3GPP TSG CN Plenary Meeting #12 **Tdoc** NP-010308
Stockholm, Sweden, 13th - 15th June 2001

Source: TSG CN WG2

Title: Liaison Statement on introduction of SMS Reference Number for SMS

Agenda item: 6.2.1

Document for: Information

Introduction:

This document contains 1 LS statement from CN WG2 to SA WG5 and attached CRs. This LS is forwarded to TSG CN Plenary meeting #12 for information only and will **be sent to SA5 only if corresponding R99 CRs for WI "CAMEL3"are approved on TSG CN#12 Plenary .**

Meeting	TDoc #	Source	Tdoc Title	Comments
CN2#18	N2-010446	Ericsson	Liaison Statement on introduction of SMS Reference Number for SMS	To: SA WG5

Following CRs are attached to this LS :

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.078	296	3	N2-010444	R99	Introduction of SMS Reference Number for SMS	F	3.8.0
23.078	300		N2-010445	Rel-4	Introduction of SMS Reference Number for SMS	A	4.0.0
29.078	175	2	N2-010447	R99	Introduction of SMS Reference Number for SMS	F	3.7.0
29.078	182		N2-010448	Rel-4	Introduction of SMS Reference Number for SMS	A	4.0.0
23.078		1	N2-010433	Rel-5	Introduction of Reference Number for MT-SMS	B	5D.7.0
29.078		1	N2-010434	Rel-5	Introduction of Reference Number for MT-SMS	B	X.5.1

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

Tdoc N2-0100433
(revision of N2-010345)

CHANGE REQUEST

⌘ **23.078 CR** ⌘ rev **1** ⌘ Current version: 5D.7.0 ⌘

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

Title:	⌘	Introduction of Reference Number for MT-SMS
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL4
Date:	⌘	16 May 2001
Category:	⌘	B
Release:	⌘	Rel-5

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*

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 Terminated SMS (MT-SMS).

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

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

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

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

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

Summary of change: ⌘

If an MT-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 Address, to the SCP.
3. The MSC/SGSN shall place this Reference Number and the MSC

		Address/SGSN Address in the MT-SMS CDR.
Consequences if not approved:	⌘	Correlation of MT-SMS CDRs produced by the MSC/SGSN with MT-SMS CDRs produced by the SCP shall 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 MSC/SGSN is specified in 3GPP TS 29.002 [**Error! Reference source not found.**] and 3GPP TS 23.060 [**Error! Reference source not found.**]. 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 (TPDU type = SMS-SUBMIT)
- Short Message Command (TPDU type = SMS-COMMAND)

Refer to 3GPP TS 23.040 [**Error! Reference source not found.**] for a description of the various TPDU types.

7.5.2.1.1 Actions of the MSC/SGSN on receipt of Int_Error

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

If the default SMS handling is 'releaseTransaction', 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 'continueTransaction', 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

A_RP_ERROR is sent to the MS and the Short Message 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 Address. 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 Address. The combination of SMS Reference Number and MSC Address or SGSN Address 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, also if that Short Messages forms part of a set 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 [**Error! Reference source not found.**] 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 [**Error! Reference source not found.**] for details.)

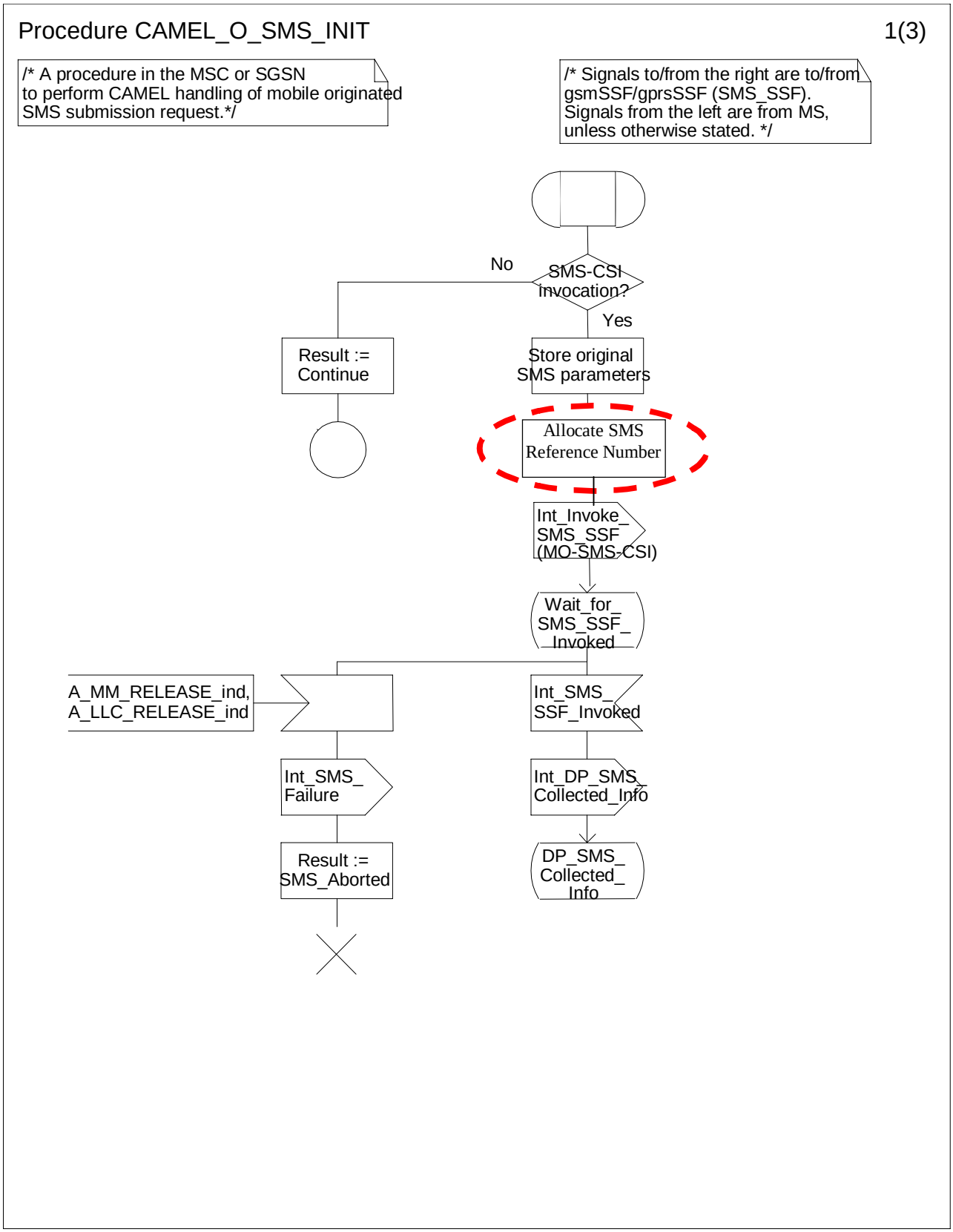

Figure Error! Reference source not found..**2a: Procedure CAMEL_O_SMS_INIT (sheet 1)**

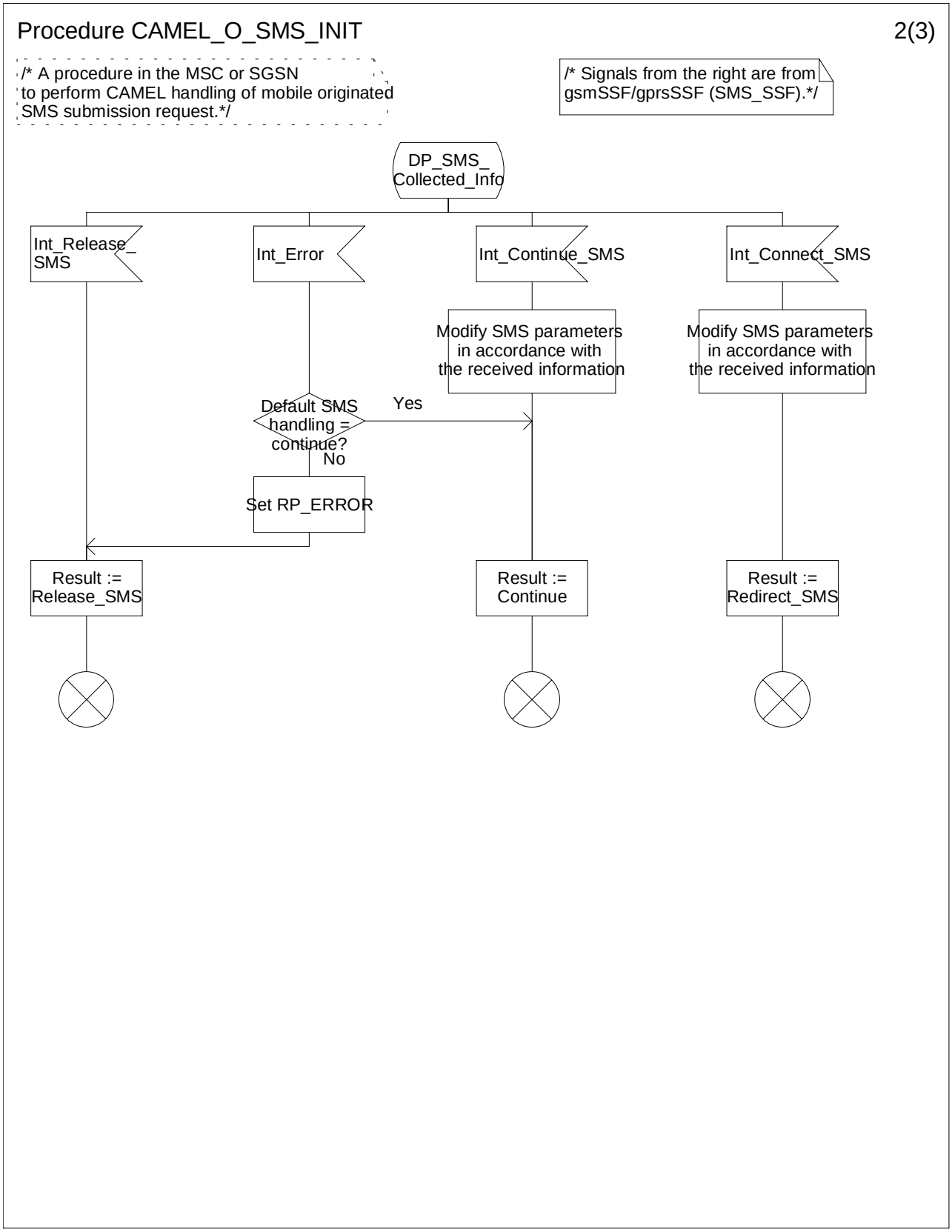

Figure b: Procedure CAMEL_O_SMS_INIT (sheet 2)

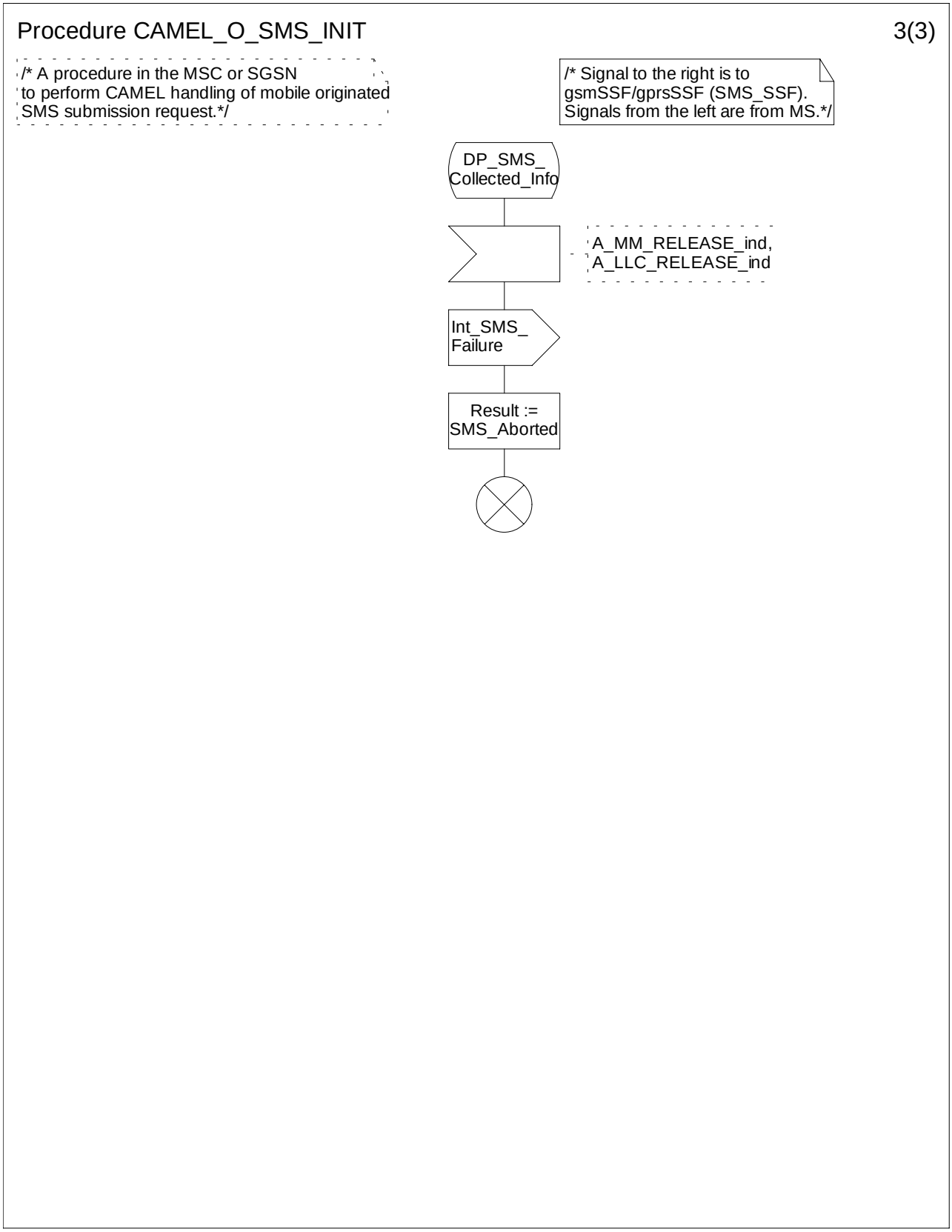

Figure c: Procedure CAMEL_O_SMS_INIT (sheet 3)

*** Next Change ***

7.5.4 Handling of mobile terminating SMS

7.5.4.1 Handling of mobile terminating SMS in the terminating MSC/SGSN

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

- Short Message Delivery (TPDU type = SMS-DELIVER)
- Short Message Status Report (TPDU type = SMS-STATUS-REPORT)

Refer to 3GPP TS 23.040 [**Error! Reference source not found.**] for a description of the various TPDU types.

The functional behaviour of the terminating MSC/SGSN is specified in 3GPP TS 29.002 [**Error! Reference source not found.**]. The procedures specific to CAMEL are specified in the following sub clauses:

7.5.4.1.1 Procedure CAMEL_T_SMS_INIT;

This procedure is called when a Short Message delivery attempt is received from the SMS-GMSC. If MT-SMS-CSI is present for the subscriber, then the SMS_SSF shall be invoked. Otherwise, the Short Message delivery attempt proceeds without CAMEL.

During the CAMEL handling of a Mobile Terminated Short Message, the MSC or SGSN shall allocate an SMS Reference Number. This SMS Reference Number shall be placed in the SMS-MT Call Detail Record, together with the MSC Address or SGSN Address. 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 Address. The combination of SMS Reference Number and MSC Address or SGSN Address 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-MT Call Detail Record, for every Short Message, also if that Short Messages forms part of a set concatenated Short Messages.When the SMS_SSF is invoked and the SMS_SSF has requested the gsmSCF for instructions, the MSC/SGSN may receive the following responses from the SMS_SSF:

- Int_Continue_SMS

  The gsmSCF has indicated that SM delivery may proceed. It may have supplied the SMS_SSF with a modified Calling Party Number. This Calling Party Number shall replace the TP-Originating-Address in the SMS-DELIVER TPDU.

- Int_Release_SMS

  The gsmSCF has force-released SM delivery. The RP Cause received from the gsmSCF shall be conveyed to the SMS-GMSC in the RP-Cause component, in the RP-ERROR RPDU.

- Int_Error

  A Tssf time-out has occurred; the SM has not been forwarded to the Mobile Station. If Default SMS Handling equals ‘Continue’, the SM delivery proceeds. Otherwise, SM delivery shall be aborted. In the latter case, the RP-Cause component, in the RP-ERROR RPDU shall be set to EquipmentProtocolError, in accordance with 3GPP TS 29.002 [**Error! Reference source not found.**].

7.5.4.1.2 Procedure CAMEL_T_SMS_DELIVERED

This procedure is called when the MSC/SGSN has detected that delivery of the SM to the Mobile Station has succeeded. No event specific information is sent to the gsmSCF.

When Short Message delivery attempt success has been reported to the gsmSCF, then the MSC/SGSN may receive the following responses from the SMS_SSF:

- Int_Continue_SMS

The event was reported to the gsmSCF in interrupt mode. The gsmSCF has concluded CAMEL processing and has terminated the Service Logic.

- Int_Continue

  The event was not reported to the gsmSCF or was reported in notification mode.

- Int_Error

  A Tssf time-out has occurred.

In all the above cases, the SM processing in the MSC/SGSN continues.

7.5.4.1.3 Procedure CAMEL_T_SMS_FAILURE

This procedure is called when the MSC/SGSN has detected that delivery of the SM to the Mobile Station has failed. If the delivery failure is due to RP-ERROR RPDU received from the MS, then the MT SMS Cause in the event report to the gsmSCF shall be set to the RP-Cause component in the RP-ERROR-RPDU. Otherwise, if the delivery failure is due to internal failure in the MSC/SGSN or time-out from the MS, then the MT SMS Cause in the event report to the gsmSCF shall be set to “Protocol error, unspecified”, as defined in 3GPP TS 24.011 [**Error! Reference source not found.**].

When Short Message delivery attempt failure has been reported to the gsmSCF, then the MSC/SGSN may receive the following responses from the SMS_SSF:

- Int_Continue_SMS

  The event was reported to the gsmSCF in interrupt mode. The gsmSCF has concluded CAMEL processing and has terminated the Service Logic.

- Int_Continue

  The event was not reported to the gsmSCF or was reported in notification mode.

- Int_Error

  A Tssf time-out has occurred.

In all the above cases, the SM processing in the MSC/SGSN continues.

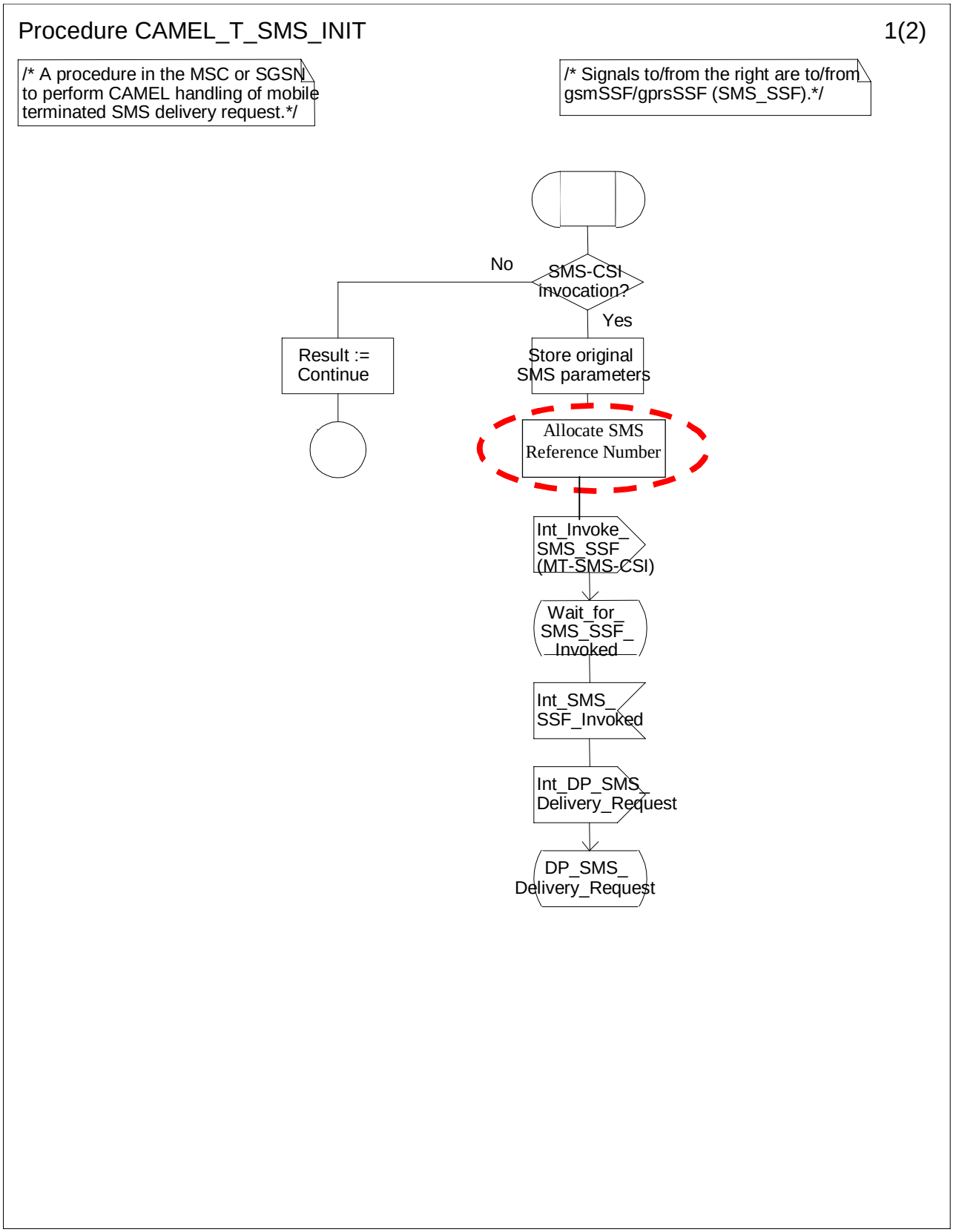

Figure Error! Reference source not found..**4a: Procedure CAMEL_T_SMS_INIT (sheet 1)**

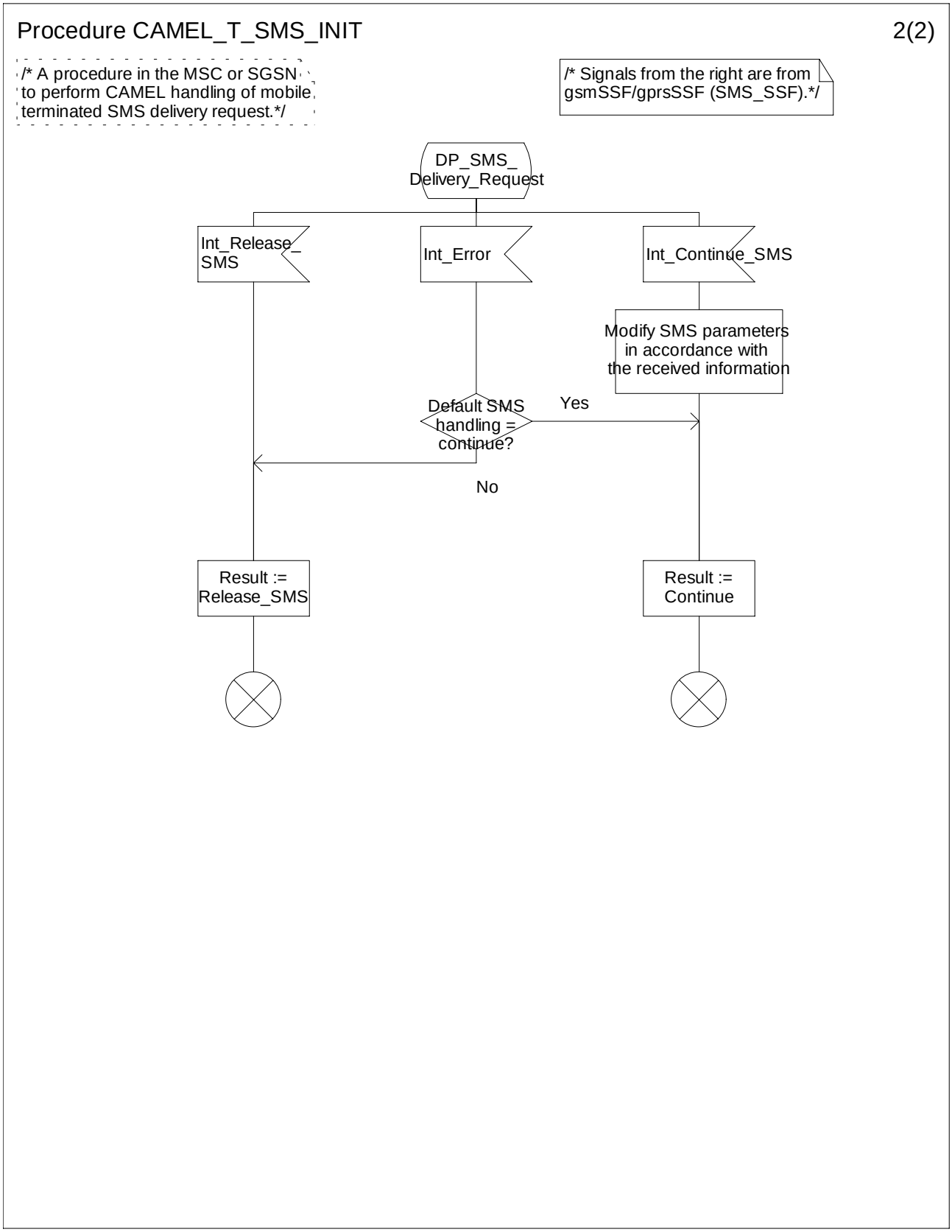

Figure b: Procedure CAMEL_T_SMS_INIT (sheet 2)

***** *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	MO	MT	Description
Destination Subscriber Number	M	M	For MO SMS: This IE contains a number to identify the Destination short message entity. The Destination Subscriber Number shall be retrieved from the TP-Destination-Address in the SMS-SUBMIT TPDU or the SMS-COMMAND TPDU. For MT SMS: This IE contains a number to identify the subscriber for whom the Short Message is destined. The Destination Subscriber Number shall be the MSISDN of the served subscriber.
Calling Party Number	M	C	For MO SMS: This IE contains a number to identify the subscriber who requests the SM submission. The Calling Party Number shall be the MSISDN of the served subscriber. For MT SMS: This IE contains the MSISDN of the subscriber or entity that sent the short message. For SMS-DELIVER TPDU, the Calling Party Number shall be retrieved from the TP-Originating-Address in the SMS-DELIVER TPDU. For SMS-STATUS-REPORT TPDU, this element shall not be included in this IF.
Event Type	M	M	This IE indicates the armed event resulting in the Initial DP SMS IF.
IMSI	M	M	This IE identifies the mobile subscriber.
Location Information in MSC	C	C	This IE is described in a table below.
Location Information in SGSN	C	C	This IE is described in a table below.
Service Key	M	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	M	This IE contains the time that the gsmSSF/gprsSSF was triggered, and the time zone the gsmSSF/gprsSSF resides in.
TP Short Message Specific Information	M	M	This IE contains the first octet of the applicable TPDU. For SMS-SUBMIT, the following elements may be included: - Message Type Indicator - Reject Duplicates - Validity Period Format - Status Report Request - User Data Header Indicator - Reply Path For SMS-COMMAND, the following elements may be included: - Message Type Indicator - User Data Header Indicator - Status Report Request For SMS-DELIVER, the following elements may be included: - Message Type Indicator - More Messages to Send - Status Report Indication - User Data Header Indicator - Reply Path For SMS-STATUS-REPORT, the following elements may be included: - Message Type Indicator - More Messages to Send - Status Report Qualifier - User Data Header Indicator Refer to 3GPP TS 23.040 [**Error! Reference source not found.**] for an indication of which elements of this 1st octet are Mandatory and which elements are Conditional.
TP Protocol Identifier	M	C	This IE indicates the protocol used above SM-Transfer Layer. The TP Protocol Identifier shall be retrieved from the applicable TPDU. For SMS-STATUS-REPORT, the sending of this IE is Conditional, depending on its presence in the SMS-STATUS-REPORT TPDU.
TP Data Coding Scheme	C	M	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 applicable TPDU. For SMS-COMMAND, this IE shall not be included in this IF.
TP Validity Period	S	-	This IE indicates the length of the validity period or the absolute time of the validity period termination. This IE is used only for the SMS-SUBMIT TPDU. The TP Validity Period, if available, shall be retrieved from the SMS-

Information element name	MO	MT	Description
			SUBMIT TPDU. For other TPDU, this IE shall not be included in this IF.
SMSC Address	M	M	For MO SMS: This IE defines the address of the SMSC to which the MO short message is intended to be submitted. It shall be retrieved from the RP-Destination-Address in the RP-MO-DATA RPDU. For MT SMS: This IE identifies the address of the SMSC from which the MT short message is originating. It shall be retrieved from the RP-Originating-Address in the RP-MT-DATA RPDU.
SMS Reference Number	M	M	This IE carries the SMS Reference Number. This Reference Number is allocated by the MSC or SGSN that processes this Short Message. 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 Address for the purpose of global uniqueness.
MSC Address	S	S	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 Address	S	S	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.
Note: Refer to 3GPP TS 23.040 [**Error! Reference source not found.**] for a description and encoding of the various TP-DUs and RP-DUs.			

Location Information in MSC is based on the Location Information IE defined in 3GPP TS 23.018 [**Error! Reference source not found.**]. The following differences apply:

Information element name	MO	MT	Description
Location number	C	C	See 3GPP TS 23.018 [**Error! Reference source not found.**].
VLR number	M	M	See 3GPP TS 23.018 [**Error! Reference source not found.**].
Age of location information	-	M	See 3GPP TS 23.018 [**Error! Reference source not found.**].
Current Location Retrieved	-	-	Not applicable
Selected LSA Identity	S	S	This IE is applicable only if SoLSA is supported by the MSC. This IE indicates the LSA identity associated with the current position of the MS. It shall be shall be present 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 present. See 3GPP TS 23.073 [**Error! Reference source not found.**].

Location Information in SGSN is based on the Location Information IE defined in 3GPP TS 23.018 [**Error! Reference source not found.**]. The following differences apply:

Information element name	MO	MT	Description
Location number	-		Not applicable
Service area ID	C,E	C,E	See 3GPP TS 23.018 [**Error! Reference source not found.**].
Cell ID	C,E	C,E	See 3GPP TS 23.018 [**Error! Reference source not found.**].
Location area ID	C,E	C,E	See 3GPP TS 23.018 [**Error! Reference source not found.**].
Routeing area ID	C	C	See 3GPP TS 23.003 [**Error! Reference source not found.**].
Geographical information	C	C	See 3GPP TS 23.032 [**Error! Reference source not found.**].
Geodetic information	-		Not applicable
VLR number	-		Not applicable
Age of location information	-		Not applicable
Current Location Retrieved	-		Not applicable
SGSN number	M	M	Global Title of the Serving GPRS Service Node. See 3GPP TS 23.060 [**Error! Reference source not found.**].
Selected LSA Identity	C	C	This IE is applicable only if SoLSA is supported by the SGSN. This IE indicates the LSA identity associated with the current position of the MS. It shall be present 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 it shall be present. See 3GPP TS 23.073 [**Error! Reference source not found.**]

*** *End of Document* ***

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

Tdoc N2-010434
(revision of N2-010346)

CHANGE REQUEST

⌘ **29.078 CR** ⌘ rev **1** ⌘ Current version: X.5.1 ⌘

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

Title:	⌘	Introduction of Reference Number for MT-SMS
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL4
Date:	⌘	16 May 2001
Category:	⌘	B
Release:	⌘	Rel-5

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*

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 Terminated SMS (MT-SMS).

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

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

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

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

The combination of MT-SMS Reference Number and MSC Address/SGSN Address 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 MT-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 Address, to the SCP. 3. The MSC/SGSN shall place this Reference Number and the MSC Address/SGSN Address in the MT-SMS CDR.
Consequences if not approved:	⌘	Correlation of MT-SMS CDRs produced by the MSC/SGSN with MT-SMS CDRs produced by the SCP shall not be possible.

Clauses affected:	⌘	7.1, 12.5			
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 SMS Control

This clause defines the operations, arguments, packages and appliaction contexts used for SCP control of MO SMS and MT-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) version4(3)}

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 and MT-SMS.

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

IMPORTS

    errortypes,
    datatypes,
    operationcodes,
    classes,
    ros-InformationObjects,
    tc-Messages
FROM CAP-object-identifiers {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-network(1) modules(3) cap-object-identifiers(100) version4(3)}

    OPERATION
FROM Remote-Operations-Information-Objects ros-InformationObjects

    ServiceKey
FROM CS1-DataTypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
modules(0) cs1-datatypes(2) version1(0)}

    MiscCallInfo
FROM CS2-datatypes {ccitt(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cS2(20) modules(0) in-cs2-datatypes (0) version1(0)}

    IMSI,
    ISDN-AddressString
FROM MAP-CommonDataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-CommonDataTypes(18) version6(6)}

    LocationInformation
FROM MAP-MS-DataTypes {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
gsm-Network(1) modules(3) map-MS-DataTypes(11) version6(6)}

    PARAMETERS-BOUND
FROM CAP-classes classes

    opcode-connectSMS,
    opcode-continueSMS,
    opcode-eventReportSMS,
    opcode-furnishChargingInformationSMS,
    opcode-initialDPSMS,
    opcode-releaseSMS,
    opcode-requestReportSMSEvent,
    opcode-resetTimerSMS
FROM CAP-operationcodes operationcodes

    CalledPartyBCDNumber {},
    EventSpecificInformationSMS,
    EventTypeSMS,
    ExtensionField {},
    FCISMSBillingChargingCharacteristics,
    LocationInformationGPRS,
    RPCause,
    SMSEvent,
    TimeAndTimezone {},
    TimerID,
    TimerValue,
    TPDataCodingScheme,
    TPProtocolIdentifier,
    TPShortMessageSpecificInfo,
    TPValidityPeriod
FROM CAP-datatypes datatypes
```

```
    missingCustomerRecord,
    missingParameter,
    parameterOutOfRange,
    systemFailure,
    taskRefused,
    unexpectedComponentSequence,
    unexpectedDataValue,
    unexpectedParameter
FROM CAP-errortypes errortypes

    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,
    tPShortMessageSpecificInfo      [9] TPShortMessageSpecificInfo          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,
    sGSNAddress                     [16] ISDN-AddressString                 OPTIONAL
    }
```

…
< unmodified ASN.1 >
…

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

12.5 InitialDPSMS procedure

12.5.1 General description

This operation is sent by the gsmSSF/gprsSSF after detection of a TDP-R in the FSM, to request the gsmSCF for instructions to complete the Short Message submission to the SMSC or Short Message delivery to the served subscriber.

12.5.1.1 Parameters

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

- callingPartyNumber:
  This parameter carries the MSISDN of the sending short message entity .

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

- iMSI:
  IMSI of the mobile subscriber for whom the CAMEL service is invoked.

- locationInformationInMSC:
  This parameter indicates the location of the MSC of the served subscriber. This parameter shall be included only when the InitialDP operation is sent from the MSC.

- locationInformationInSGSN:
  This parameter indicates the location of the SGSN of the served subscriber. This parameter shall be included only when the InitialDP operation is sent from the SGSN.

- serviceKey:
  This parameter indicates to the gsmSCF the requested IN service. It is used to address the required application/SLP within the gsmSCF; it is 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 the Short Message.

- tPShortMessageSpecificInfo:
  This IE contains the 1st octet of the TPDU. Refer to 3GPP TS 23.040 [6] for a description of the various TPDUs.

- tPProtocolIdentifier:
  This IE indicates the protocol used above the 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 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.

- SGSNAddress:
  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.

12.5.2 Invoking entity (gsmSSF or gprsSSF)

12.5.2.1 Normal procedure

gsmSSF/gprsSSF preconditions:

(1) A Short Message submission attempt or a Short Message delivery attempt has been initiated.

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

(3) For MT-SMS, the event fulfilled the criteria for the DP being executed.

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 MO-SMS-CSI or the MT-SMS-CSI. The gsmSSF or gprsSSF provides all available parameters.

A control relationship is established with the gsmSCF. The gsmSSF/gprsSSF application timer T_{ssf} is set to the deafult value and is startedIt is used to prevent excessive Short Message submission or delivery suspension time.

12.5.2.2 Error handling

If the gsmSCF is not accessible then the gsmSSF/gprsSSF instructs the MSC/SGSN to proceed with the SM processing in accordance withthe Default SMS Handling parameter of the MO-SMS-CSI or MT-SMS-CSI.

On expiryof T_{ssf} before receiving any operation, the gsmSSF/gprsSSF aborts the Service Logic invocation attempt and instructs the VMSC/SGSN to proceed with the SM processing in accordance with the Default SMS Handling parameter of the MO-SMS-CSI CSI or MT-SMS-CSI.

In the case of a MO-SMS Servicem, 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 14.

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

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:	⌘	Ericsson
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.)

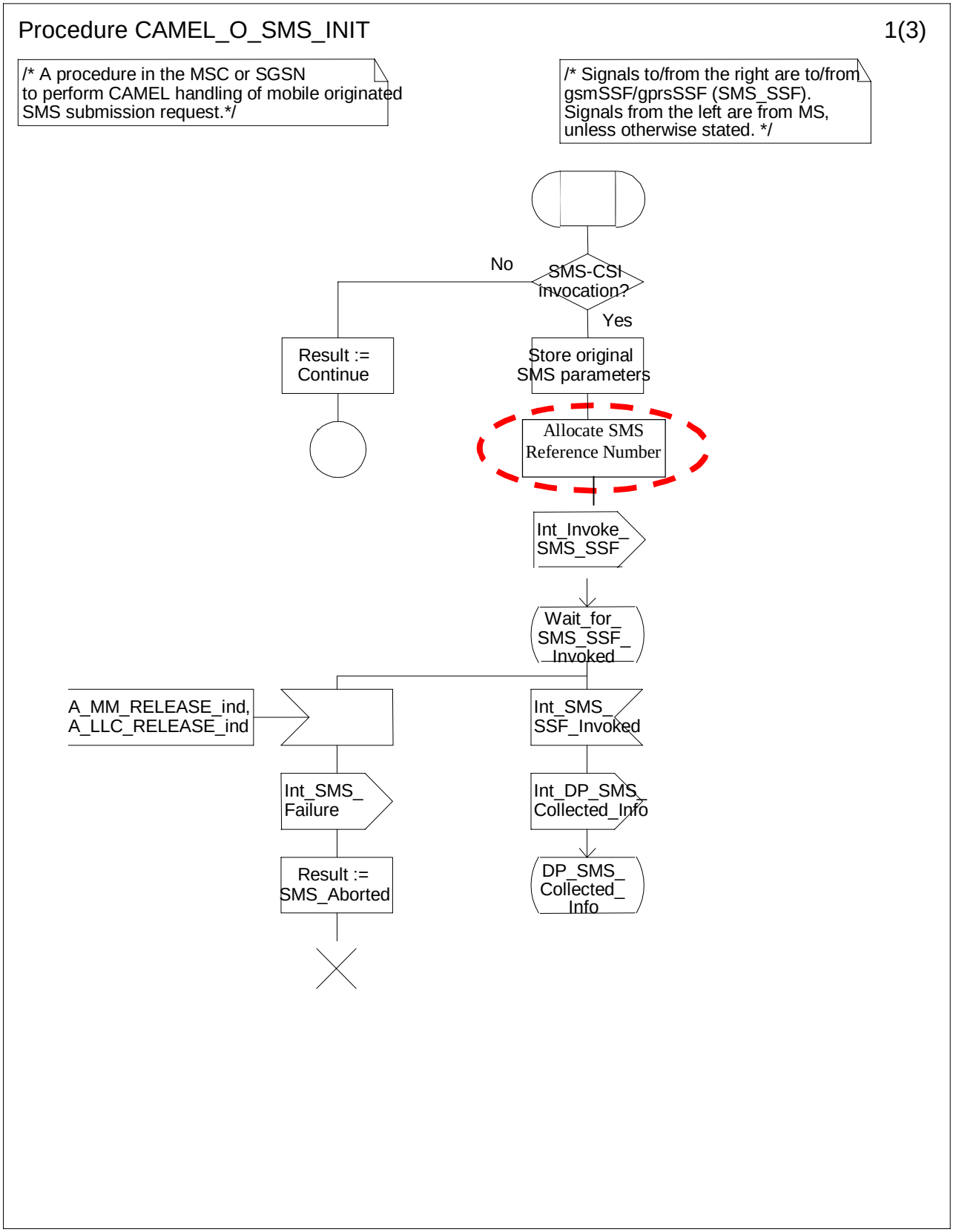

Figure Error! Reference source not found.**.2a: Procedure CAMEL_O_SMS_INIT (sheet1)**

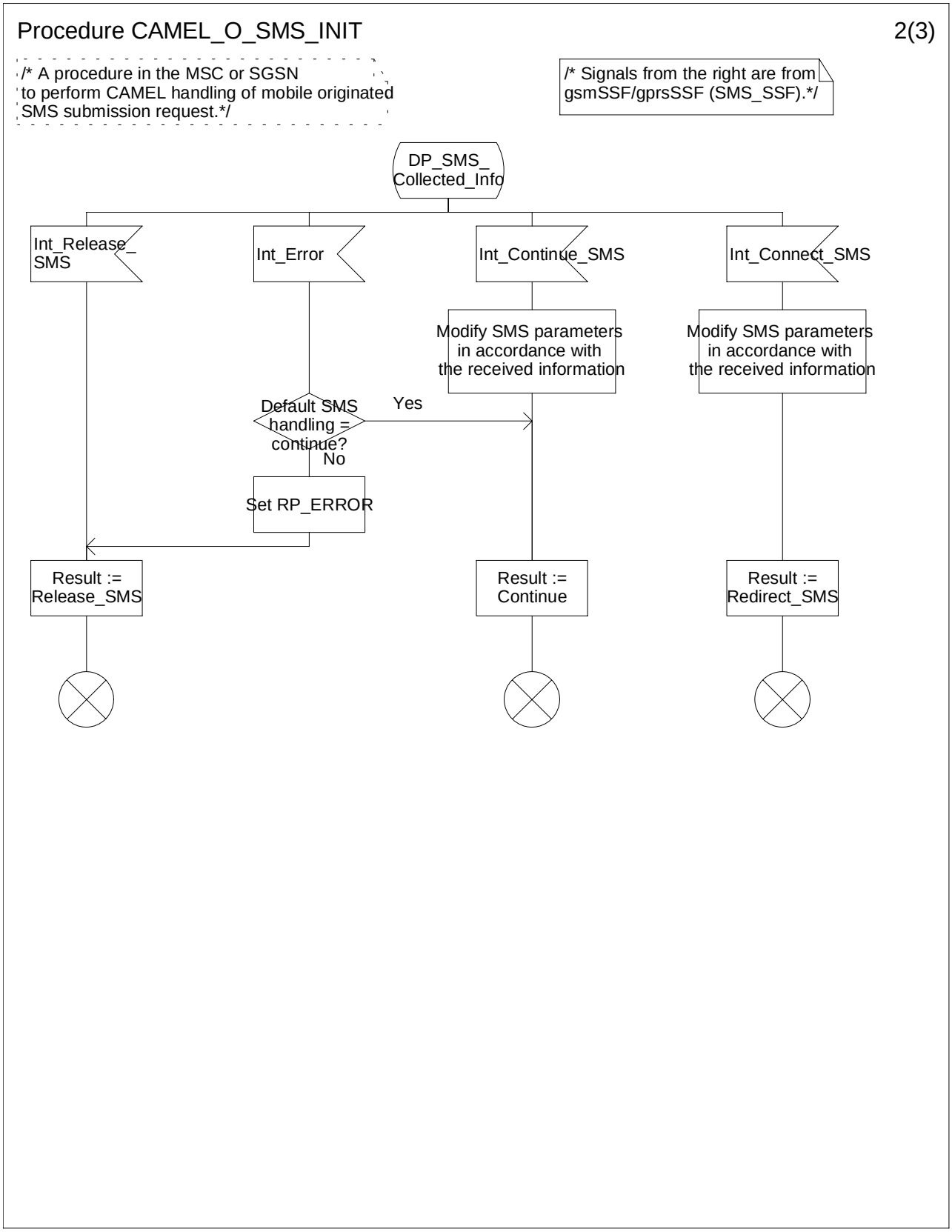

Figure b: Procedure CAMEL_O_SMS_INIT (sheet2)

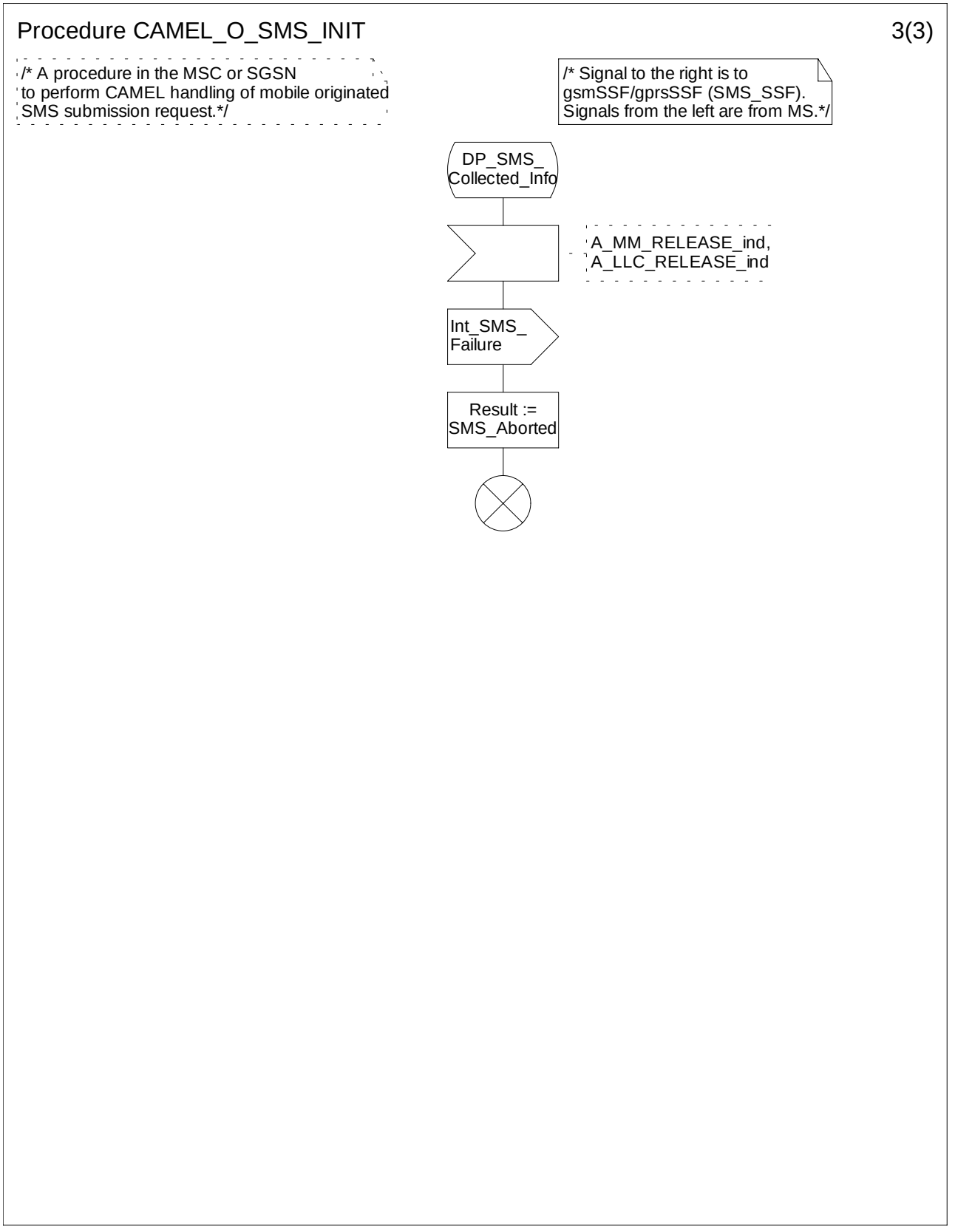

Figure c: Procedure CAMEL_O_SMS_INIT (sheet3)

***** *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:	⌘	Ericsson
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.)

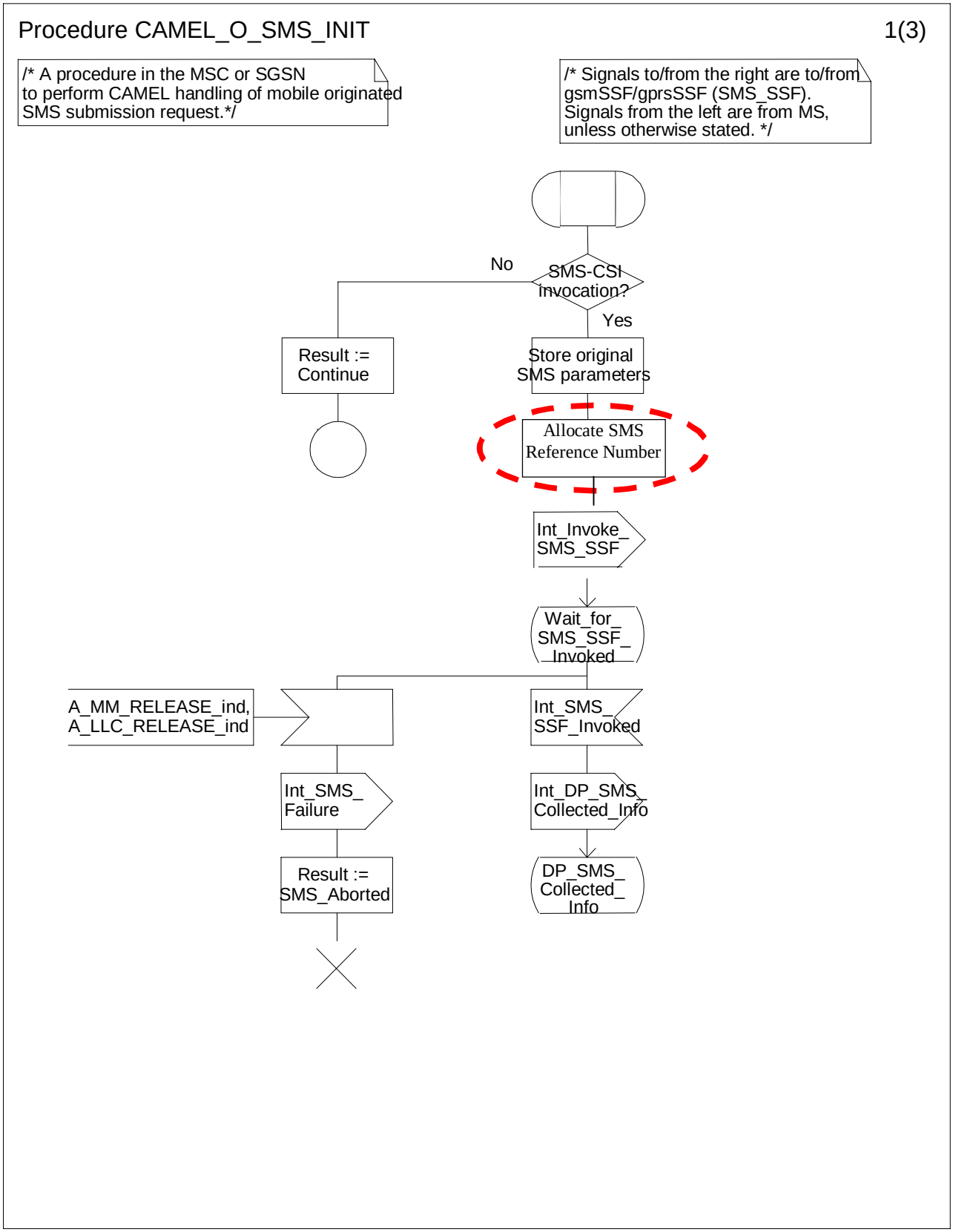

Figure Error! Reference source not found.**.2a: Procedure CAMEL_O_SMS_INIT (sheet1)**

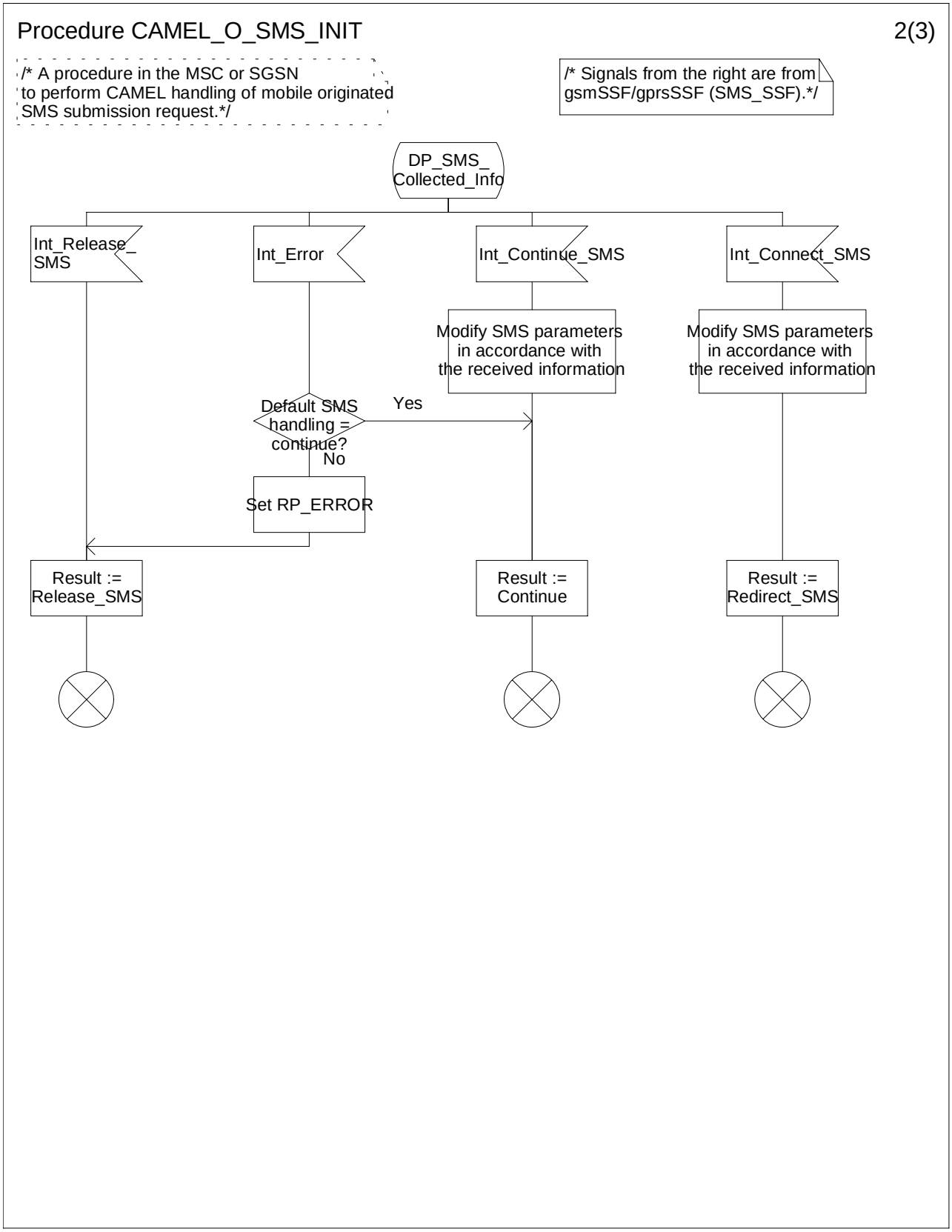

Figure b: Procedure CAMEL_O_SMS_INIT (sheet2)

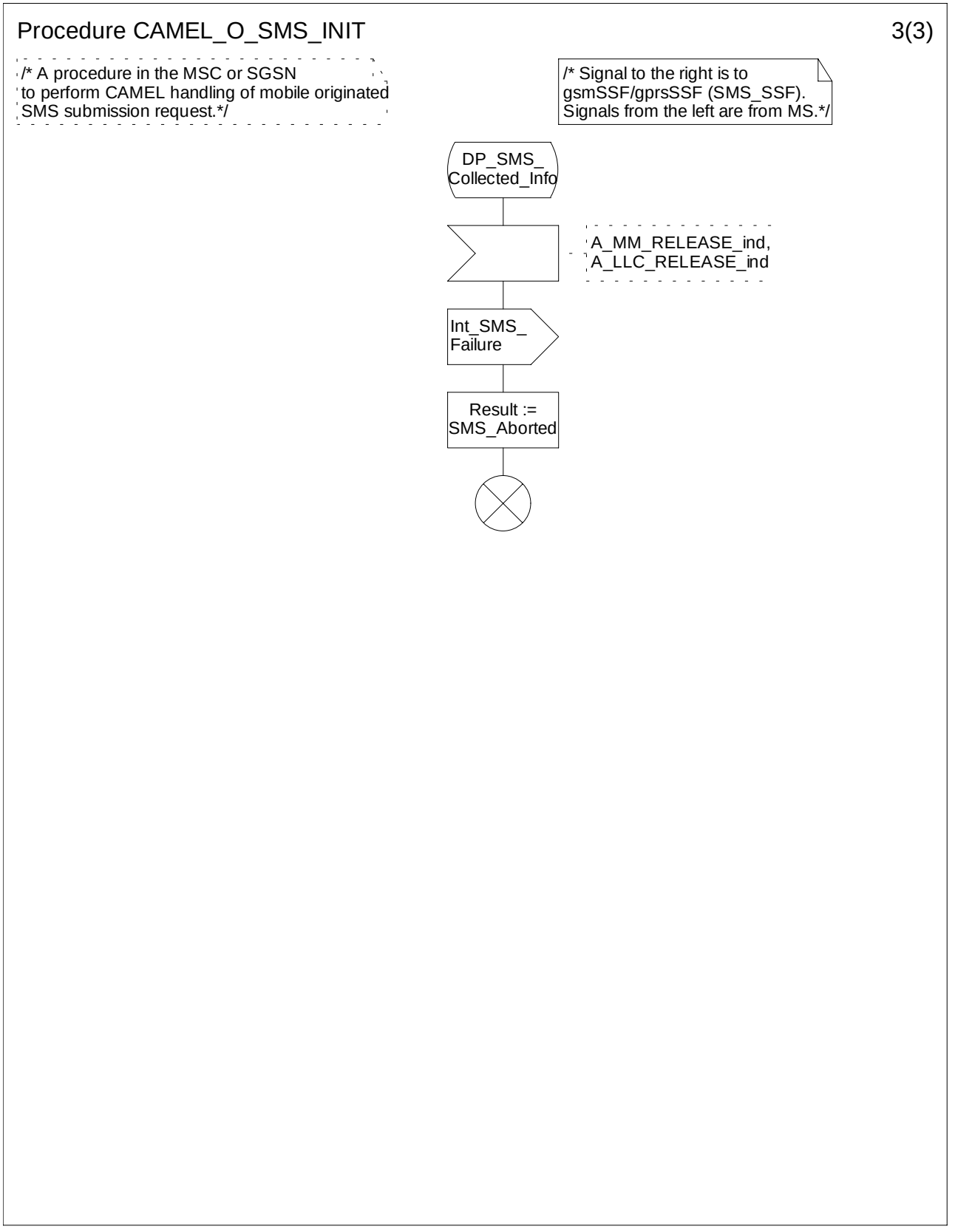

Figure c: Procedure CAMEL_O_SMS_INIT (sheet3)

***** *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 **Tdoc N2-010446**
Puerto Rico, 14th - 18th May 2001

Title:	Liaison Statement on introduction of SMS Reference Number for SMS
Source:	TSG_CN WG2
To:	TSG_SA WG5
Contact Person:	Rogier Noldus Ericsson rogier.noldus@eln.ericsson.se +31 161 24 9400

---

1. Overall Description:

The purpose of the present CR is to inform SA5 about the introduction of the SMS Reference Number for MO-SMS and MT-SMS. This Reference Number shall be used for CAMEL interworking with MO-SMS and CAMEL interworking with MT-SMS. The SMS Reference Number for MO-SMS is introduced in 3G R99. The SMS Reference Number for MT-SMS is introduced in 3G Rel-5.

The SMS Reference Number is a unique number per MSC or SGSN. It shall be placed in the SMS-MO CDR or the SMS-MT CDR, together with the MSC Address or SGSN Number. The MSC or SGSN shall also send the SMS Reference number and the MSC Address or SGSN Number to the SCP when a CAMEL Service for MO-SMS or MT-SMS is invoked.

This mechanism allows for correlation of CDRs produced in the MSC or SGSN with CDRs produced in the SCP. The SMS Reference Number shall be used together with the MSC Address or SGSN Number. The combination of SMS Reference Number and MSC Address or SGSN Number is a globally unique pair.

The reporting of the SMS Reference Number to the SCP and the inclusion of the SMS Reference Number in the SMS-MO CDR and SMS-MT CDR has been approved by CN2. The approved CRs will be submitted to the CN Plenary meeting #12. The inclusion of these elements in the SMS-MO CDR and SMS-MT CDR by SA5 shall therefore be dependent on approval of these CRs by CN Plenary.

2. Actions:

SA5 is requested to make the necessary enhancements to 3GPP TS 32.005, 3GPP TS 32.015, 3GPP 32.205 and 3GPP TS 32.215 to reflect the introduction of the SMS Reference Number for MO-SMS and MT-SMS.

The following actions are requested:

(1) Include in 3GPP TS 32.005 for R99 and Rel-4 and in 3GPP TS 32.205 for Rel-5 the SMS Reference Number in the SMS-MO CDR;

(2) Incldue in 3GPP TS 32.015 for R99 and Rel-4 and in 3GPP TS 32.215 for Rel-5 the SMS Reference Number in the SMS-MO CDR;

(3) Include in 3GPP TS 32.205 for Rel-5 the SMS Reference Number in the SMS-MT CDR;

(4) Include in 3GPP TS 32.215 for Rel-5 the SMS Reference Number in the SMS-MT CDR.

Details on the handling and the encoding of the SMS Reference Number may be obtained from attached CRs.

3. Date of Next CN2 Meetings:

CN2_19	9th – 13th July 2001	Dresden, Germany.
CN2_20	15th – 19th October 2001	U.K.

4. Attachments:

N2-010444	CR 23.078-296r3 (R99); “Introduction of Reference Number for MO-SMS”
N2-010445	CR 23.078-300 (Rel-4); “Introduction of Reference Number for MO-SMS”
N2-010447	CR 29.078-175r2 (R99): “Introduction of Reference Number for MO-SMS”
N2-010448	CR 29.078-182 (Rel-4): “Introduction of Reference Number for MO-SMS”
N2-010433	CR 23.078 (Rel-5): “Introduction of Reference Number for MT-SMS”
N2-010434	CR 29.078 (Rel-5): “Introduction of Reference Number for MT-SMS”

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:	⌘	Ericsson
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

⌘ **29.078 CR** 182 ⌘ 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:	⌘	Ericsson
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 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 ******