAINED BY {-- shall be the result of the BER-encoded value of type -
    CAMEL-FCIGPRSBillingChargingCharacteristics {bound}})
-- This parameter indicates the GPRS billing and/or charging characteristics.
-- The violation of the UserDefinedConstraint shall be handled as an ASN.1 syntax error.

CAMEL-FCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= SEQUENCE{
    fCIBCCCAMELsequence1        [0] SEQUENCE {
        freeFormatData              [0] OCTET STRING (SIZE(
            bound.&minFCIBillingChargingDataLength .. bound.&maxFCIBillingChargingDataLength)),
        pDPID                   [1] PDPID OPTIONAL,
        appendFreeFormatData    [2] AppendFreeFormatData    DEFAULT overwrite,
        ...
        }
    }
```

The maximum length of the CAMEL-FCIGPRSBillingChargingCharacteristics for is in following example ~~172~~ at least 175 octets.

SEQUENCE{
30 81 AC <-- length 172
fCIBCCCAMELsequence1
A0 81 A9 <-- length 169
freeFormatData
80 81 A0 <-- length 160, maximum length is 160
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
01 02 03 04 05 06 07 08 09 00
pDPID
80 01 12
AppendFreeFormatData
82 01 00
…
?? ?? ??

2. Conclusion

The constant MAXIMUM-FOR-FCI-BILLING-CHARGING is used for the FCI operation for circuit switch call control (>=174), MO-SMS (>=169) control and GPRS control (>=175). The value of MAXIMUM-FOR-FCI-BILLING-CHARGING shall therefore be set to 175+ <reservation for future expansions>.

****** FIRST MODIFIED SECTION ******

5.5 Classes

```
cAPSpecificBoundSet PARAMETERS-BOUND ::=
{
    MINIMUM-FOR-ACCESS-POINT-NAME               1
    MAXIMUM-FOR-ACCESS-POINT-NAME               100
    MINIMUM-FOR-ACH-BILLING-CHARGING            5
    MAXIMUM-FOR-ACH-BILLING-CHARGING            177
    MINIMUM-FOR-ATTRIBUTES                      2
    MAXIMUM-FOR-ATTRIBUTES                      10
    MAXIMUM-FOR-BEARER-CAPABILITY               11
    MINIMUM-FOR-CALLED-PARTY-BCD-NUMBER         1
    MAXIMUM-FOR-CALLED-PARTY-BCD-NUMBER         41
    MINIMUM-FOR-CALLED-PARTY-NUMBER             3
    MAXIMUM-FOR-CALLED-PARTY-NUMBER             18
    MINIMUM-FOR-CALLING-PARTY-NUMBER            2
    MAXIMUM-FOR-CALLING-PARTY-NUMBER            10
    MINIMUM-FOR-CALL-RESULT                     12
    MAXIMUM-FOR-CALL-RESULT                     186
    MINIMUM-FOR-CARRIER                         4
    MAXIMUM-FOR-CARRIER                         4
    MINIMUM-FOR-CAUSE                           2
    MAXIMUM-FOR-CAUSE                           32
    MINIMUM-FOR-DIGITS                          2
    MAXIMUM-FOR-DIGITS                          16
    MINIMUM-FOR-FCI-BILLING-CHARGING-DATA       1
    MAXIMUM-FOR-FCI-BILLING-CHARGING-DATA       160
    MINIMUM-FOR-FCI-BILLING-CHARGING            5
    MAXIMUM-FOR-FCI-BILLING-CHARGING            ~~174~~225
    MINIMUM-FOR-GENERIC-NUMBER                  3
    MAXIMUM-FOR-GENERIC-NUMBER                  11
    MINIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MAXIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MINIMUM-FOR-IP-SSP-CAPABILITIES             1
    MAXIMUM-FOR-IP-SSP-CAPABILITIES             4
    MINIMUM-FOR-LOCATION-NUMBER                 2
    MAXIMUM-FOR-LOCATION-NUMBER                 10
    MINIMUM-FOR-MESSAGE-CONTENT                 1
    MAXIMUM-FOR-MESSAGE-CONTENT                 127
    MINIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        2
    MAXIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        10
    MINIMUM-FOR-PDP-ADDRESS-LENGTH              1
    MAXIMUM-FOR-PDP-ADDRESS-LENGTH              63
    MINIMUM-FOR-REDIRECTING-ID                  2
    MAXIMUM-FOR-REDIRECTING-ID                  10
    MINIMUM-FOR-GSMSCF-ID                       2
    MAXIMUM-FOR-GSMSCF-ID                       10
    MINIMUM-FOR-SCI-BILLING-CHARGING            4
    MAXIMUM-FOR-SCI-BILLING-CHARGING            69
    MINIMUM-FOR-TIME-AND-TIMEZONE               8
    MAXIMUM-FOR-TIME-AND-TIMEZONE               8
    NUM-OF-BCSM-EVENT                           10
    NUM-OF-SMS-EVENTS                           10
    NUM-OF-GPRS-EVENTS                          10
    NUM-OF-EXTENSIONS                           10
    NUM-OF-GENERIC-NUMBERS                      5
    NUM-OF-MESSAGE-IDS                          16
}
END
```

****** END OF DOCUMENT ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010813

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 204** ⌘ rev **1** ⌘ Current version: **3.9.0** ⌘

*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 **X**

Title:	⌘	Correction of the MAXIMUM-FOR-SCI-BILLING-CHARGING value
Source:	⌘	Nokia
Work item code:	⌘	CAMEL phase 3
Date:	⌘	16.10.2001
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)*
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 value of 69 for MAXIMUM-FOR-SCI-BILLING-CHARGING does not allow the gsmSCF to send all optional data to the gprsSSF in the SendChargingInformationGPRS operation. See the *Informative section* of the present CR for coding example. On the other hand, the MAXIMUM-FOR-SCI-BILLING-CHARGING does not allow specify new parameters after ellipsis, this CR therefore proposes to add 50 octets for the future expansions.
Summary of change:	⌘	The maximum length is corrected to the value 74+50=124.
Consequences if not approved:	⌘	The result will be that the gsmSCF can not send the all required parameters in SCI-operation and the future expansions after ellipsis are not possible.

Clauses affected:	⌘	5.5
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://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.

****** FOR INFORMATION ******

1. GPRS case

The maximum length of SCIGPRSBillingChargingCharacteristics follows from the encoding of CAMEL-SCIGPRSBillingChargingCharacteristics. See ASN.1 syntax below.

```
SendChargingInformationGPRSArg {PARAMETERS-BOUND: bound}::= SEQUENCE {
    sCIGPRSBillingChargingCharacteristics   [0] SCIGPRSBillingChargingCharacteristics { bound},
    ...
    }

SCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= OCTET STRING (SIZE (
    bound.&minSCIBillingChargingLength .. bound.&maxSCIBillingChargingLength))
    (CONSTRAINED BY {-- shall be the result of the BER-encoded value of type –
    CAMEL-SCIGPRSBillingChargingCharacteristics})
-- Indicates AOC information to be sent to a Mobile Station
-- The violation of the UserDefinedConstraint shall be handled as an ASN.1 syntax error.

CAMEL-SCIGPRSBillingChargingCharacteristics ::= SEQUENCE {              2
    aOCGPRS                 [0] AOCGPRS,                                  69
    pDPID                   [1] PDPID   OPTIONAL,                  +      3
    ...                                                                   ?
    }                                                                ==========
                                                                          74+?

AOCGPRS                             ::= SEQUENCE {
    aOCInitial              [0] CAI-GSM0224,                              30
    aOCSubsequent           [1] AOCSubsequent   OPTIONAL                  37
    }

AOCSubsequent               ::= SEQUENCE {
    cAI-GSM0224             [0] CAI-GSM0224 ,                             30
    tariffSwitchInterval        [1] INTEGER (1..86400)      OPTIONAL            5
    }

CAI-GSM0224                 ::= SEQUENCE {
    e1                      [0] INTEGER (0..8191)       OPTIONAL,       4
    e2                      [1] INTEGER (0..8191)       OPTIONAL,       4
    e3                      [2] INTEGER (0..8191)       OPTIONAL,       4
    e4                      [3] INTEGER (0..8191)       OPTIONAL,       4
    e5                      [4] INTEGER (0..8191)       OPTIONAL,       4
    e6                      [5] INTEGER (0..8191)       OPTIONAL,       4
    e7                      [6] INTEGER (0..8191)       OPTIONAL            4
    }

PDPID                       ::= OCTET STRING (SIZE (1))                 3
```

The maximum length of the CAMEL-SCIGPRSBillingChargingCharacteristics for is in following example at least 74 octets.

2. Conclusion

The constant MAXIMUM-FOR-SCI-BILLING-CHARGING is used for the SCI operation for circuit switch call control and GPRS control (>=74). The value of MAXIMUM-FOR-SCI-BILLING-CHARGING shall therefore be set to 74+ <reservation for future expansions>.

****** FIRST MODIFIED SECTION ******

5.5 Classes

```
cAPSpecificBoundSet PARAMETERS-BOUND ::=
{
    MINIMUM-FOR-ACCESS-POINT-NAME               1
    MAXIMUM-FOR-ACCESS-POINT-NAME               100
    MINIMUM-FOR-ACH-BILLING-CHARGING            5
    MAXIMUM-FOR-ACH-BILLING-CHARGING            177
    MINIMUM-FOR-ATTRIBUTES                      2
    MAXIMUM-FOR-ATTRIBUTES                      10
    MAXIMUM-FOR-BEARER-CAPABILITY               11
    MINIMUM-FOR-CALLED-PARTY-BCD-NUMBER         1
    MAXIMUM-FOR-CALLED-PARTY-BCD-NUMBER         41
    MINIMUM-FOR-CALLED-PARTY-NUMBER             3
    MAXIMUM-FOR-CALLED-PARTY-NUMBER             18
    MINIMUM-FOR-CALLING-PARTY-NUMBER            2
    MAXIMUM-FOR-CALLING-PARTY-NUMBER            10
    MINIMUM-FOR-CALL-RESULT                     12
    MAXIMUM-FOR-CALL-RESULT                     186
    MINIMUM-FOR-CARRIER                         4
    MAXIMUM-FOR-CARRIER                         4
    MINIMUM-FOR-CAUSE                           2
    MAXIMUM-FOR-CAUSE                           32
    MINIMUM-FOR-DIGITS                          2
    MAXIMUM-FOR-DIGITS                          16
    MINIMUM-FOR-FCI-BILLING-CHARGING-DATA       1
    MAXIMUM-FOR-FCI-BILLING-CHARGING-DATA       160
    MINIMUM-FOR-FCI-BILLING-CHARGING            5
    MAXIMUM-FOR-FCI-BILLING-CHARGING            174
    MINIMUM-FOR-GENERIC-NUMBER                  3
    MAXIMUM-FOR-GENERIC-NUMBER                  11
    MINIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MAXIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MINIMUM-FOR-IP-SSP-CAPABILITIES             1
    MAXIMUM-FOR-IP-SSP-CAPABILITIES             4
    MINIMUM-FOR-LOCATION-NUMBER                 2
    MAXIMUM-FOR-LOCATION-NUMBER                 10
    MINIMUM-FOR-MESSAGE-CONTENT                 1
    MAXIMUM-FOR-MESSAGE-CONTENT                 127
    MINIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        2
    MAXIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        10
    MINIMUM-FOR-PDP-ADDRESS-LENGTH              1
    MAXIMUM-FOR-PDP-ADDRESS-LENGTH              63
    MINIMUM-FOR-REDIRECTING-ID                  2
    MAXIMUM-FOR-REDIRECTING-ID                  10
    MINIMUM-FOR-GSMSCF-ID                       2
    MAXIMUM-FOR-GSMSCF-ID                       10
    MINIMUM-FOR-SCI-BILLING-CHARGING            4
    MAXIMUM-FOR-SCI-BILLING-CHARGING            69124
    MINIMUM-FOR-TIME-AND-TIMEZONE               8
    MAXIMUM-FOR-TIME-AND-TIMEZONE               8
    NUM-OF-BCSM-EVENT                           10
    NUM-OF-SMS-EVENTS                           10
    NUM-OF-GPRS-EVENTS                          10
    NUM-OF-EXTENSIONS                           10
    NUM-OF-GENERIC-NUMBERS                      5
    NUM-OF-MESSAGE-IDS                          16
}
END
```

****** END OF DOCUMENT ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010814

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 205** ⌘ 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 ☐ Core Network **X**

Title:	⌘	Correction of the MAXIMUM-FOR-SCI-BILLING-CHARGING value
Source:	⌘	Nokia
Work item code:	⌘	CAMEL phase 3
Date:	⌘	16.10.2001
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:	⌘	The current value of 69 for MAXIMUM-FOR-SCI-BILLING-CHARGING does not allow the gsmSCF to send all optional data to the gprsSSF in the SendChargingInformationGPRS operation. See the *Informative section* of the present CR for coding example. On the other hand, the MAXIMUM-FOR-SCI-BILLING-CHARGING does not allow specify new parameters after ellipsis, this CR therefore proposes to add 50 octets for the future expansions.
Summary of change:	⌘	The maximum length is corrected to the value 74+50=124.
Consequences if not approved:	⌘	The result will be that the gsmSCF can not send the all required parameters in SCI-operation and the future expansions after ellipsis are not possible.

Clauses affected:	⌘	5.5
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://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.

****** FOR INFORMATION ******

1. GPRS case

The maximum length of SCIGPRSBillingChargingCharacteristics follows from the encoding of CAMEL-SCIGPRSBillingChargingCharacteristics. See ASN.1 syntax below.

```
SendChargingInformationGPRSArg {PARAMETERS-BOUND: bound}::= SEQUENCE {
    sCIGPRSBillingChargingCharacteristics   [0] SCIGPRSBillingChargingCharacteristics { bound},
    ...
    }

SCIGPRSBillingChargingCharacteristics {PARAMETERS-BOUND : bound} ::= OCTET STRING (SIZE (
    bound.&minSCIBillingChargingLength .. bound.&maxSCIBillingChargingLength))
    (CONSTRAINED BY {-- shall be the result of the BER-encoded value of type –
    CAMEL-SCIGPRSBillingChargingCharacteristics})
-- Indicates AOC information to be sent to a Mobile Station
-- The violation of the UserDefinedConstraint shall be handled as an ASN.1 syntax error.

CAMEL-SCIGPRSBillingChargingCharacteristics ::= SEQUENCE {              2
    aOCGPRS                 [0] AOCGPRS,                                  69
    pDPID                   [1] PDPID   OPTIONAL,                   +     3
    ...                                                                   ?
    }                                                                ==========
                                                                          74+?

AOCGPRS                         ::= SEQUENCE {
    aOCInitial              [0] CAI-GSM0224,                              30
    aOCSubsequent           [1] AOCSubsequent   OPTIONAL                  37
    }

AOCSubsequent               ::= SEQUENCE {
    cAI-GSM0224             [0] CAI-GSM0224 ,                             30
    tariffSwitchInterval        [1] INTEGER (1..86400)      OPTIONAL            5
    }

CAI-GSM0224                 ::= SEQUENCE {
    e1                      [0] INTEGER (0..8191)       OPTIONAL,       4
    e2                      [1] INTEGER (0..8191)       OPTIONAL,       4
    e3                      [2] INTEGER (0..8191)       OPTIONAL,       4
    e4                      [3] INTEGER (0..8191)       OPTIONAL,       4
    e5                      [4] INTEGER (0..8191)       OPTIONAL,       4
    e6                      [5] INTEGER (0..8191)       OPTIONAL,       4
    e7                      [6] INTEGER (0..8191)       OPTIONAL            4
    }

PDPID                       ::= OCTET STRING (SIZE (1))                   3
```

The maximum length of the CAMEL-SCIGPRSBillingChargingCharacteristics for is in following example at least 74 octets.

2. Conclusion

The constant MAXIMUM-FOR-SCI-BILLING-CHARGING is used for the SCI operation for circuit switch call control and GPRS control (>=74). The value of MAXIMUM-FOR-SCI-BILLING-CHARGING shall therefore be set to 74+ <reservation for future expansions>.

****** FIRST MODIFIED SECTION ******

5.5 Classes

```
cAPSpecificBoundSet PARAMETERS-BOUND ::=
{
    MINIMUM-FOR-ACCESS-POINT-NAME               1
    MAXIMUM-FOR-ACCESS-POINT-NAME               100
    MINIMUM-FOR-ACH-BILLING-CHARGING            5
    MAXIMUM-FOR-ACH-BILLING-CHARGING            177
    MINIMUM-FOR-ATTRIBUTES                      2
    MAXIMUM-FOR-ATTRIBUTES                      10
    MAXIMUM-FOR-BEARER-CAPABILITY               11
    MINIMUM-FOR-CALLED-PARTY-BCD-NUMBER         1
    MAXIMUM-FOR-CALLED-PARTY-BCD-NUMBER         41
    MINIMUM-FOR-CALLED-PARTY-NUMBER             3
    MAXIMUM-FOR-CALLED-PARTY-NUMBER             18
    MINIMUM-FOR-CALLING-PARTY-NUMBER            2
    MAXIMUM-FOR-CALLING-PARTY-NUMBER            10
    MINIMUM-FOR-CALL-RESULT                     12
    MAXIMUM-FOR-CALL-RESULT                     186
    MINIMUM-FOR-CARRIER                         4
    MAXIMUM-FOR-CARRIER                         4
    MINIMUM-FOR-CAUSE                           2
    MAXIMUM-FOR-CAUSE                           32
    MINIMUM-FOR-DIGITS                          2
    MAXIMUM-FOR-DIGITS                          16
    MINIMUM-FOR-FCI-BILLING-CHARGING-DATA       1
    MAXIMUM-FOR-FCI-BILLING-CHARGING-DATA       160
    MINIMUM-FOR-FCI-BILLING-CHARGING            5
    MAXIMUM-FOR-FCI-BILLING-CHARGING            174
    MINIMUM-FOR-GENERIC-NUMBER                  3
    MAXIMUM-FOR-GENERIC-NUMBER                  11
    MINIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MAXIMUM-FOR-GPRS-CAUSE-LENGTH               1
    MINIMUM-FOR-IP-SSP-CAPABILITIES             1
    MAXIMUM-FOR-IP-SSP-CAPABILITIES             4
    MINIMUM-FOR-LOCATION-NUMBER                 2
    MAXIMUM-FOR-LOCATION-NUMBER                 10
    MINIMUM-FOR-MESSAGE-CONTENT                 1
    MAXIMUM-FOR-MESSAGE-CONTENT                 127
    MINIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        2
    MAXIMUM-FOR-ORIGINAL-CALLED-PARTY-ID        10
    MINIMUM-FOR-PDP-ADDRESS-LENGTH              1
    MAXIMUM-FOR-PDP-ADDRESS-LENGTH              63
    MINIMUM-FOR-REDIRECTING-ID                  2
    MAXIMUM-FOR-REDIRECTING-ID                  10
    MINIMUM-FOR-GSMSCF-ID                       2
    MAXIMUM-FOR-GSMSCF-ID                       10
    MINIMUM-FOR-SCI-BILLING-CHARGING            4
    MAXIMUM-FOR-SCI-BILLING-CHARGING            69124
    MINIMUM-FOR-TIME-AND-TIMEZONE               8
    MAXIMUM-FOR-TIME-AND-TIMEZONE               8
    NUM-OF-BCSM-EVENT                           10
    NUM-OF-SMS-EVENTS                           10
    NUM-OF-GPRS-EVENTS                          10
    NUM-OF-EXTENSIONS                           10
    NUM-OF-GENERIC-NUMBERS                      5
    NUM-OF-MESSAGE-IDS                          16
}
END
```

****** END OF DOCUMENT ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October, 2001

Tdoc N2-010826
(revision of N2-010794)

CHANGE REQUEST

⌘ **29.078** **CR** **209** ⌘ rev **1** ⌘ Current version: 3.9.0 ⌘

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

Title:	⌘	Introduction of SMS Reference Number
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	17 October 2001
Category:	⌘	F (agreed by consensus)
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 present CR proposes the introduction of a Reference Number for CAMEL control of Mobile Originated SMS (MO-SMS).

The SMS Reference Number shall be an optional feature for R99.

During the processing of an SMS, the MSC/SGSN may produce a CDR. If that SMS is subject to CAMEL control, the SCP may also produce a CDR for that SMS.

It shall be possible for CDR post processing systems to correlate the SMS CDRs produced by the MSC/SGSN with the SMS CDRs produced by the SCP.

This may be achieved by means of a 'SMS Reference Number'. This Reference Number is produced in the MSC/SGSN at the time of SMS processing. The MSC/SGSN reports this Reference Number to the SCP, together with the MSC Address/SGSN Number.

The MSC/SGSN shall place this SMS Reference Number and the MSC Address/SGSN Number in the CDR for that SMS.

The SMS Reference Number shall be unique within the MSC/SGSN.

The combination of SMS Reference Number and MSC Address/SGSN Number forms a globally unique pair. This uniqueness guarantees that the CDR post processing system can correlate these CDRs.

Summary of change: ⌘

If a Mobile Originated Short Message is subject to CAMEL control, then:

1. The MSC/SGSN shall generate an SMS Reference Number.
2. The MSC/SGSN shall report this Reference Number, together with the MSC

		Address/SGSN Number, to the SCP. 3. The MSC/SGSN shall place this Reference Number and the MSC Address/SGSN Number in the SMS CDR.
Consequences if not approved:	⌘	Correlation of SMS CDRs produced by the MSC/SGSN with SMS CDRs produced by the SCP will not be possible. The ability to correlate CDRs is very important for charging post-processing systems.

Clauses affected:	⌘	7.1, 11.32			
Other specs affected:	⌘	**X**	Other core specifications	⌘	23.078, 32.005, 32.015
			Test specifications		
			O&M Specifications		
Other comments:	⌘	3GPP-SA5 shall be informed about this change, so they can include these elements in 3GPP TS 32.005 and in 3GPP TS 32.015.			

***** First Change *****

7 MO SMS Control

This clause defines the operations, arguments, packages and appliaction contexts used for CSE control of MO SMS over the gsmSCF – gprsSSF and gsmSCF – gsmSSF interfaces.

7.1 SMS operations and arguments

```
CAP-SMS-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-SMS-ops-args(105) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

-- This module contains the operations and operation arguments used for the
-- gsmSSF/gprsSSF – gsmSCF interface, for the control of MO-SMS.

-- The table in section 2.1 lists the specifications that contain the modules
-- that are used by CAP.

IMPORTS

…

< unmodified ASN.1 >

…

    CallReferenceNumber,
FROM MAP-CH-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-network(1) modules(3) map-CH-DataTypes(13) version6(6)}

…

< unmodified ASN.1 >

…

initialDPSMS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT        InitialDPSMSArg {bound}
    RETURN RESULT   FALSE
    ERRORS          {missingCustomerRecord |
                     missingParameter |
                     parameterOutOfRange |
                     systemFailure |
                     taskRefused |
                     unexpectedComponentSequence |
                     unexpectedDataValue |
                     unexpectedParameter}
    CODE            opcode-initialDPSMS
    }
--  Direction: gsmSSF or gprsSSF -> gsmSCF, Timer: T_idpsms
--  This operation is used after a TDP to indicate request for service.

InitialDPSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    serviceKey                          [0] ServiceKey,
    destinationSubscriberNumber         [1] CalledPartyBCDNumber {bound}        OPTIONAL,
    callingPartyNumber                  [2] ISDN-AddressString                  OPTIONAL,
    eventTypeSMS                        [3] EventTypeSMS                        OPTIONAL,
    iMSI                                [4] IMSI                                OPTIONAL,
    locationInformationMSC              [5] LocationInformation                 OPTIONAL,
    locationInformationGPRS             [6] LocationInformationGPRS             OPTIONAL,
    sMSCAddress                         [7] ISDN-AddressString                  OPTIONAL,
    timeAndTimezone                     [8] TimeAndTimezone {bound}             OPTIONAL,
    tPShortMessageSubmissionInfo        [9] TPShortMessageSubmissionInfo        OPTIONAL,
    tPProtocolIdentifier                [10] TPProtocolIdentifier               OPTIONAL,
    tPDataCodingScheme                  [11] TPDataCodingScheme                 OPTIONAL,
    tPValidityPeriod                    [12] TPValidityPeriod                   OPTIONAL,
    extensions                          [13] Extensions {bound}                 OPTIONAL,
    ...,
    smsReferenceNumber                  [14] CallReferenceNumber                OPTIONAL,
    mscAddress                          [15] ISDN-AddressString                 OPTIONAL,
    sgsn-Number                         [16] ISDN-AddressString                 OPTIONAL
    }

…
```

< unmodified ASN.1 >

…

****** Next Change ******

11.32 InitialDPSMS procedure

11.32.1 General description

This operation is sent by the gsmSSF or gprsSSF after detection of a TDP-R in the FSM, to request the gsmSCF for instructions to complete the MO SMS submission.

11.32.1.1 Parameters

- destinationSubscriberNumber:
  This IE contains a number to identify the Destination short message entity.

- callingPartyNumber:
  This parameter carries the MSISDN of the sending MS.

- eventType:
  This parameter indicates the armed FSM DP event, resulting in the InitialDPSMS operation.

- iMSI:
  IMSI of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3GPP TS 29.002 [13].

- locationInformationInMSC:
  This parameter indicates the location of the sending MS when the SM is sent via MSC.

- locationInformationInSGSN:
  This parameter indicates the location of the sending MS when the SM is sent via GPRS SGSN.

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for gsmSCF addressing).

- timeAndTimezone:
  This parameter contains the time that the gsmSSF/gprsSSF was triggered, and the time zone that the invoking gsmSSF/gprsSSF resides in.

- tPDataCodingScheme:
  This IE indicates the data coding scheme of the TP-User Data element within the TPDU. It may indicate a message class. The message class may indicate e.g. the originator of Short Message.

- tPShortMessageSubmissionInfo:
  This IE contains the 1st octet of the TPDU. Refer to 3G TS 23.040 [46] for a description of the various TPDUs.

- tPProtocolIdentifier:
  This IE indicates the protocol used above SM-Transfer Layer.

- tPValidityPeriod:
  This IE indicates the length of the validity period or the absolute time of the validity period termination.

- sMSCAddress:
  This I.E defines the address of the SMSC to which the MO short message is intended to be submitted.

- smsReferenceNumber:
  This parameter contains the SMS Reference Number assigned to the Short Message by the MSC or SGSN.

- mscAddress:
  This parameter contains the E.164 address of the MSC. It ~~shall~~may be present if the SMS processing takes place in the MSC; otherwise shall be absent.

- sgsn-Number:
  This parameter contains the Global Title of the SGSN. It ~~shall~~may be present if the SMS processing takes place in the SGSN; otherwise shall be absent.

11.32.2 Invoking entity (gsmSSF or gprsSSF)

11.32.2.1 Normal procedure

gsmSSF/gprsSSF preconditions:

(1) A MO SMS submission attempt has been initiated.

(2) An event has been detected at a DP.

gsmSSF/gprsSSF postcondition:

(1) A control relationship has been established and the gsmSSF/gprsSSF waits for instructions from the gsmSCF.

The address of the gsmSCF the InitialDPSMS operation shall be sent to is fetched from the SMS-CSI. The gsmSSF or gprsSSF provides all available parameters.

A control relationship is established to the gsmSCF. The gsmSSF/gprsSSF application timer T_{SSF} is set when the gsmSSF/gprsSSF sends InitialDPSMS for requesting instructions from the gsmSCF. It is used to prevent from excessive SMS delivery suspension time.

11.32.2.2 Error handling

If the destination gsmSCF is not accessible then the gsmSSF/gprsSSF instructs the MSC/SGSN to handle the SM according to the Default SMS Handling parameter of the SMS-CSI.

On expiration of T_{SSF} before receiving any operation, the gsmSSF/gprsSSF aborts the interaction with the gsmSCF and instructs the VMSC/SGSN to handle the SM according to the Default SMS Handling parameter of the SMS-CSI.

If the sending mobile party abandons after the sending of InitialDPSMS, then the gsmSSF/gprsSSF closes the control relationship after the first answer message from the gsmSCF has been received, and after the SMSC has responded or a timer has expired.

Generic error handling for the operation related errors is described in clause 10 and the TC services which are used for reporting operation errors are described in clause 12.

****** End of Document ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010844

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 206** ⌘ rev **2** ⌘ Current version: **3.9.0** ⌘

*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 **X**

Title:	⌘	Precision about default values for ServiceInteractionIndicatorsTwo parameters
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-18
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)*
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:	⌘	In the 23.078 specification it is said :" Call parameters which are not included in the Int_Continue_With_Argument message are unchanged" (same for Connect). In the 29.078 specification, "network default" is introduced in order to give the MSC treatment when the call parameters are absent : - "network default" should mean that if such a parameter is neither received from ISUP neither from CAP, the default is to accept the supplementary service - This should mean that if the parameter is not received in the CAP operation, the previous behaviour applies (i.e. if a previous CAMEL processing set it to "Reject…" the call handling still reject the supplementary service and does not apply the "network default".
Summary of change:	⌘	Alignement to the 23.078 : - Addition to the ASN1 definitions a comment to fix the treatment when call parameters are absent - removal of the notion of “network default”.
Consequences if not approved:	⌘	Various implementations of CAMEL interactions on supplementary services may occur.

Clauses affected:	⌘	5.1 ; A.3 (Table A.4)
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

***** First modified section *****

5 Common CAP Types

5.1 Data types

……..

```
BackwardServiceInteractionInd       ::= SEQUENCE {
    conferenceTreatmentIndicator        [1] OCTET STRING (SIZE(1))  OPTIONAL,
    -- acceptConferenceRequest  'xxxx xx01'B
    -- rejectConferenceRequest  'xxxx xx10'B
    -- network default is accept conference request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect conference treatement
    callCompletionTreatmentIndicator    [2] OCTET STRING (SIZE(1))  OPTIONAL,
    -- acceptCallCompletionServiceRequest   'xxxx xx01'B,
    -- rejectCallCompletionServiceRequest   'xxxx xx10'B
    -- network default is accept call completion service request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call completion treatment
    ...
    }
```

……..

```
ForwardServiceInteractionInd                        ::= SEQUENCE {
    conferenceTreatmentIndicator    [1] OCTET STRING (SIZE(1))          OPTIONAL,
    -- acceptConferenceRequest  'xxxx xx01'B
    -- rejectConferenceRequest  'xxxx xx10'B
    -- network default is accept conference request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect conference treatment
    callDiversionTreatmentIndicator [2] OCTET STRING (SIZE(1))      OPTIONAL,
    -- callDiversionAllowed     'xxxx xx01'B
    -- callDiversionNotAllowed  'xxxx xx10'B
    -- network default is Call Diversion allowed
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call diversion treatment
    callingPartyRestrictionIndicator [4] OCTET STRING (SIZE(1))     OPTIONAL,
    -- noINImpact               'xxxx xx01'B
    -- presentationRestricted   'xxxx xx10'B
    -- network default is noINImpact
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect calling party restriction treatment
    ...
    }
```

…….

```
ServiceInteractionIndicatorsTwo                         ::= SEQUENCE {
    forwardServiceInteractionInd        [0] ForwardServiceInteractionInd        OPTIONAL,
    -- applicable to operations InitialDP, Connect and ContinueWithArgument.
    backwardServiceInteractionInd       [1] BackwardServiceInteractionInd       OPTIONAL,
    -- applicable to operations Connect and ContinueWithArgument.
    bothwayThroughConnectionInd         [2] BothwayThroughConnectionInd         OPTIONAL,
    -- applicable to ConnectToResource and EstablishTemporaryConnection
    connectedNumberTreatmentInd         [4] ConnectedNumberTreatmentInd         OPTIONAL,
    -- applicable to Connect and ContinueWithArgument
    nonCUGCall                          [13] NULL                               OPTIONAL,
    -- applicable to Connect and ContinueWithArgument
    -- indicates that no parameters for CUG shall be used for the call (i.e. the call shall
    -- be a non-CUG call).
    -- If not present, it indicates one of three things:
    --  a) continue with modified CUG information (when one or more of either CUG Interlock Code
    --     and Outgoing Access Indicator are present), or
    --  b) continue with original CUG information (when neither CUG Interlock Code or Outgoing
    --     Access Indicator are present), i.e. no IN impact.
    --  c) continue with the original non-CUG call.
    holdTreatmentIndicator              [50] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptHoldRequest    'xxxx xx01'B
    -- rejectHoldRequest    'xxxx xx10'B
    -- network default is accept hold request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call hold treatment
    cwTreatmentIndicator                [51] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptCw 'xxxx xx01'B
```

```
    -- rejectCw 'xxxx xx10'B
    -- network default is accept cw
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call waiting treatment
    ectTreatmentIndicator               [52] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptEctRequest 'xxxx xx01'B
    -- rejectEctRequest 'xxxx xx10'B
    -- network default is accept ect request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect explicit call transfer treatment
    ...
    }
```

***** Next modified section *****

A.3 Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.3). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in 3GPP TS 09.12 [51].

Table A.3 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.3

CAP operation Connect (Note 1)	ISUP message IAM
destinationRoutingAddress	Called party number
originalCalledPartyID	Original called number
CallingPartysCategory	Calling party's category
RedirectingPartyID	Redirecting number
RedirectionInformation	Redirection information
genericNumbers	Generic number (Note 2)
ServiceInteractionIndicatorTwo	See Table A.4

NOTE 1: Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2: The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

Table A.4– Mapping of the CAP Connect and ContinueWithArgument operation serviceInteractionIndicatorsTwo to ISUP

Table A.4

CAP ServiceInteractionIndicators	ISUP parameter in ACM/CPG/CON/ANM/REL	ISUP parameter in IAM
Call to be diverted indicator – call diversion allowed ~~(default)~~ – call diversion not allowed	---	Call diversion treatment indicators parameter Call to be diverted indicator – no indication – call diversion allowed – call diversion not allowed
Conference at DLE accept. ind. – accept conference request ~~(default)~~ – reject conference request	---	Conference treatment indicators parameter Conference acceptance ind. – no indication – accept conference request – reject conference request
Calling party restriction indicator - no IN impact ~~(default)~~ - presentation restricted	---	**Calling party number address presentation restricted indicator** - no impact - presentation restricted
Conference at OLE accept. ind. – accept conference request ~~(default)~~ – reject conference request	**ACM/CPG/CON/ANM: Conference treatment indicators parameter** Conference acceptance ind. – no indication – accept conference request – reject conference request	**---**
Call completion treatment indicator - accept CCBS service request ~~(default)~~ - reject CCBS service request	**REL, busy cause** Diagnostig field – CCBS possible – CCBS not possible	**---**
Connected number treatment indicator – no IN impact – presentation restricted – present called IN number – present called IN number restricted	Note 3	

NOTE 3:

If 'no IN impact' was received in the CAP serviceInteractionIndicatorsTwo (connected number treatment indicator), then a connected number parameter and a generic number parameter 'additional connected number' are passed on unchanged.

If 'presentation restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

b) If a generic number parameter 'additional connected number' has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

c) If a redirection number parameter has been received, a redirection number restriction parameter is sent in the ANM message with bits AB set to 'presentation restricted'.

If 'present called IN number' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

address presentation restricted indicator: 00 (presentation allowed),

address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

If 'present called IN number restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

address presentation restricted indicator: 01 (presentation restricted),

address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October, 2001

Tdoc N2-010849

CHANGE REQUEST

⌘ **29.078** **CR** **210** ⌘ rev ⌘ Current version: 4.2.0 ⌘

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

Title:	⌘	Introduction of SMS Reference Number
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	17 October 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)*

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 present CR proposes the introduction of a Reference Number for CAMEL control of Mobile Originated SMS (MO-SMS).

The SMS Reference Number shall be an optional feature for Rel-4.

During the processing of an SMS, the MSC/SGSN may produce a CDR. If that SMS is subject to CAMEL control, the SCP may also produce a CDR for that SMS.

It shall be possible for CDR post processing systems to correlate the SMS CDRs produced by the MSC/SGSN with the SMS CDRs produced by the SCP.

This may be achieved by means of a 'SMS Reference Number'. This Reference Number is produced in the MSC/SGSN at the time of SMS processing. The MSC/SGSN reports this Reference Number to the SCP, together with the MSC Address/SGSN Number.

The MSC/SGSN shall place this SMS Reference Number and the MSC Address/SGSN Number in the CDR for that SMS.

The SMS Reference Number shall be unique within the MSC/SGSN.

The combination of SMS Reference Number and MSC Address/SGSN Number forms a globally unique pair. This uniqueness guarantees that the CDR post processing system can correlate these CDRs.

Summary of change: ⌘

If a Mobile Originated Short Message is subject to CAMEL control, then:

1. The MSC/SGSN shall generate an SMS Reference Number.
2. The MSC/SGSN shall report this Reference Number, together with the MSC

		Address/SGSN Number, to the SCP. 3. The MSC/SGSN shall place this Reference Number and the MSC Address/SGSN Number in the SMS CDR.
Consequences if not approved:	⌘	Correlation of SMS CDRs produced by the MSC/SGSN with SMS CDRs produced by the SCP will not be possible. The ability to correlate CDRs is very important for charging post-processing systems.

Clauses affected:	⌘	7.1, 11.32			
Other specs affected:	⌘	**X**	Other core specifications	⌘	23.078, 32.005, 32.015
			Test specifications		
			O&M Specifications		
Other comments:	⌘	3GPP-SA5 shall be informed about this change, so they can include these elements in 3GPP TS 32.005 and in 3GPP TS 32.015.			

***** First Change *****

7 MO SMS Control

This clause defines the operations, arguments, packages and appliaction contexts used for CSE control of MO SMS over the gsmSCF – gprsSSF and gsmSCF – gsmSSF interfaces.

7.1 SMS operations and arguments

```
CAP-SMS-ops-args {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-network(1)
modules(3) cap-SMS-ops-args(105) version3(2)}

DEFINITIONS IMPLICIT TAGS::= BEGIN

-- This module contains the operations and operation arguments used for the
-- gsmSSF/gprsSSF – gsmSCF interface, for the control of MO-SMS.

-- The table in section 2.1 lists the specifications that contain the modules
-- that are used by CAP.

IMPORTS

…

< unmodified ASN.1 >

…

    CallReferenceNumber,
FROM MAP-CH-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-network(1) modules(3) map-CH-DataTypes(13) version6(6)}

…

< unmodified ASN.1 >

…

initialDPSMS {PARAMETERS-BOUND : bound} OPERATION ::= {
    ARGUMENT        InitialDPSMSArg {bound}
    RETURN RESULT   FALSE
    ERRORS          {missingCustomerRecord |
                     missingParameter |
                     parameterOutOfRange |
                     systemFailure |
                     taskRefused |
                     unexpectedComponentSequence |
                     unexpectedDataValue |
                     unexpectedParameter}
    CODE            opcode-initialDPSMS
    }
--  Direction: gsmSSF or gprsSSF -> gsmSCF, Timer: T_idpsms
--  This operation is used after a TDP to indicate request for service.

InitialDPSMSArg {PARAMETERS-BOUND : bound} ::= SEQUENCE {
    serviceKey                      [0] ServiceKey,
    destinationSubscriberNumber     [1] CalledPartyBCDNumber {bound}        OPTIONAL,
    callingPartyNumber              [2] ISDN-AddressString                  OPTIONAL,
    eventTypeSMS                    [3] EventTypeSMS                        OPTIONAL,
    iMSI                            [4] IMSI                                OPTIONAL,
    locationInformationMSC          [5] LocationInformation                 OPTIONAL,
    locationInformationGPRS         [6] LocationInformationGPRS             OPTIONAL,
    sMSCAddress                     [7] ISDN-AddressString                  OPTIONAL,
    timeAndTimezone                 [8] TimeAndTimezone {bound}             OPTIONAL,
    tPShortMessageSubmissionInfo    [9] TPShortMessageSubmissionInfo        OPTIONAL,
    tPProtocolIdentifier            [10] TPProtocolIdentifier               OPTIONAL,
    tPDataCodingScheme              [11] TPDataCodingScheme                 OPTIONAL,
    tPValidityPeriod                [12] TPValidityPeriod                   OPTIONAL,
    extensions                      [13] Extensions {bound}                 OPTIONAL,
    ...,
    smsReferenceNumber              [14] CallReferenceNumber                OPTIONAL,
    mscAddress                      [15] ISDN-AddressString                 OPTIONAL,
    sgsn-Number                     [16] ISDN-AddressString                 OPTIONAL
    }

…
```

< unmodified ASN.1 >

…

****** Next Change ******

11.32 InitialDPSMS procedure

11.32.1 General description

This operation is sent by the gsmSSF or gprsSSF after detection of a TDP-R in the FSM, to request the gsmSCF for instructions to complete the MO SMS submission.

11.32.1.1 Parameters

- destinationSubscriberNumber:
  This IE contains a number to identify the Destination short message entity.

- callingPartyNumber:
  This parameter carries the MSISDN of the sending MS.

- eventType:
  This parameter indicates the armed FSM DP event, resulting in the InitialDPSMS operation.

- iMSI:
  IMSI of the mobile subscriber for which the CAMEL service is invoked. For encoding see 3GPP TS 29.002 [13].

- locationInformationInMSC:
  This parameter indicates the location of the sending MS when the SM is sent via MSC.

- locationInformationInSGSN:
  This parameter indicates the location of the sending MS when the SM is sent via GPRS SGSN.

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF (not for gsmSCF addressing).

- timeAndTimezone:
  This parameter contains the time that the gsmSSF/gprsSSF was triggered, and the time zone that the invoking gsmSSF/gprsSSF resides in.

- tPDataCodingScheme:
  This IE indicates the data coding scheme of the TP-User Data element within the TPDU. It may indicate a message class. The message class may indicate e.g. the originator of Short Message.

- tPShortMessageSubmissionInfo:
  This IE contains the 1st octet of the TPDU. Refer to 3G TS 23.040 [46] for a description of the various TPDUs.

- tPProtocolIdentifier:
  This IE indicates the protocol used above SM-Transfer Layer.

- tPValidityPeriod:
  This IE indicates the length of the validity period or the absolute time of the validity period termination.

- sMSCAddress:
  This I.E defines the address of the SMSC to which the MO short message is intended to be submitted.

- smsReferenceNumber:
  This parameter contains the SMS Reference Number assigned to the Short Message by the MSC or SGSN.

- mscAddress:
  This parameter contains the E.164 address of the MSC. It ~~shall~~may be present if the SMS processing takes place in the MSC; otherwise shall be absent.

- sgsn-Number:
  This parameter contains the Global Title of the SGSN. It ~~shall~~may be present if the SMS processing takes place in the SGSN; otherwise shall be absent.

11.32.2 Invoking entity (gsmSSF or gprsSSF)

11.32.2.1 Normal procedure

gsmSSF/gprsSSF preconditions:

(1) A MO SMS submission attempt has been initiated.

(2) An event has been detected at a DP.

gsmSSF/gprsSSF postcondition:

(1) A control relationship has been established and the gsmSSF/gprsSSF waits for instructions from the gsmSCF.

The address of the gsmSCF the InitialDPSMS operation shall be sent to is fetched from the SMS-CSI. The gsmSSF or gprsSSF provides all available parameters.

A control relationship is established to the gsmSCF. The gsmSSF/gprsSSF application timer T_{SSF} is set when the gsmSSF/gprsSSF sends InitialDPSMS for requesting instructions from the gsmSCF. It is used to prevent from excessive SMS delivery suspension time.

11.32.2.2 Error handling

If the destination gsmSCF is not accessible then the gsmSSF/gprsSSF instructs the MSC/SGSN to handle the SM according to the Default SMS Handling parameter of the SMS-CSI.

On expiration of T_{SSF} before receiving any operation, the gsmSSF/gprsSSF aborts the interaction with the gsmSCF and instructs the VMSC/SGSN to handle the SM according to the Default SMS Handling parameter of the SMS-CSI.

If the sending mobile party abandons after the sending of InitialDPSMS, then the gsmSSF/gprsSSF closes the control relationship after the first answer message from the gsmSCF has been received, and after the SMSC has responded or a timer has expired.

Generic error handling for the operation related errors is described in clause 10 and the TC services which are used for reporting operation errors are described in clause 12.

****** End of Document ******

3GPP TSG-CN WG2 Meeting #20
Brighton, UK, 15th - 19th October 2001

Tdoc N2-010854

CR-Form-v4

CHANGE REQUEST

⌘ **29.078 CR 211** ⌘ 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 **X**

Title:	⌘	Precision about default values for ServiceInteractionIndicatorsTwo parameters
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-18
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:	⌘	In the 23.078 specification it is said :" Call parameters which are not included in the Int_Continue_With_Argument message are unchanged" (same for Connect). In the 29.078 specification, "network default" is introduced in order to give the MSC treatment when the call parameters are absent : - "network default" should mean that if such a parameter is neither received from ISUP neither from CAP, the default is to accept the supplementary service - This should mean that if the parameter is not received in the CAP operation, the previous behaviour applies (i.e. if a previous CAMEL processing set it to "Reject…" the call handling still reject the supplementary service and does not apply the "network default".
Summary of change:	⌘	Alignement to the 23.078 : - Addition to the ASN1 definitions a comment to fix the treatment when call parameters are absent - removal of the notion of “network default”.
Consequences if not approved:	⌘	Various implementations of CAMEL interactions on supplementary services may occur.

Clauses affected:	⌘	5.1 ; A.3 (Table A.4)
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

***** First modified section *****

5 Common CAP Types

5.1 Data types

……..

```
BackwardServiceInteractionInd       ::= SEQUENCE {
    conferenceTreatmentIndicator        [1] OCTET STRING (SIZE(1))  OPTIONAL,
    -- acceptConferenceRequest  'xxxx xx01'B
    -- rejectConferenceRequest  'xxxx xx10'B
    -- network default is accept conference request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect conference treatement
    callCompletionTreatmentIndicator    [2] OCTET STRING (SIZE(1))  OPTIONAL,
    -- acceptCallCompletionServiceRequest   'xxxx xx01'B,
    -- rejectCallCompletionServiceRequest   'xxxx xx10'B
    -- network default is accept call completion service request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call completion treatment
    ...
    }
```

……..

```
ForwardServiceInteractionInd                        ::= SEQUENCE {
    conferenceTreatmentIndicator    [1] OCTET STRING (SIZE(1))          OPTIONAL,
    -- acceptConferenceRequest  'xxxx xx01'B
    -- rejectConferenceRequest  'xxxx xx10'B
    -- network default is accept conference request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect conference treatment
    callDiversionTreatmentIndicator [2] OCTET STRING (SIZE(1))      OPTIONAL,
    -- callDiversionAllowed     'xxxx xx01'B
    -- callDiversionNotAllowed  'xxxx xx10'B
    -- network default is Call Diversion allowed
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call diversion treatment
    callingPartyRestrictionIndicator [4] OCTET STRING (SIZE(1))     OPTIONAL,
    -- noINImpact               'xxxx xx01'B
    -- presentationRestricted   'xxxx xx10'B
    -- network default is noINImpact
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect calling party restriction treatment
    ...
    }
```

…….

```
ServiceInteractionIndicatorsTwo                         ::= SEQUENCE {
    forwardServiceInteractionInd        [0] ForwardServiceInteractionInd        OPTIONAL,
    -- applicable to operations InitialDP, Connect and ContinueWithArgument.
    backwardServiceInteractionInd       [1] BackwardServiceInteractionInd       OPTIONAL,
    -- applicable to operations Connect and ContinueWithArgument.
    bothwayThroughConnectionInd         [2] BothwayThroughConnectionInd         OPTIONAL,
    -- applicable to ConnectToResource and EstablishTemporaryConnection
    connectedNumberTreatmentInd         [4] ConnectedNumberTreatmentInd         OPTIONAL,
    -- applicable to Connect and ContinueWithArgument
    nonCUGCall                          [13] NULL                               OPTIONAL,
    -- applicable to Connect and ContinueWithArgument
    -- indicates that no parameters for CUG shall be used for the call (i.e. the call shall
    -- be a non-CUG call).
    -- If not present, it indicates one of three things:
    --  a) continue with modified CUG information (when one or more of either CUG Interlock Code
    --     and Outgoing Access Indicator are present), or
    --  b) continue with original CUG information (when neither CUG Interlock Code or Outgoing
    --     Access Indicator are present), i.e. no IN impact.
    --  c) continue with the original non-CUG call.
    holdTreatmentIndicator              [50] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptHoldRequest    'xxxx xx01'B
    -- rejectHoldRequest    'xxxx xx10'B
    -- network default is accept hold request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call hold treatment
    cwTreatmentIndicator                [51] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptCw 'xxxx xx01'B
```

```
    -- rejectCw 'xxxx xx10'B
    -- network default is accept cw
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect call waiting treatment
    ectTreatmentIndicator               [52] OCTET STRING (SIZE(1))             OPTIONAL,
    -- applicable to InitialDP, Connect and ContinueWithArgument
    -- acceptEctRequest 'xxxx xx01'B
    -- rejectEctRequest 'xxxx xx10'B
    -- network default is accept ect request
    -- if absent from Connect or ContinueWithArgument,
    -- then CAMEL service does not affect explicit call transfer treatment
    ...
    }
```

***** Next modified section *****

A.3 Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.3). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in 3GPP TS 09.12 [51].

Table A.3 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.3

CAP operation Connect (Note 1)	ISUP message IAM
destinationRoutingAddress	Called party number
originalCalledPartyID	Original called number
CallingPartysCategory	Calling party's category
RedirectingPartyID	Redirecting number
RedirectionInformation	Redirection information
genericNumbers	Generic number (Note 2)
ServiceInteractionIndicatorTwo	See Table A.4

NOTE 1: Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2: The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

Table A.4– Mapping of the CAP Connect and ContinueWithArgument operation serviceInteractionIndicatorsTwo to ISUP

Table A.4

CAP ServiceInteractionIndicators	ISUP parameter in ACM/CPG/CON/ANM/REL	ISUP parameter in IAM
Call to be diverted indicator – call diversion allowed ~~(default)~~ – call diversion not allowed	---	Call diversion treatment indicators parameter Call to be diverted indicator – no indication – call diversion allowed – call diversion not allowed
Conference at DLE accept. ind. – accept conference request ~~(default)~~ – reject conference request	---	Conference treatment indicators parameter Conference acceptance ind. – no indication – accept conference request – reject conference request
Calling party restriction indicator - no IN impact ~~(default)~~ - presentation restricted	---	**Calling party number address presentation restricted indicator** - no impact - presentation restricted
Conference at OLE accept. ind. – accept conference request ~~(default)~~ – reject conference request	**ACM/CPG/CON/ANM: Conference treatment indicators parameter** Conference acceptance ind. – no indication – accept conference request – reject conference request	**---**
Call completion treatment indicator - accept CCBS service request ~~(default)~~ - reject CCBS service request	**REL, busy cause** Diagnostig field – CCBS possible – CCBS not possible	**---**
Connected number treatment indicator – no IN impact – presentation restricted – present called IN number – present called IN number restricted	Note 3	

NOTE 3:

If 'no IN impact' was received in the CAP serviceInteractionIndicatorsTwo (connected number treatment indicator), then a connected number parameter and a generic number parameter 'additional connected number' are passed on unchanged.

If 'presentation restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

b) If a generic number parameter 'additional connected number' has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

c) If a redirection number parameter has been received, a redirection number restriction parameter is sent in the ANM message with bits AB set to 'presentation restricted'.

If 'present called IN number' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

address presentation restricted indicator: 00 (presentation allowed),

address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

If 'present called IN number restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

address presentation restricted indicator: 01 (presentation restricted),

address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.