3GPP TSG CN Plenary Meeting #12 **Tdoc NP-010315**
Stockholm, Sweden, 13th - 15th June 2001

Source: TSG CN WG2

Title: CRs on R99 and Rel-4 Work Item “CAMEL3”

Agenda item: 7.2

Document for: APPROVAL

Introduction:

This document contains 4 CRs on R99 and Rel-4 Work Item ”CAMEL3”, that have been agreed by TSG CN WG2, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.078	296	3	N2-010444	R99	Introduction of Reference Number for MO-SMS	F	3.8.0
23.078	300		N2-010445	Rel-4	Introduction of Reference Number for MO-SMS	A	4.0.0
29.078	175	2	N2-010447	R99	Introduction of Reference Number for MO-SMS	F	3.7.0
29.078	182		N2-010448	Rel-4	Introduction of Reference Number for MO-SMS	A	4.0.0

3GPP TSG-CN WG2 Meeting #18
Puerto Rico, 14th - 18th May 2001

Tdoc N2-010444
(revision of N2-010437)

CHANGE REQUEST

⌘ **23.078** **CR** 296 ⌘ rev **3** ⌘ Current version: 3.8.0 ⌘

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

Title:	⌘	Introduction of Reference Number for MO-SMS
Source:	⌘	CN2
Work item code:	⌘	CAMEL3
Date:	⌘	17 May 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).

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

It shall be possible for CDR post processing systems to correlate the MO-SMS CDR produced by the MSC/SGSN with the MO-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 MO-SMS processing. The MSC/SGSN reports this MO-SMS Reference Number to the SCP, together with the MSC Address/SGSN Number.

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

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

The combination of MO-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 an MO-SMS is subject to CAMEL control, then:

1. The MSC/SGSN shall generate a 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 MO-SMS CDR.
Consequences if not approved:	⌘	Correlation of MO-SMS CDRs produced by the MSC/SGSN with MO-SMS CDRs produced by the SCP will not be possible.

Clauses affected:	⌘	7.5.2, 7.6.1.2			
Other specs Affected:	⌘	[X] Other core specifications [ ] Test specifications [ ] O&M Specifications	⌘	29.078, 32.005, 32.015	
Other comments:	⌘	3GPP-SA5 shall be informed about this change, so they can include these elements in 3GPP TS 32.005 and 32.015.			

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

7.5.2 Handling of mobile originating SMS

7.5.2.1 Handling of mobile originating SMS in the originating MSC/SGSN

The functional behaviour of the originating VMSC/SGSN is specified in 3GPP TS 29.002 [4] and 3GPP TS 23.060 [11]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_O_SMS_INIT;
- Procedure CAMEL_O_SMS_SUBMITTED;
- Procedure CAMEL_O_SMS_FAILURE.

A CAMEL Service may be invoked for the following Mobile Originated short message types:

- Short Message Submission (PDU type = SMS-SUBMIT)
- Short Message Command (PDU type = SMS-COMMAND)

Refer to 3GPP TS 23.040 [21] for a description of the various PDU types.

7.5.2.1.1 Actions of the VMSC/SGSN on receipt of Int_Error

The MSC/SGSN checks the default SMS Handling parameter in SMS-CSI.

If the default SMS handling is release SM, a A_RP_ERROR is sent to the MS. The MSC/SGSN then releases all resources and the procedure CAMEL_O_SMS_INIT ends.

If the default SMS handling is continue SMS submission, the MSC/SGSN continues processing without CAMEL support.

7.5.2.1.2 Actions of the MSC/SGSN on receipt of Int_Continue_SMS

The MSC/SGSN continues processing with modified SM parameters. The MSC/SGSN shall transparently modify the SMS parameters with the received information. Parameters which are not included in the Int_Continue_SMS message are unchanged.

7.5.2.1.3 Actions of the MSC/SGSN on receipt of Int_Connect_SMS

The MSC/SGSN continues processing with modified SM parameters. The MSC/SGSN shall transparently modify the SMS parameters with the received information. Barring is checked with the modified parameters. Parameters which are not included in the Int_Connect_SMS message are unchanged.

7.5.2.1.4 Actions of the MSC/SGSN on receipt of Int_Release_SMS

An A_RP_ERROR is sent to the MS and SMS is deleted. The SMS cause received in the Int_Release_SMS is used. The MSC/SGSN then releases all resources and the procedure CAMEL_O_SMS_INIT ends.

7.5.2.1.5 Allocation of SMS Reference Number

During the CAMEL handling of a Mobile Originated Short Message, the MSC or SGSN shall allocate an SMS Reference Number. This SMS Reference Number shall be placed in the SMS-MO Call Detail Record, together with the MSC Address or SGSN Number. This SMS Reference Number shall also be sent to the SCP in the Initial DP SMS Information Flow, together with the MSC Address or SGSN Number. The combination of SMS Reference Number and MSC Address or SGSN Number forms a globally unique pair. This pair may be used for correlation of CDRs produced in the MSC or SGSN with CDRs produced in the SCP.

An SMS Reference Number shall be generated and placed in the SMS-MO Call Detail Record, for every Short Message, including the case when a Short Message forms part of a set of concatenated Short Messages.

7.5.2.2 Handling of A_MM_Release and A_LLC_Release

If the radio link with the subscriber is lost during the handling of a CAMEL procedure in the MSC/SGSN, then the MSC/SGSN sends signal A_MM_Release_ind or A_LLC_Release_ind to that procedure. This results in the termination of that CAMEL procedure. (Refer to 3GPP TS 29.002 [4] for details.)

7.5.2.3 Handling of time-out from SMSC

If the MSC/SGSN does not receive a confirmation from the SMSC after submission of a Short Message, then the MSC/SGSN calls procedure CAMEL_O_SMS_FAILURE. (Refer to 3GPP TS 29.002 [4] for details.)

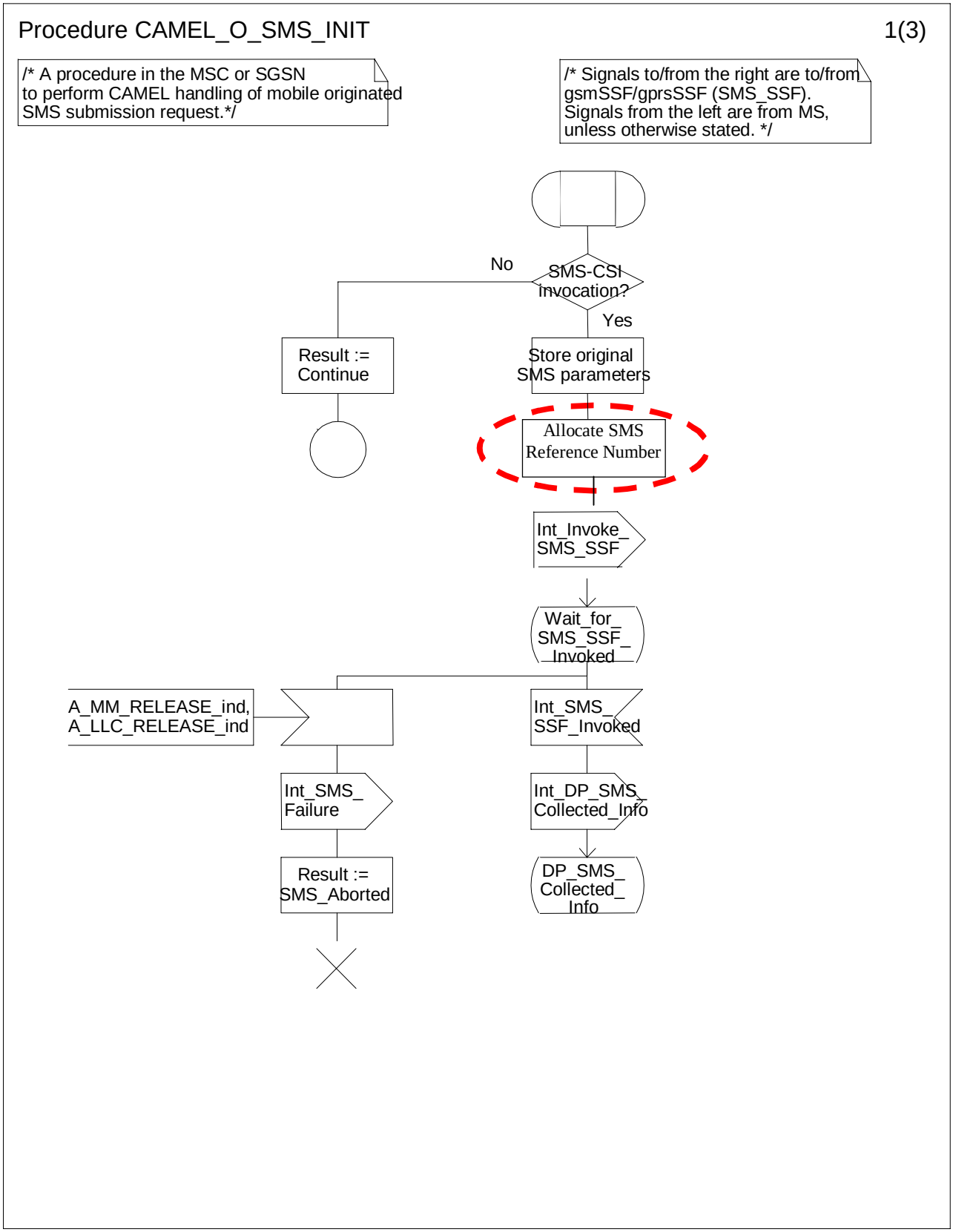

Figure Error! Reference source not found.**.2a: Procedure CAMEL_O_SMS_INIT (sheet1)**

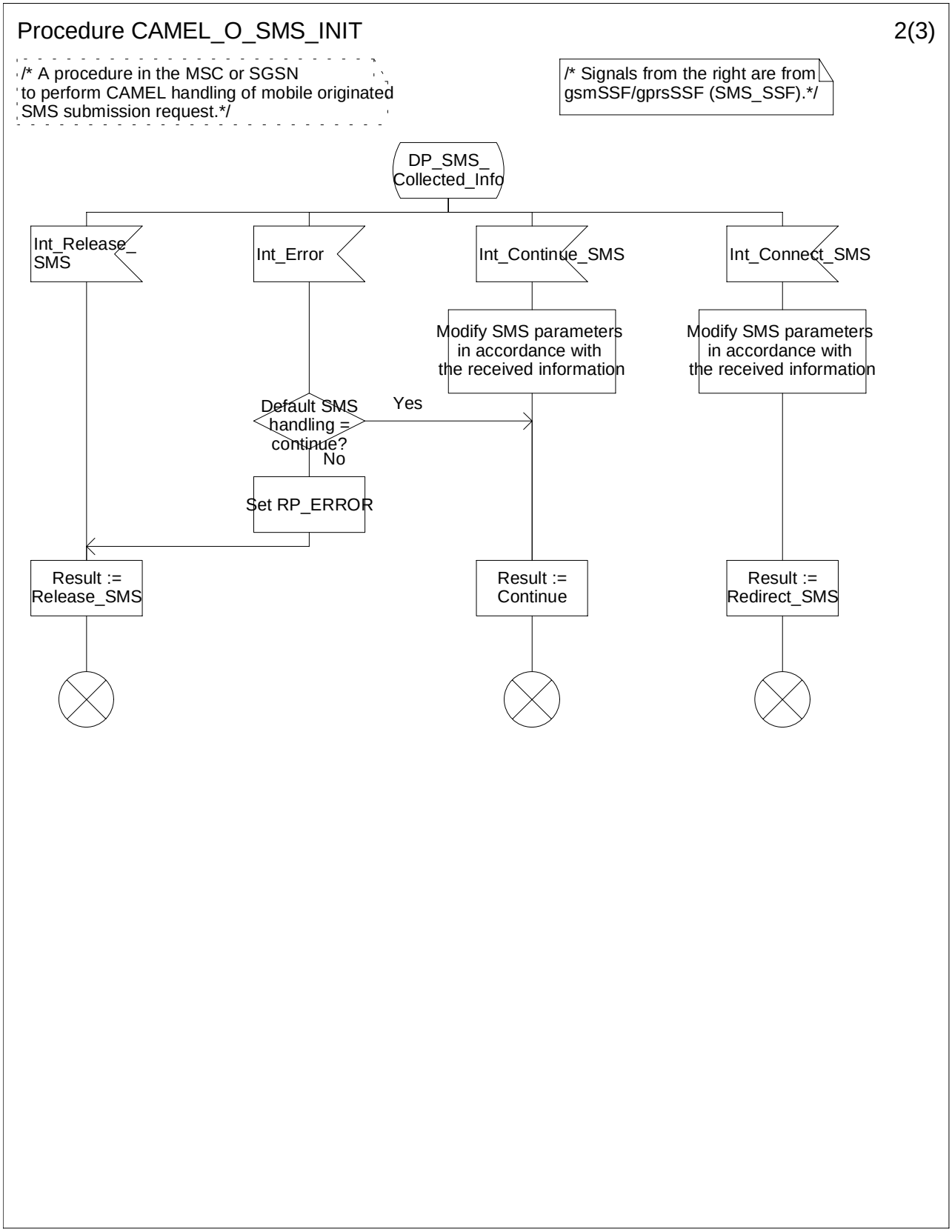

Figure b: Procedure CAMEL_O_SMS_INIT (sheet2)

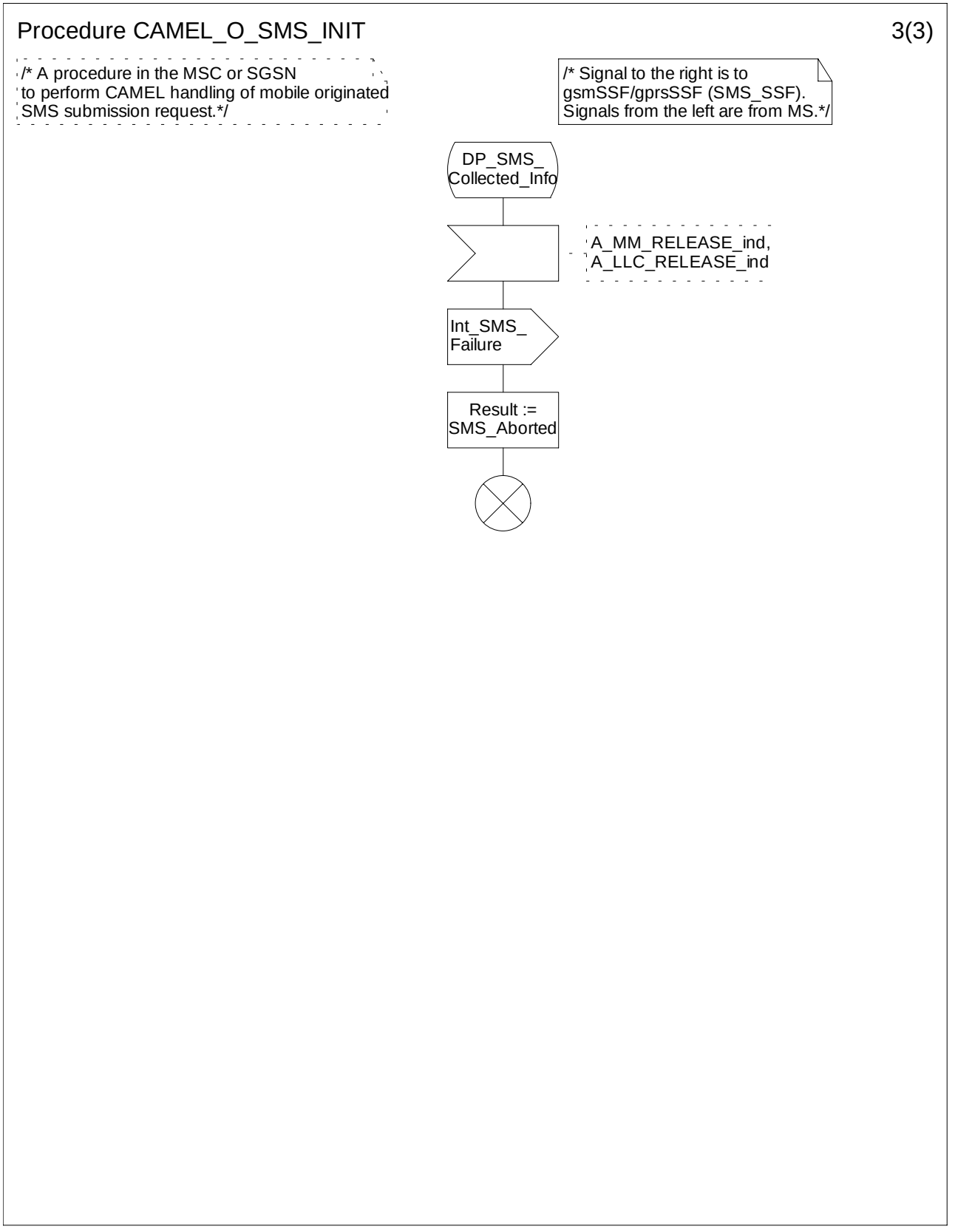

Figure c: Procedure CAMEL_O_SMS_INIT (sheet3)

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

7.6.1.2 Initial DP SMS

7.6.1.2.1 Description

This IF is generated by the gsmSSF/gprsSSF when a trigger is detected at a DP in the state model, to request instructions from the gsmSCF.

7.6.1.2.2 Information Elements

The following information elements are required:

Information element name	Required	Description
Destination Subscriber Number	M	This IE contains a number to identify the Destination short message entity. The Destination Subscriber Number shall be retrieved from the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21].
Calling Party Number	M	This IE carries the MSISDN of the subscriber who sent the short message.
Event Type	M	This IE indicates the armed event (i.e., *SMS_Collected_Info*) resulting in the Initial DP SMS IF.
IMSI	M	This IE identifies the mobile subscriber.
Location Information in MSC	C	This IE is described in a table below.
Location Information in SGSN	C	This IE is described in a table below.
Service Key	M	This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Time And Timezone	M	This IE contains the time that the gsmSSF/gprsSSF was triggered, and the time zone the gsmSSF/gprsSSF resides in.
TP Short Message Submission Specific Information	M	This IE contains the 1st octect of the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21]. For the SMS-SUBMIT TPDU, the 1st octet contains the following information: - Message Type Indicator - Reject Duplicates - Validity Period Format - Status Report Request - User Data Header Indicator - Reply Path For the SMS-COMMAND TPDU, the 1st octet contains the following information: - Message Type Indicator - User Data Header Indicator - Status Report Request Refer to 3GPP TS 23.040 [21] for an indication of which elements of this 1st octet are Mandatory and which elements are Conditional.
TP Protocol Identifier	M	This IE indicates the protocol used above SM-Transfer Layer. The TP Protocol Identifier shall be retrieved from the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21].
TP Data Coding Scheme	C	This IE indicates the data coding scheme of the TP-User Data field, and may indicate a message class. The message class may indicate e.g. the originator of the Short Message. The TP Data Coding Scheme shall be retrieved from the SMS-SUBMIT TPDU, which is specified in 3GPP TS 23.040 [21].
TP Validity Period	C	This IE indicates the length of the validity period or the absolute time of the validity period termination. This IE is only used for the SMS-SUBMIT TPDU. The TP Validity Period shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3GPP TS 23.040 [21].
SMSC Address	M	This IE defines the address of the SMSC to which the MO short message is intended to be submitted.
SMS Reference Number	M	This IE carries the SMS Reference Number. This Reference Number is allocated by the MSC or SGSN that processes this SMS. It may be used by the gsmSCF for inclusion in a gsmSCF SMS record. It has to be coupled with the MSC Address or SGSN Number for the purpose of global uniqueness.
MSC Address	C	This IE carries the E.164 MSC Address. This IE shall be present if the SMS processing takes place in an MSC. Otherwise shall be absent.
SGSN Number	C	This IE carries the E.164 SGSN Address. This IE shall be present if the SMS processing takes place in an SGSN. Otherwise shall be absent.

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

Location Information in MSC is based on the Location Information IE defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	Required	Description
Location number	C	See 3GPP TS 23.018 [3].
VLR number	M	See 3GPP TS 23.018 [3].
Age of location information	-	Not applicable
Current Location Retrieved	-	Not applicable
Selected LSA Identity	C1	This IE indicates the LSA identity associated with the current position of the MS. Shall be sent if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23].

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

C1 Conditional (The IE shall be sent, if available and SoLSA is supported).

- Not applicable

Location Information in SGSN is based on the Location Information IE defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	Required	Description
Location number	-	Not applicable
Service area ID	C1	See 3GPP TS 23.018 [3].
Cell ID	C1	See 3GPP TS 23.018 [3].
Location area ID	C1	See 3GPP TS 23.018 [3].
Routeing area ID	C	See 3GPP TS 23.003 [37].
Geographical information	C	See 3GPP TS 23.032 [34].
Geodetic information	-	Not applicable
VLR number	-	Not applicable
Age of location information	-	Not applicable
Current Location Retrieved	-	Not applicable
SGSN number	M	Global Title of the Serving GPRS Service Node. See 3GPP TS 23.060 [11].
Selected LSA Identity	C2	This IE indicates the LSA identity associated with the current position of the MS. Shall be sent if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23]

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

C1 Conditional (The IE shall be sent, if available. One and only one of the three conditional IEs shall be sent).

C2 Conditional (The IE shall be sent, if available and SoLSA is supported).

- Not applicable

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

3GPP TSG-CN WG2 Meeting #18
Puerto Rico, 14th - 18th May 2001

Tdoc N2-010445

CHANGE REQUEST

⌘ **23.078 CR** 300 ⌘ rev ⌘ Current version: 4.0.0 ⌘

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

Title:	⌘	Introduction of Reference Number for MO-SMS
Source:	⌘	CN2
Work item code:	⌘	CAMEL3
Date:	⌘	17 May 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).

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

It shall be possible for CDR post processing systems to correlate the MO-SMS CDR produced by the MSC/SGSN with the MO-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 MO-SMS processing. The MSC/SGSN reports this MO-SMS Reference Number to the SCP, together with the MSC Address/SGSN Number.

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

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

The combination of MO-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 an MO-SMS is subject to CAMEL control, then:

1. The MSC/SGSN shall generate a 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 MO-SMS CDR.
Consequences if not approved:	⌘	Correlation of MO-SMS CDRs produced by the MSC/SGSN with MO-SMS CDRs produced by the SCP will not be possible.

Clauses affected:	⌘	7.5.2, 7.6.1.2			
Other specs Affected:	⌘	[X] Other core specifications [ ] Test specifications [ ] O&M Specifications	⌘	29.078, 32.005, 32.015	
Other comments:	⌘	3GPP-SA5 shall be informed about this change, so they can include these elements in 3GPP TS 32.005 and 32.015.			

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

7.5.2 Handling of mobile originating SMS

7.5.2.1 Handling of mobile originating SMS in the originating MSC/SGSN

The functional behaviour of the originating VMSC/SGSN is specified in 3GPP TS 29.002 [4] and 3GPP TS 23.060 [11]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_O_SMS_INIT;
- Procedure CAMEL_O_SMS_SUBMITTED;
- Procedure CAMEL_O_SMS_FAILURE.

A CAMEL Service may be invoked for the following Mobile Originated short message types:

- Short Message Submission (PDU type = SMS-SUBMIT)
- Short Message Command (PDU type = SMS-COMMAND)

Refer to 3GPP TS 23.040 [21] for a description of the various PDU types.

7.5.2.1.1 Actions of the VMSC/SGSN on receipt of Int_Error

The MSC/SGSN checks the default SMS Handling parameter in SMS-CSI.

If the default SMS handling is release SM, a A_RP_ERROR is sent to the MS. The MSC/SGSN then releases all resources and the procedure CAMEL_O_SMS_INIT ends.

If the default SMS handling is continue SMS submission, the MSC/SGSN continues processing without CAMEL support.

7.5.2.1.2 Actions of the MSC/SGSN on receipt of Int_Continue_SMS

The MSC/SGSN continues processing with modified SM parameters. The MSC/SGSN shall transparently modify the SMS parameters with the received information. Parameters which are not included in the Int_Continue_SMS message are unchanged.

7.5.2.1.3 Actions of the MSC/SGSN on receipt of Int_Connect_SMS

The MSC/SGSN continues processing with modified SM parameters. The MSC/SGSN shall transparently modify the SMS parameters with the received information. Barring is checked with the modified parameters. Parameters which are not included in the Int_Connect_SMS message are unchanged.

7.5.2.1.4 Actions of the MSC/SGSN on receipt of Int_Release_SMS

An A_RP_ERROR is sent to the MS and SMS is deleted. The SMS cause received in the Int_Release_SMS is used. The MSC/SGSN then releases all resources and the procedure CAMEL_O_SMS_INIT ends.

7.5.2.1.5 Allocation of SMS Reference Number

During the CAMEL handling of a Mobile Originated Short Message, the MSC or SGSN shall allocate an SMS Reference Number. This SMS Reference Number shall be placed in the SMS-MO Call Detail Record, together with the MSC Address or SGSN Number. This SMS Reference Number shall also be sent to the SCP in the Initial DP SMS Information Flow, together with the MSC Address or SGSN Number. The combination of SMS Reference Number and MSC Address or SGSN Number forms a globally unique pair. This pair may be used for correlation of CDRs produced in the MSC or SGSN with CDRs produced in the SCP.

An SMS Reference Number shall be generated and placed in the SMS-MO Call Detail Record, for every Short Message, including the case when a Short Message forms part of a set of concatenated Short Messages.

7.5.2.2 Handling of A_MM_Release and A_LLC_Release

If the radio link with the subscriber is lost during the handling of a CAMEL procedure in the MSC/SGSN, then the MSC/SGSN sends signal A_MM_Release_ind or A_LLC_Release_ind to that procedure. This results in the termination of that CAMEL procedure. (Refer to 3GPP TS 29.002 [4] for details.)

7.5.2.3 Handling of time-out from SMSC

If the MSC/SGSN does not receive a confirmation from the SMSC after submission of a Short Message, then the MSC/SGSN calls procedure CAMEL_O_SMS_FAILURE. (Refer to 3GPP TS 29.002 [4] for details.)

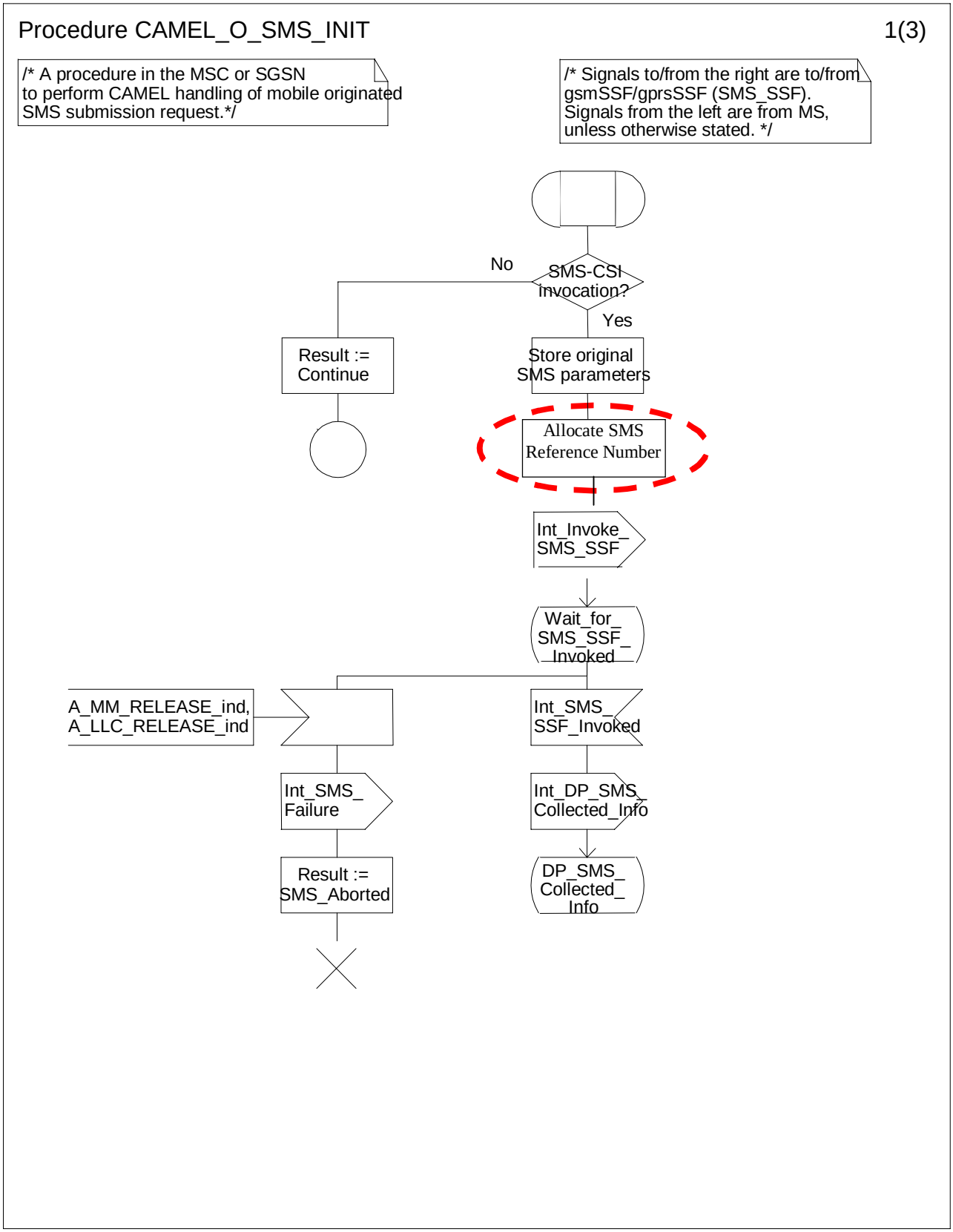

Figure Error! Reference source not found.**.2a: Procedure CAMEL_O_SMS_INIT (sheet1)**

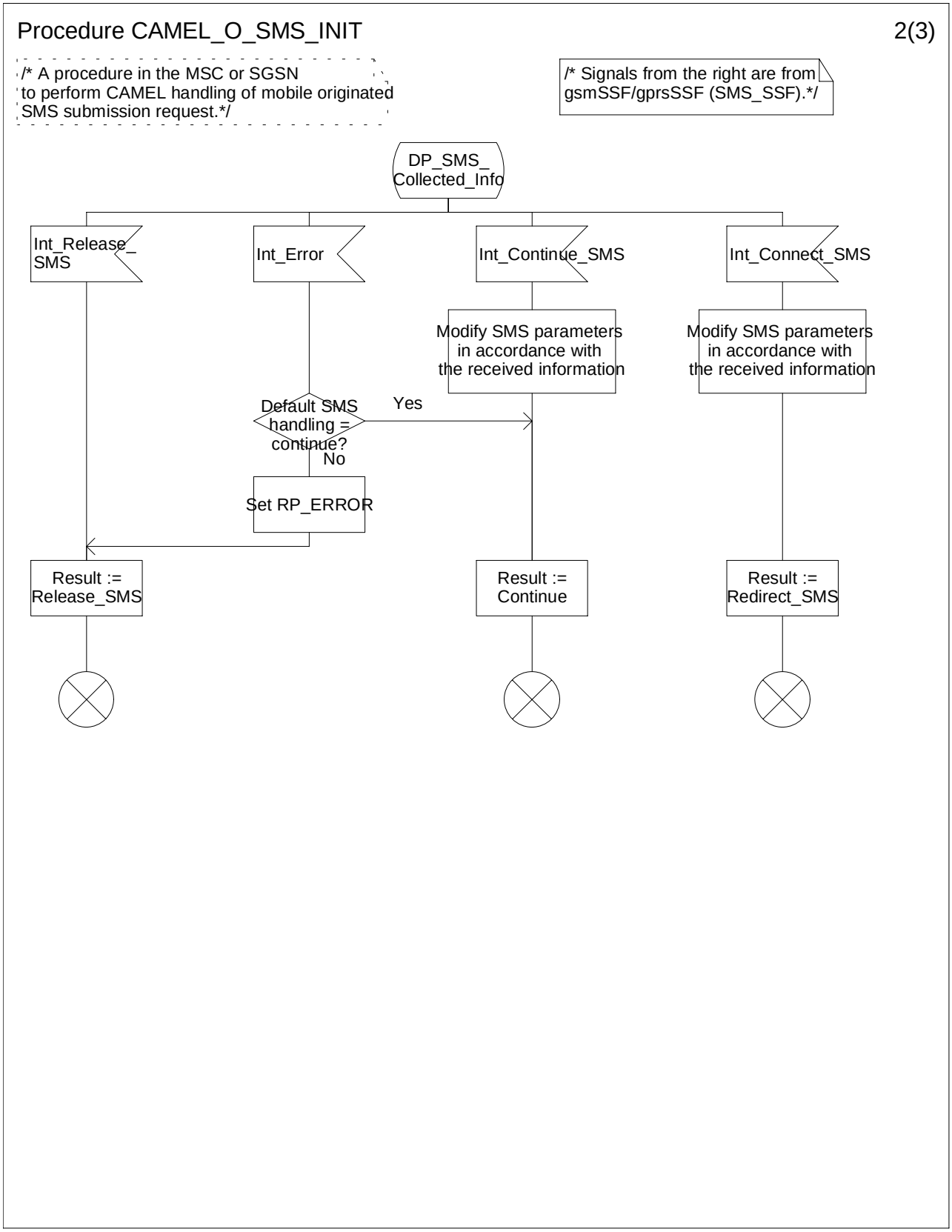

Figure b: Procedure CAMEL_O_SMS_INIT (sheet2)

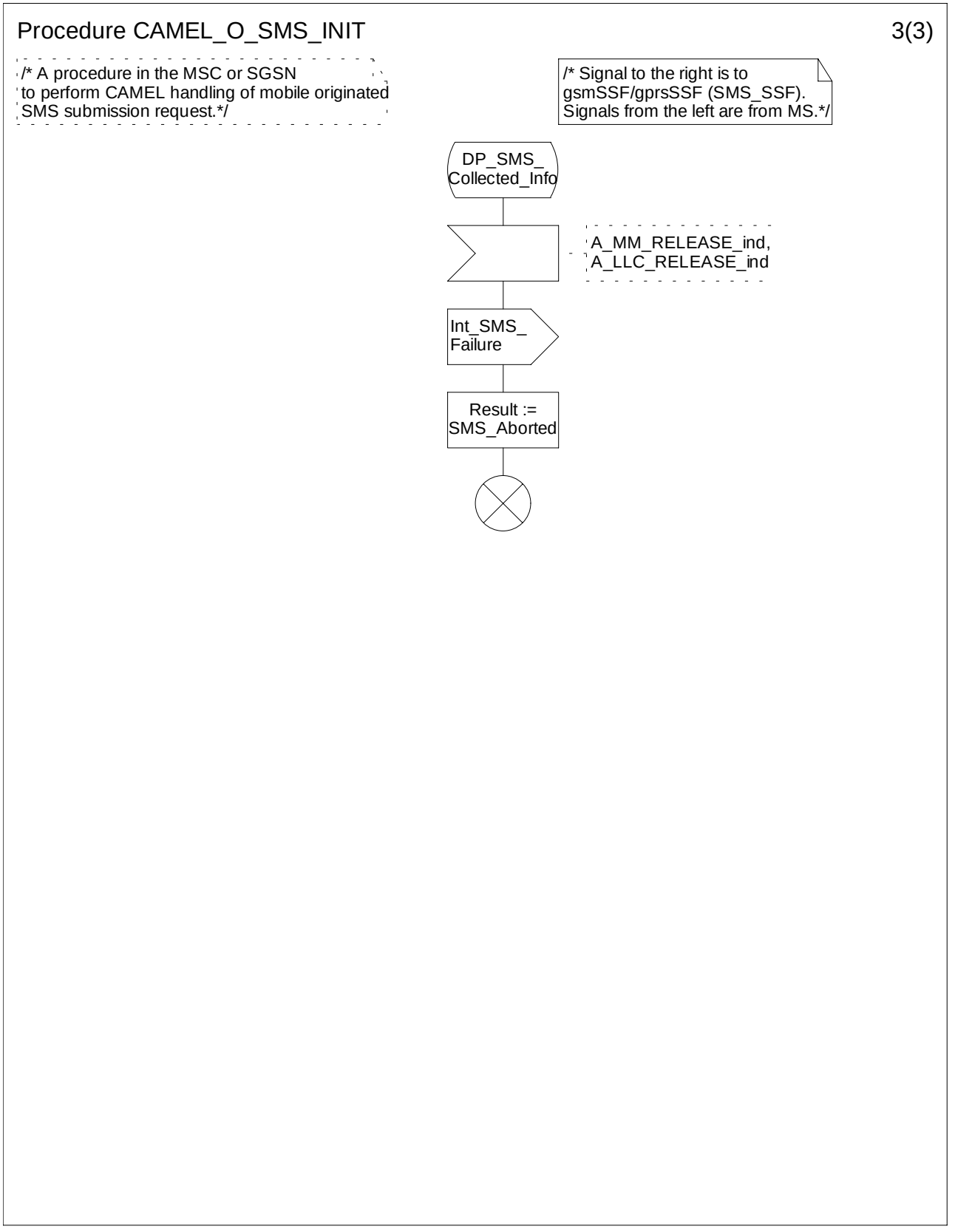

Figure c: Procedure CAMEL_O_SMS_INIT (sheet3)

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

7.6.1.2 Initial DP SMS

7.6.1.2.1 Description

This IF is generated by the gsmSSF/gprsSSF when a trigger is detected at a DP in the state model, to request instructions from the gsmSCF.

7.6.1.2.2 Information Elements

The following information elements are required:

Information element name	Required	Description
Destination Subscriber Number	M	This IE contains a number to identify the Destination short message entity. The Destination Subscriber Number shall be retrieved from the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21].
Calling Party Number	M	This IE carries the MSISDN of the subscriber who sent the short message.
Event Type	M	This IE indicates the armed event (i.e., *SMS_Collected_Info*) resulting in the Initial DP SMS IF.
IMSI	M	This IE identifies the mobile subscriber.
Location Information in MSC	C	This IE is described in a table below.
Location Information in SGSN	C	This IE is described in a table below.
Service Key	M	This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Time And Timezone	M	This IE contains the time that the gsmSSF/gprsSSF was triggered, and the time zone the gsmSSF/gprsSSF resides in.
TP Short Message Submission Specific Information	M	This IE contains the 1st octect of the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21]. For the SMS-SUBMIT TPDU, the 1st octet contains the following information: - Message Type Indicator - Reject Duplicates - Validity Period Format - Status Report Request - User Data Header Indicator - Reply Path For the SMS-COMMAND TPDU, the 1st octet contains the following information: - Message Type Indicator - User Data Header Indicator - Status Report Request Refer to 3GPP TS 23.040 [21] for an indication of which elements of this 1st octet are Mandatory and which elements are Conditional.
TP Protocol Identifier	M	This IE indicates the protocol used above SM-Transfer Layer. The TP Protocol Identifier shall be retrieved from the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU, which are specified in 3GPP TS 23.040 [21].
TP Data Coding Scheme	C	This IE indicates the data coding scheme of the TP-User Data field, and may indicate a message class. The message class may indicate e.g. the originator of the Short Message. The TP Data Coding Scheme shall be retrieved from the SMS-SUBMIT TPDU, which is specified in 3GPP TS 23.040 [21].
TP Validity Period	C	This IE indicates the length of the validity period or the absolute time of the validity period termination. This IE is only used for the SMS-SUBMIT TPDU. The TP Validity Period shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3GPP TS 23.040 [21].
SMSC Address	M	This IE defines the address of the SMSC to which the MO short message is intended to be submitted.
SMS Reference Number	M	This IE carries the SMS Reference Number. This Reference Number is allocated by the MSC or SGSN that processes this SMS. It may be used by the gsmSCF for inclusion in a gsmSCF SMS record. It has to be coupled with the MSC Address or SGSN Number for the purpose of global uniqueness.
MSC Address	C	This IE carries the E.164 MSC Address. This IE shall be present if the SMS processing takes place in an MSC. Otherwise shall be absent.
SGSN Number	C	This IE carries the E.164 SGSN Address. This IE shall be present if the SMS processing takes place in an SGSN. Otherwise shall be absent.

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

Location Information in MSC is based on the Location Information IE defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	Required	Description
Location number	C	See 3GPP TS 23.018 [3].
VLR number	M	See 3GPP TS 23.018 [3].
Age of location information	-	Not applicable
Current Location Retrieved	-	Not applicable
Selected LSA Identity	C1	This IE indicates the LSA identity associated with the current position of the MS. Shall be sent if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23].

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

C1 Conditional (The IE shall be sent, if available and SoLSA is supported).

- Not applicable

Location Information in SGSN is based on the Location Information IE defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	Required	Description
Location number	-	Not applicable
Service area ID	C1	See 3GPP TS 23.018 [3].
Cell ID	C1	See 3GPP TS 23.018 [3].
Location area ID	C1	See 3GPP TS 23.018 [3].
Routeing area ID	C	See 3GPP TS 23.003 [37].
Geographical information	C	See 3GPP TS 23.032 [34].
Geodetic information	-	Not applicable
VLR number	-	Not applicable
Age of location information	-	Not applicable
Current Location Retrieved	-	Not applicable
SGSN number	M	Global Title of the Serving GPRS Service Node. See 3GPP TS 23.060 [11].
Selected LSA Identity	C2	This IE indicates the LSA identity associated with the current position of the MS. Shall be sent if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23]

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

C1 Conditional (The IE shall be sent, if available. One and only one of the three conditional IEs shall be sent).

C2 Conditional (The IE shall be sent, if available and SoLSA is supported).

- Not applicable

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

3GPP TSG-CN WG2 Meeting #18
Puerto Rico, 14th - 18th May 2001

Tdoc N2-010447
(revision of N2-010402)

CHANGE REQUEST

⌘ **29.078 CR** 175 ⌘ rev **2** ⌘ Current version: 3.7.0 ⌘

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

Title:	⌘	Introduction of Reference Number for MO-SMS
Source:	⌘	CN2
Work item code:	⌘	CAMEL3
Date:	⌘	17 May 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).

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

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

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

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

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

The combination of MO-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.

The ASN.1 structure for the SMS Reference Number proposed in the present CR is equal to the ASN.1 structure of the Call Reference Number. This allows implementors to re-use existing functionality in the MSC.

Summary of change: ⌘

If an MO-SMS is subject to CAMEL control, then:

1. The MSC/SGSN shall generate a 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 MO-SMS CDR.
Consequences if not approved:	⌘	Correlation of MO-SMS CDRs produced by the MSC/SGSN with MO-SMS CDRs produced by the SCP shall not be possible.

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 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] SEQUENCE SIZE(1..bound.&numOfExtensions) OF
                                                ExtensionField {bound}      OPTIONAL,
    ...,
    smsReferenceNumber              [14] CallReferenceNumber                OPTIONAL,
    mscAddress                      [15] ISDN-AddressString                 OPTIONAL,
    sgsnNumber                      [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 be present if the SMS processing takes place in the MSC; otherwise shall be absent.

- sgsnNumber:
  This parameter contains the E.164 address of the SGSN. It shall 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 #18
Puerto Rico, 14th - 18th May 2001

Tdoc N2-010448

CHANGE REQUEST

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Release:	⌘	Rel-4

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

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

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

The combination of MO-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.

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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 MO-SMS CDR.
Consequences if not approved:	⌘	Correlation of MO-SMS CDRs produced by the MSC/SGSN with MO-SMS CDRs produced by the SCP shall not be possible.

Clauses affected:	⌘	7.1, 11.32			
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7.1 SMS operations and arguments

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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.

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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] SEQUENCE SIZE(1..bound.&numOfExtensions) OF
                                                ExtensionField {bound}      OPTIONAL,
    ...,
    smsReferenceNumber              [14] CallReferenceNumber                OPTIONAL,
    mscAddress                      [15] ISDN-AddressString                 OPTIONAL,
    sgsnNumber                      [16] ISDN-AddressString                 OPTIONAL
    }
```

…
< unmodified ASN.1 >
…

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

11.32 InitialDPSMS procedure

11.32.1 General description

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- eventType:
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- 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.

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

- sgsnNumber:
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11.32.2.1 Normal procedure

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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.

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