3GPP TSG CN Plenary Meeting #14 **Tdoc NP-010582**
Japan, Kyoto, 12th – 14th December 2001

Source: TSG CN WG2

Title: CR on R99 Work Item CAMEL3, Pack 3

Agenda item: 7.2

Document for: APPROVAL

Introduction:

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

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.078	334		N2-010773	R99	Inclusion of D-CSI in arming/disarming mechanism	F	3.10.0
23.078	337		N2-010774	Rel-4	Inclusion of D-CSI in arming/disarming mechanism	A	4.2.0
23.078	338		N2-010775	R99	Correction of SDL to text extention	F	3.10.0
23.078	339		N2-010776	Rel-4	Correction of SDL to text extention	A	4.2.0
23.078	336	1	N2-010805	R99	Clarification on NSCD when data is withdrawn	F	3.10.0
23.078	342		N2-010820	Rel-4	Clarification on NSCD when data is withdrawn	A	4.2.0
23.078	335	2	N2-010808	R99	Clarification on ATM	F	3.10.0
23.078	343		N2-010842	Rel-4	Clarification on ATM	A	4.2.0
23.078	340	2	N2-010845	R99	Introduction of SMS Reference Number	F	3.10.0
23.078	344		N2-010846	Rel-4	Introduction of SMS Reference Number	A	4.2.0

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

Tdoc N2-010773

CR-Form-v4

CHANGE REQUEST

⌘ **23.078** **CR** **334** ⌘ rev **-** ⌘ Current version: **3.10.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Inclusion of D-CSI in arming/disarming mechanism
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	10 October 2001
Category:	⌘	**F (agreed by consensus)**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In 4.2.1.1 “Arming/disarming mechanism”, description of D-CSI is missing.
Summary of change:	⌘	Add D-CSI in the appropriate position so that the same arming/disarming mechanism for D-CSI is done as other CSI.
Consequences if not approved:	⌘	No Arming/disarming mechanism could be applicable in the case of D-CSI delivery/withdrawn.

Clauses affected:	⌘	4.2.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.2.1.1 Arming/disarming mechanism

The mechanism by which the DP is armed. A DP may be statically armed or dynamically armed.

The following arming rules apply:

- DP for mobile terminating call handling is statically armed in GMSC as result of T-CSI delivery from HLR. DP for mobile terminating call handling is statically armed in VMSC as result of VT-CSI delivery from VLR. DP for forwarding leg handling is statically armed in GMSC as result of O-CSI and/or D-CSI delivery from HLR. DP for mobile originating call or forwarded leg handling is statically armed in VMSC as result of O-CSI and/or D-CSI delivery from VLR.
- A DP is dynamically armed by the gsmSCF within the context of a CAMEL control relationship (between the gsmSSF and the gsmSCF).

The following disarming rules apply:

- A statically armed DP is disarmed when a O-CSI, D-CSI, T-CSI or VT-CSI is withdrawn in the HLR. Only TDP-Rs can be disarmed using this mechanism.
- If an armed EDP is met, then it is disarmed.
- If an EDP is met that causes the release of the related leg, then all EDPs related to that leg are disarmed.
- If a call is released, then all EDPs related to that call are disarmed.
- If an EDP is met, then other EDPS are disarmed, in accordance with the implicit disarming rule table (see subclause 4.4.4).
- If an EDP is armed, it can be explicitly disarmed by the gsmSCF by means of the RequestReportBCSMEvent information flow.

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Tdoc N2-010774

CR-Form-v4

CHANGE REQUEST

⌘ **23.078** **CR** **337** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Inclusion of D-CSI in arming/disarming mechanism
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	10 October 2001
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change:	⌘	In 4.2.1.1 “Arming/disarming mechanism”, description of D-CSI is missing.
Summary of change:	⌘	Add D-CSI in the appropriate position so that the same arming/disarming mechanism for D-CSI is done as other CSI.
Consequences if not approved:	⌘	No Arming/disarming mechanism could be applicable in the case of D-CSI delivery/withdrawn.

Clauses affected:	⌘	4.2.1.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.2.1.1 Arming/disarming mechanism

The mechanism by which the DP is armed. A DP may be statically armed or dynamically armed.

The following arming rules apply:

- DP for mobile terminating call handling is statically armed in GMSC as result of T-CSI delivery from HLR. DP for mobile terminating call handling is statically armed in VMSC as result of VT-CSI delivery from VLR. DP for forwarding leg handling is statically armed in GMSC as result of O-CSI and/or D-CSI delivery from HLR. DP for mobile originating call or forwarded leg handling is statically armed in VMSC as result of O-CSI and/or D-CSI delivery from VLR.
- A DP is dynamically armed by the gsmSCF within the context of a CAMEL control relationship (between the gsmSSF and the gsmSCF).

The following disarming rules apply:

- A statically armed DP is disarmed when a O-CSI, D-CSI, T-CSI or VT-CSI is withdrawn in the HLR. Only TDP-Rs can be disarmed using this mechanism.
- If an armed EDP is met, then it is disarmed.
- If an EDP is met that causes the release of the related leg, then all EDPs related to that leg are disarmed.
- If a call is released, then all EDPs related to that call are disarmed.
- If an EDP is met, then other EDPS are disarmed, in accordance with the implicit disarming rule table (see subclause 4.4.4).
- If an EDP is armed, it can be explicitly disarmed by the gsmSCF by means of the RequestReportBCSMEvent information flow.

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Tdoc N2-010775

CR-Form-v4

CHANGE REQUEST

⌘ **23.078** **CR** **338** ⌘ rev **-** ⌘ Current version: **3.10.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Correction of SDL to text extention
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	10 October 2001
Category:	⌘	**F (agreed by consensus)**
Release:	⌘	R99

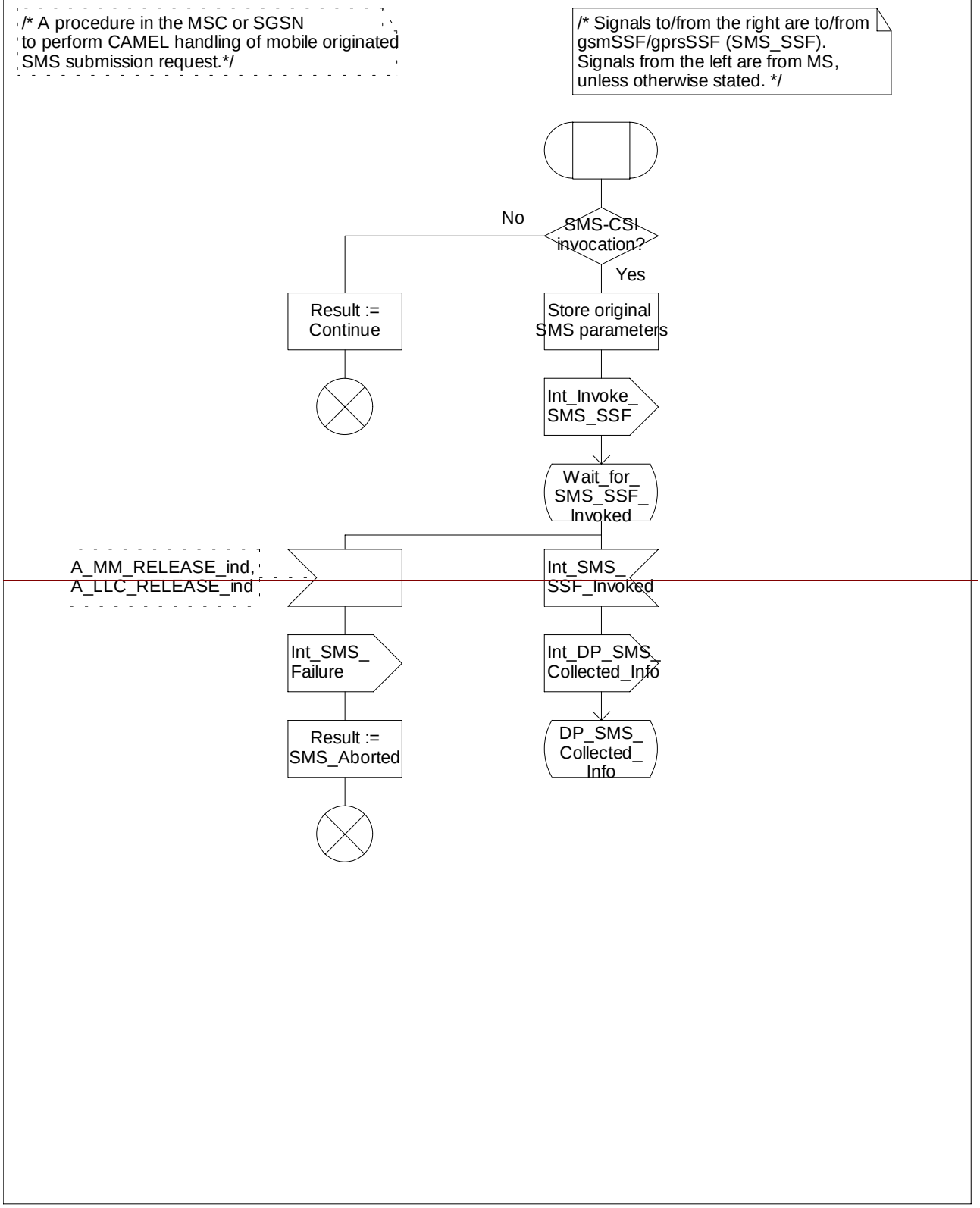
Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	A_MM_RELEASE_ind and A_LLC_RELEASE_ind in CAMEL_O_SMS_INIT are the signals which should be specified as the normative signals. If the name of a input signal does not fit into the input signal symbol, they name should be placed in a text extension symbol but not in a comment symbol.
Summary of change:	⌘	Change to the text extention from comment symbols.
Consequences if not approved:	⌘	These signals would remain as the comments. No normative signal exists.

Clauses affected:	⌘	7 (SDL CAMEL_O_SMS_INIT sheets 1 and 3)
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

Procedure CAMEL_O_SMS_INIT 1(3)



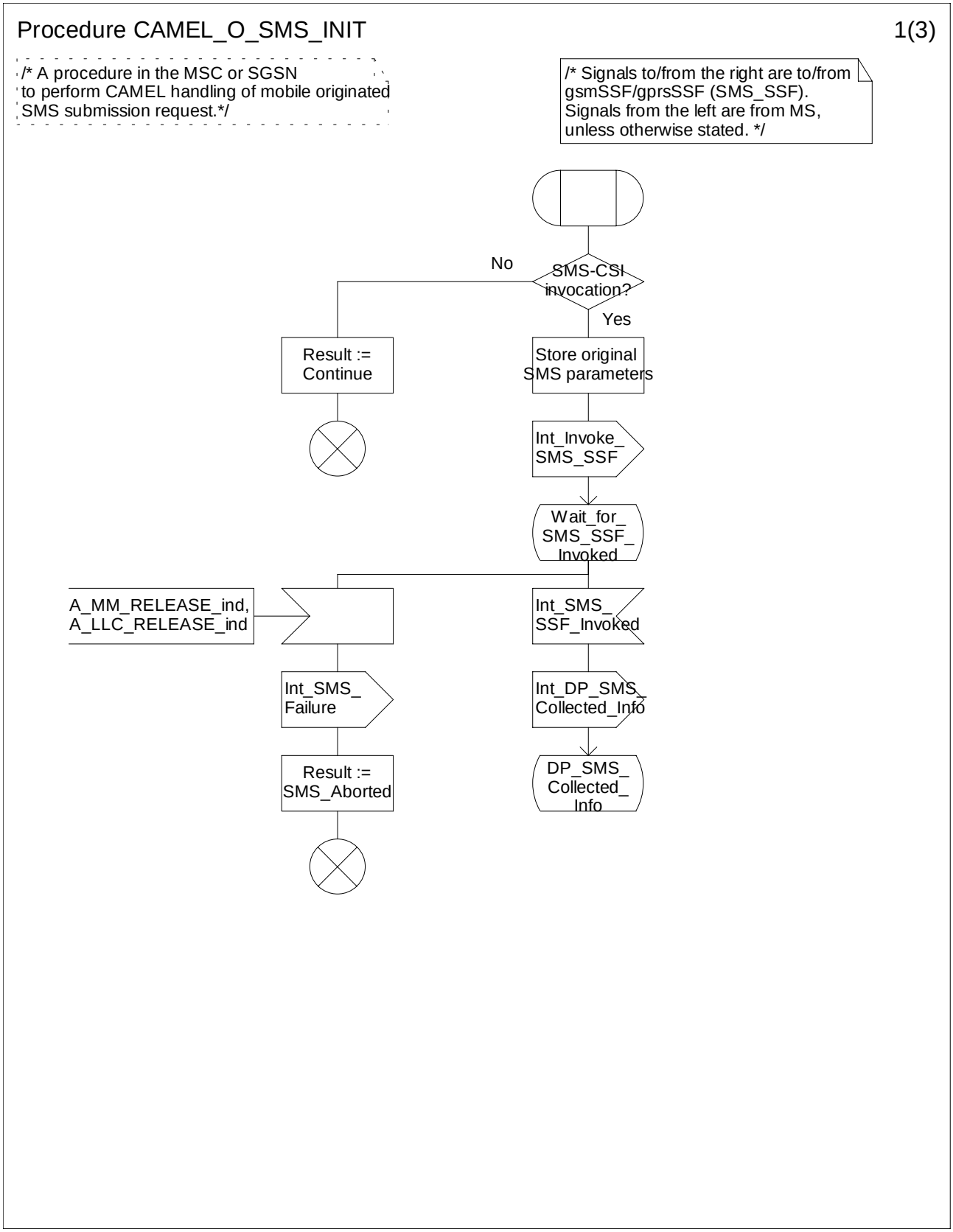
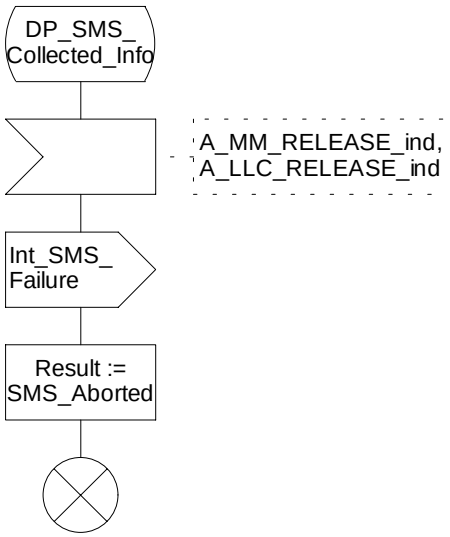


Figure 7.7a: Procedure CAMEL_O_SMS_INIT (sheet 1)

Procedure CAMEL_O_SMS_INIT 3(3)

/* A procedure in the MSC or SGSN to perform CAMEL handling of mobile originated SMS submission request.*/

/* Signal to the right is to gsmSSF/gprsSSF (SMS_SSF). Signals from the left are from MS.*/



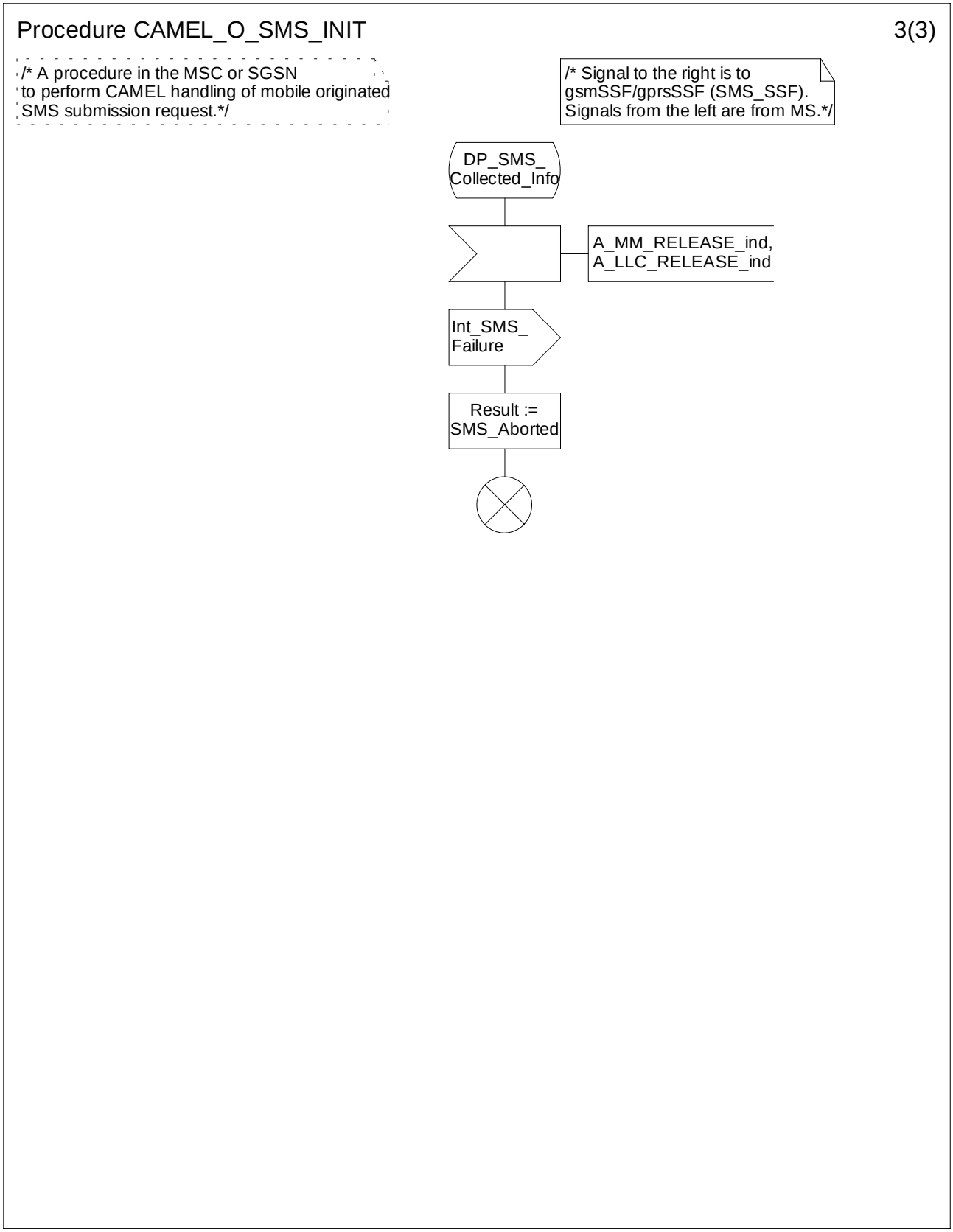


Figure 7.7c: Procedure CAMEL_O_SMS_INIT (sheet 3)

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Tdoc N2-010776

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CHANGE REQUEST

⌘ **23.078** **CR** **339** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Correction of SDL to text extention
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL3
Date:	⌘	10 October 2001
Category:	⌘	**A**
Release:	⌘	Rel-4

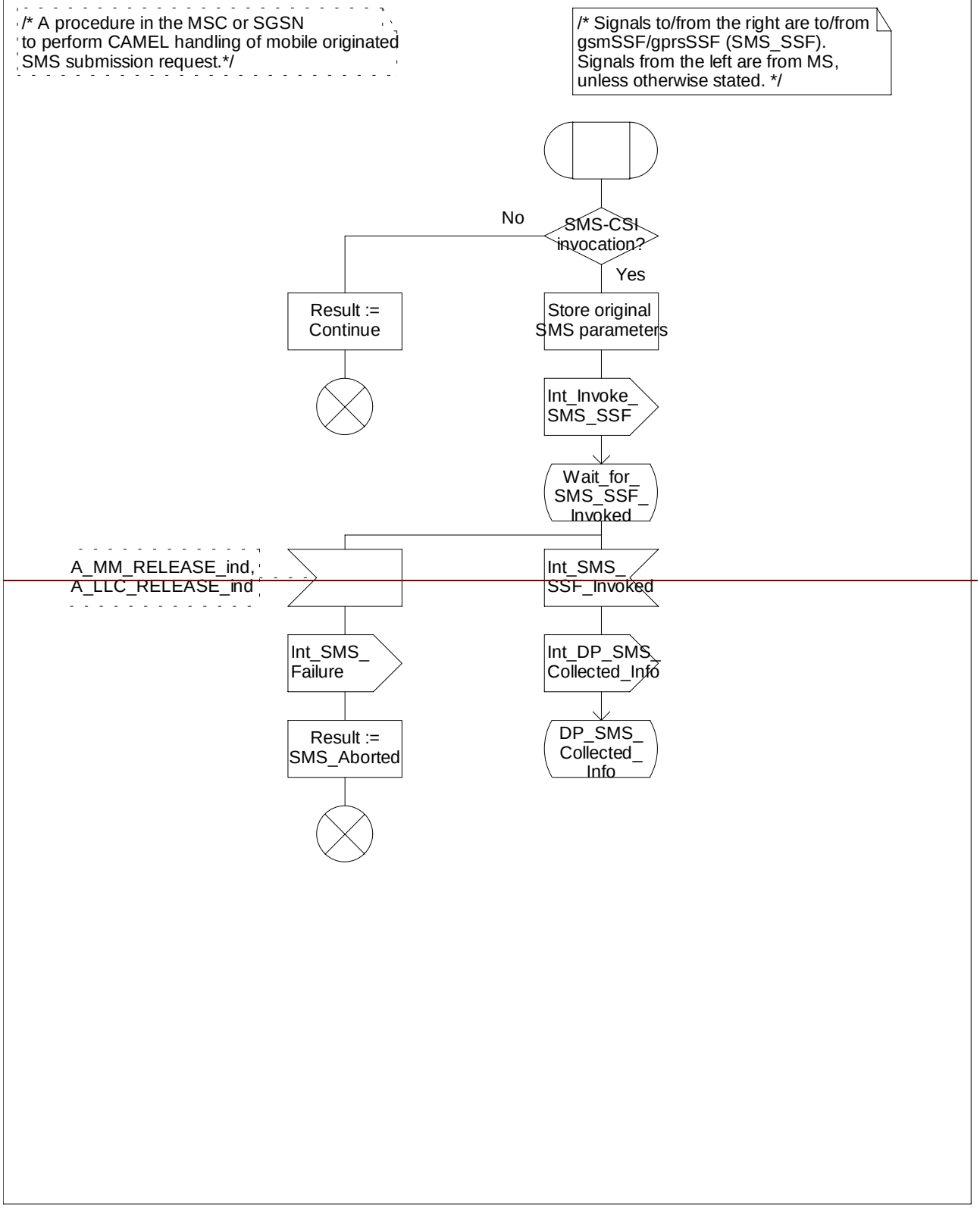
Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	A_MM_RELEASE_ind and A_LLC_RELEASE_ind in CAMEL_O_SMS_INIT are the signals which should be specified as the normative signals. If the name of a input signal does not fit into the input signal symbol, they name should be placed in a text extension symbol but not in a comment symbol.
Summary of change:	⌘	Change to the text extention from comment symbols.
Consequences if not approved:	⌘	These signals would remain as the comments. No normative signal exists.

Clauses affected:	⌘	7 (SDL CAMEL_O_SMS_INIT sheets 1 and 3)
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

Procedure CAMEL_O_SMS_INIT 1(3)



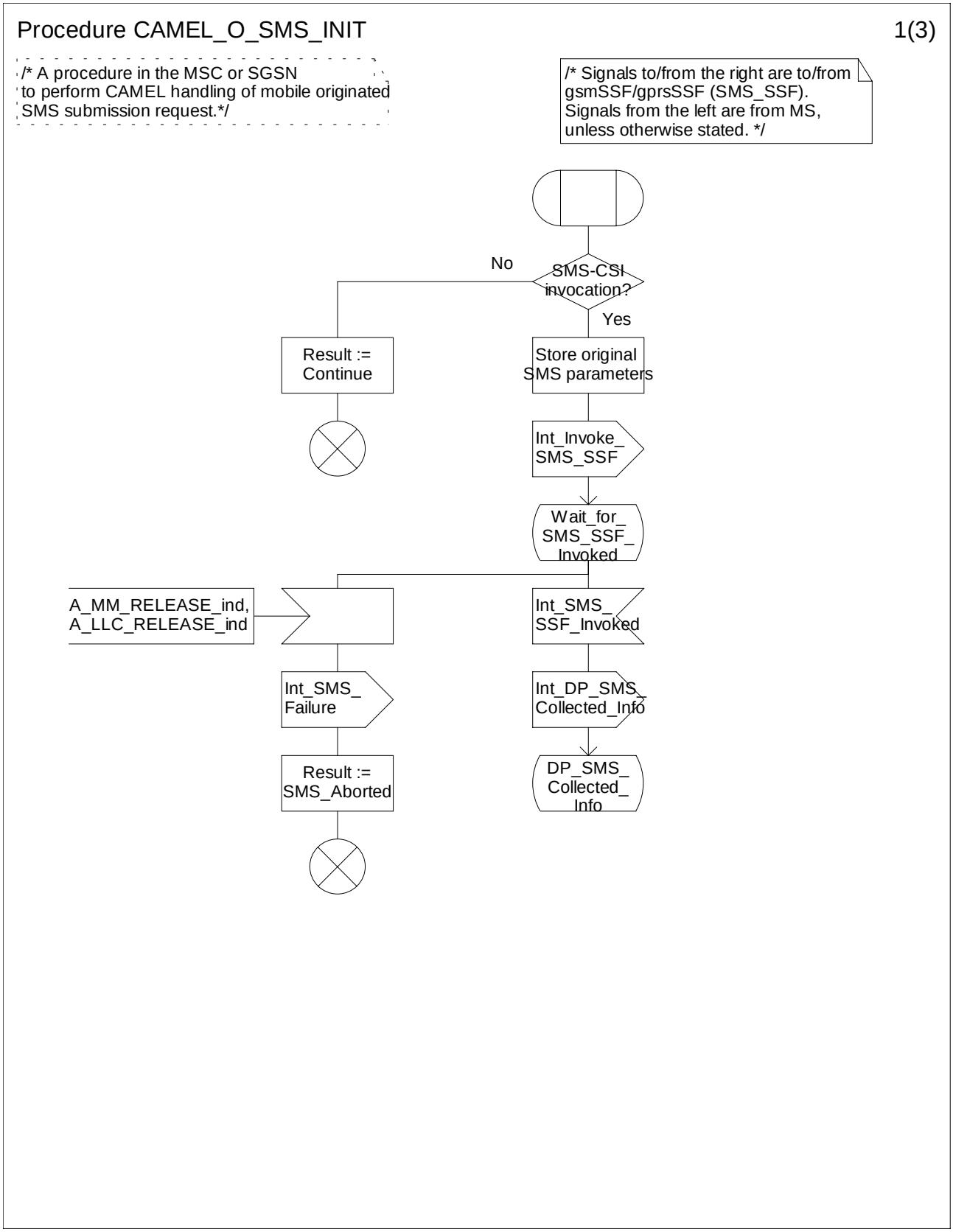
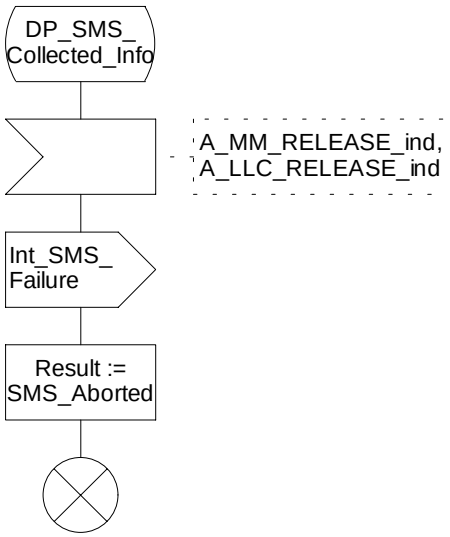


Figure 7.7a: Procedure CAMEL_O_SMS_INIT (sheet 1)

Procedure CAMEL_O_SMS_INIT 3(3)

/* A procedure in the MSC or SGSN to perform CAMEL handling of mobile originated SMS submission request.*/

/* Signal to the right is to gsmSSF/gprsSSF (SMS_SSF). Signals from the left are from MS.*/



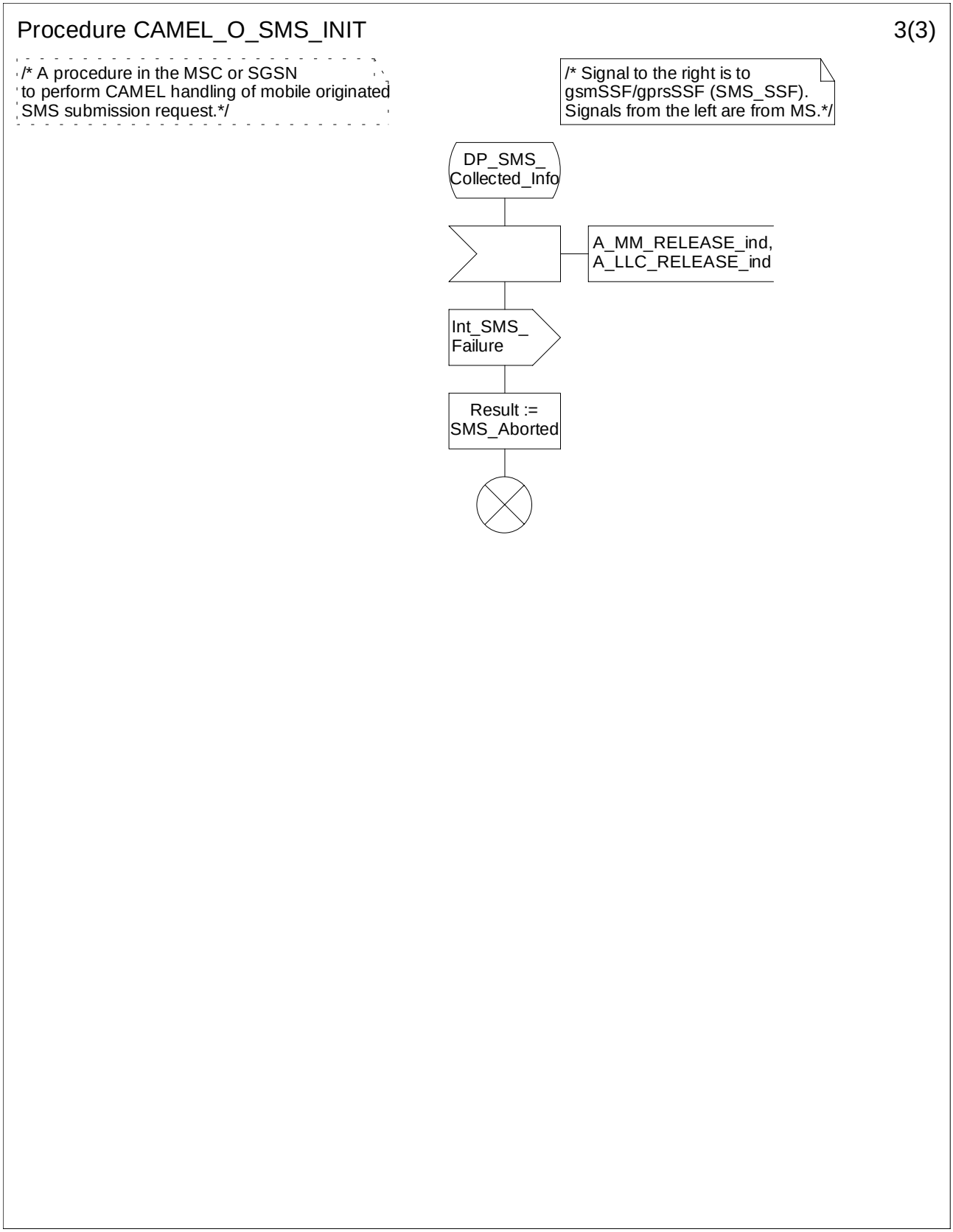


Figure 7.7c: Procedure CAMEL_O_SMS_INIT (sheet 3)

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CHANGE REQUEST

⌘ **23.078** **CR** **336** ⌘ rev **1** ⌘ Current version: **3.A.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Clarification on NSCD when data is withdrawn
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-15
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)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In the 3GPP TS 23.078 it is not specified how the Notify Subscriber Data Change operation is used when data is withdrawn or erased in the HLR.
Summary of change:	⌘	Addtition of comments on the description of the Notify Subscriber Data Change operation.
Consequences if not approved:	⌘	Possible interworking problems.

Clauses affected:	⌘	§ 10.3.2.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	29.002
Other comments:	⌘			

10.3.2.3 Notify Subscriber Data Change

10.3.2.3.1 Description

This IF is used by the HLR to notify to the gsmSCF of the change of subscriber data.

10.3.2.3.2 Information Elements

The following information elements are required:

Information element name	Required	Description
IMSI	M	The IMSI is used to identify the subscriber.
MSISDN	M	The MSISDN is used to identify the subscriber.
Call Forwarding SS data	C	This IE is described in a table below.
Call Barring SS data	C	This IE is described in a table below.
Operator Determined Barring data	C	This IE is described in a table below.
CAMEL Subscription Information	C	This IE is described in a table below.
M Mandatory (The IE shall always be sent). C Conditional (The IE shall be sent, if available).		

Call Forwarding SS data contains the following information:

Information element name	Required	Description
SS Code	C	This IE indicates Call Forwarding supplementary service as defined in 3GPP TS 22.004 [25].
Forwarding Feature List	C	See the table below.
Notification-to-CSE Flag	C	This IE indicates whether the gsmSCF is notified of a change of Call Forwarding SS data.
C Conditional (The IE shall be sent, if available).		

Forwarding Feature List contains 1 to 32 items of the following information:

Information element name	Required	Description
Basic Service	C	See 3GPP TS 22.002 [24]. Also compound basic service codes can be used in this operation if the subscriber has used a compound code when modifying the SS (e.g. all bearer services compound code).
SS Status	C	See 3GPP TS 23.011 [26].
Forwarded-to Number	C	See 3GPP TS 23.082 [27].
Forwarded-to Subaddress	C	See 3GPP TS 23.082 [27].
Subscription Options	C	See 3GPP TS 23.082 [27].
No Reply Condition Time	C	See 3GPP TS 23.082 [27].
C Conditional (The IE shall be sent, if available and applicable).		

Call Barring SS data contains the following information:

Information element name	Required	Description
SS Code	C	This IE indicates Call Barring supplementary service as defined in 3GPP TS 22.004 [25].
Call Barring Feature List	C	See the table below.
Password	C	See 3GPP TS 23.011 [26].
Wrong password attempts counter	C	See 3GPP TS 23.011 [26].
Notification-to-CSE flag	C	This IE indicates whether the gsmSCF is notified of a change of Call Barring SS data.
C Conditional (The IE shall be sent, if available).		

Call Barring Feature List contains 1 to 32 items of the following information:

Information element name	Required	Description
Basic Service	C	See 3GPP TS 22.002 [24]. Also compound basic service codes can be used in this operation if the subscriber has used a compound code when modifying the SS (e.g. all bearer services compound code).
SS Status	C	See 3GPP TS 23.011 [26].
C Conditional (The IE shall be sent, if available and applicable).		

Operator determined barring data contains the following information:

Information element name	Required	Description
ODB General Data	C	This IE indicates the set of subscribers features that the network operator or the service provider can regulate. When the ODB general data is removed for the subscriber, this IE indicates that the set of subscribers features is empty.
ODB HPLMN Specific Data	C	This IE indicates the set of subscribers features that the network operator or the service provider can regulate only when the subscriber is registered in the HPLMN. When the ODB HPLMN specific data is removed for the subscriber, this IE indicates that the set of subscribers features is empty.
Notification-to-CSE flag	C	This IE indicates whether the gsmSCF is notified of a change of ODB data.
C Conditional (The IE shall be sent, if available and applicable).		

CAMEL Subscription Information contains the following information:

Information element name	Required	Description
O-CSI	C	See clause 4.3.1.
D-CSI	C	See clause 4.3.2.
T-CSI	C	See clause 4.3.4.
VT-CSI	C	See clause 4.3.5.
TIF-CSI	C	See clause 4.3.6.2.
GPRS-CSI	C	See clause 6.3.1.
SMS-CSI	C	See clause 7.3.1.
SS-CSI	C	See clause 8.2.1.
M-CSI	C	See clause 9.2.1
C Conditional (The IE shall be sent, if it was modified).		

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Tdoc N2-010808

CR-Form-v4

CHANGE REQUEST

⌘ **23.078** **CR** **335** ⌘ rev **2** ⌘ Current version: **3.10.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Clarification on ATM
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-15
Category:	⌘	**F (essential correction)**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In the 3GPP TS 23.078 it is specified that a gsmSCF is allowed to erase SS data (as Call barring and call forwarding) when only the SS-code and (optionally) a Basic Service code are present in ATM. The verb “erase” could be ambiguous and the treatment should be defined.
Summary of change:	⌘	It is not allowed to a gsmSCF to provision or withdraw Supplementary Services So when only the SS-code and (optionally) a Basic Service code are present in ATM, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the 23.088 and 23.082.
Consequences if not approved:	⌘	Possible interworking problems.

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

10.2.2 Any Time Modification

Handling of Any Time Modification involves the following process:

- CAMEL_ATM_HLR.

The following procedures are involved:

- ATM_Modify_Data
  This procedure checks which data shall be modified and calls the appropriate data modification procedure.

- ATM_Modify_CSI_Data
  If the CSI indicated in the ATM request is not available in the HLR, then an error is returned.
  Otherwise, the CSI state and/or Notification-to-CSE flag are set as instructed with the ATM request.

- ATM_Modify_CF_Data
  When only the SS-code and (optionally) a Basic Service code are present in the ATM request, then all Call Forwarding data belonging to this SS code and basic service code is erased, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the state transition model defined in 3GPP TS 23.082.
  Otherwise, the behaviour is as follows:

  - If a valid SS state is present in the ATM request, then an SS state transition is performed.

  - If a valid FTN, FTN sub address or No Reply Condition Time is present in the ATM request, then the indicated variable is modified.

  - Before modification of CF data (SS state changed to 'registered', insert or change of FTN), the interaction checks between CF and ODB and between CF and CB shall be performed as described in 3GPP TS 23.015 [40] and TS 23.082 [27] respectively. The CF data shall only be modified if the changed new CF data ~~would~~does not conflict with the existing ODB or CB entries.

  - If an instruction to modify the notification-to-CSE flag is present in the ATM request, then the notification-to-CSE flag is modified.

- ATM_Modify_CB_Data
  When only the SS-code and (optionally) a Basic Service code are present in the ATM request, then all Call Barring ~~data~~ belonging to this SS code and basic service code is deactivated ~~erased~~, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the state transition model defined in 3GPP TS 23.088.
  Otherwise, the behaviour is as follows:

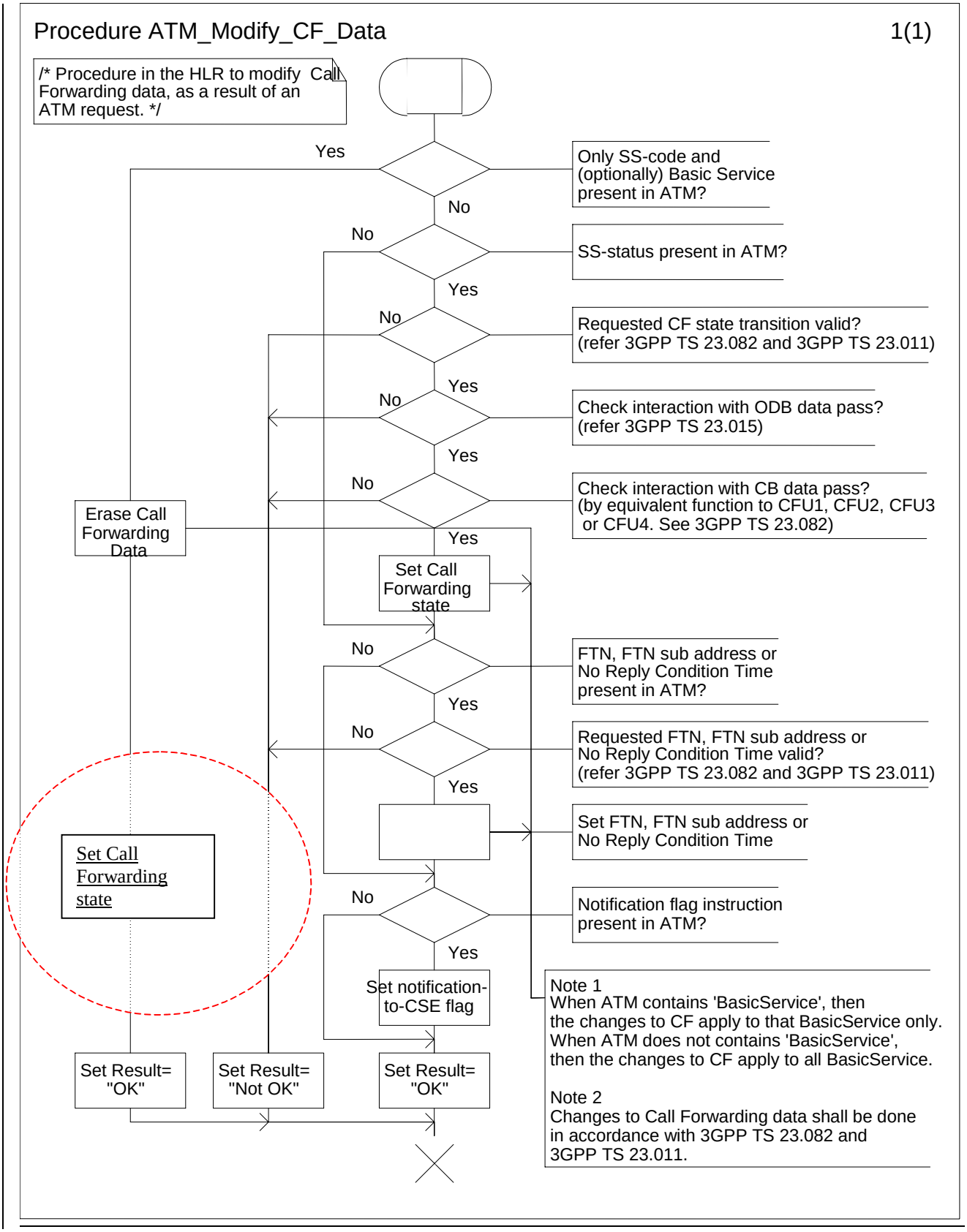
  - If a valid SS state is present in the ATM request, then an SS state transition is performed.

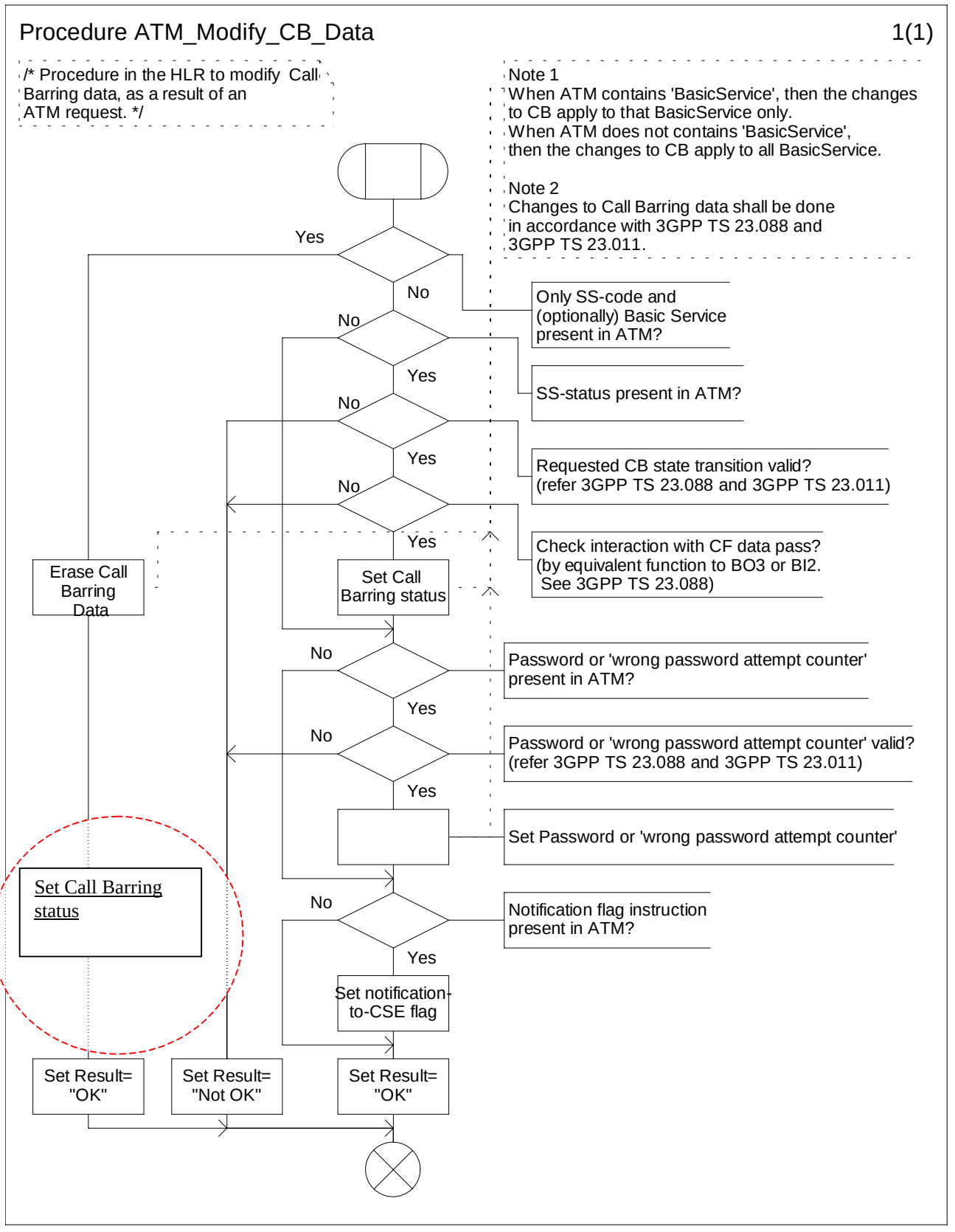
  - Before modification of CB data (SS state), the interaction checks between CF and CB shall be performed as described in 3GPP TS 23.088 [39]. The CB data shall only be modified if the changed new CB data ~~would~~does not conflict with the existing CF entries.

  - If a valid Password or 'Wrong password attempt counter' is present in the ATM request, then the indicated variable is modified.

  - If an instruction to modify the notification-to-CSE flag is present in the ATM request, then the notification-to-CSE flag is modified.

After having executed the Any Time Modification instruction from the gsmSCF, the HLR calls the procedure CAMEL_NSDC_HLR, which sends notifications to gsmSCF(s), if required.


Procedure ATM_Modify_CF_Data
1(1)
/* Procedure in the HLR to modify Call Forwarding data, as a result of an ATM request. */
Only SS-code and (optionally) Basic Service present in ATM?
Yes
No
SS-status present in ATM?
No
Yes
Requested CF state transition valid? (refer 3GPP TS 23.082 and 3GPP TS 23.011)
No
Yes
Check interaction with ODB data pass? (refer 3GPP TS 23.015)
No
Yes
Check interaction with CB data pass? (by equivalent function to CFU1, CFU2, CFU3 or CFU4. See 3GPP TS 23.082)
No
Yes
Erase Call Forwarding Data
Set Call Forwarding state
FTN, FTN sub address or No Reply Condition Time present in ATM?
No
Yes
Requested FTN, FTN sub address or No Reply Condition Time valid? (refer 3GPP TS 23.082 and 3GPP TS 23.011)
No
Yes
Set FTN, FTN sub address or No Reply Condition Time
Set Call Forwarding state
Notification flag instruction present in ATM?
No
Yes
Set notification-to-CSE flag
Note 1
When ATM contains 'BasicService', then the changes to CF apply to that BasicService only.
When ATM does not contains 'BasicService', then the changes to CF apply to all BasicService.
Note 2
Changes to Call Forwarding data shall be done in accordance with 3GPP TS 23.082 and 3GPP TS 23.011.
Set Result= "OK"
Set Result= "Not OK"
Set Result= "OK"


Procedure ATM_Modify_CB_Data
1(1)
/* Procedure in the HLR to modify Call Barring data, as a result of an ATM request. */
Note 1
When ATM contains 'BasicService', then the changes to CB apply to that BasicService only.
When ATM does not contains 'BasicService', then the changes to CB apply to all BasicService.
Note 2
Changes to Call Barring data shall be done in accordance with 3GPP TS 23.088 and 3GPP TS 23.011.
Yes
No
Only SS-code and (optionally) Basic Service present in ATM?
No
Yes
SS-status present in ATM?
No
Yes
Requested CB state transition valid? (refer 3GPP TS 23.088 and 3GPP TS 23.011)
No
Yes
Check interaction with CF data pass? (by equivalent function to BO3 or BI2. See 3GPP TS 23.088)
Erase Call Barring Data
Set Call Barring status
No
Password or 'wrong password attempt counter' present in ATM?
Yes
No
Password or 'wrong password attempt counter' valid? (refer 3GPP TS 23.088 and 3GPP TS 23.011)
Yes
Set Password or 'wrong password attempt counter'
Set Call Barring status
No
Notification flag instruction present in ATM?
Yes
Set notification-to-CSE flag
Set Result= "OK"
Set Result= "Not OK"
Set Result= "OK"

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Tdoc N2-010820

CR-Form-v4

CHANGE REQUEST

⌘ **23.078** **CR** **342** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Clarification on NSCD when data is withdrawn
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-16
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	In the 3GPP TS 23.078 it is not specified how the Notify Subscriber Data Change operation is used when data is withdrawn or erased in the HLR.
Summary of change:	⌘	Addtition of comments on the description of the Notify Subscriber Data Change operation.
Consequences if not approved:	⌘	Possible interworking problems.

Clauses affected:	⌘	§ 10.3.2.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	29.002 cr 341
Other comments:	⌘			

10.3.2.3 Notify Subscriber Data Change

10.3.2.3.1 Description

This IF is used by the HLR to notify to the gsmSCF of the change of subscriber data.

10.3.2.3.2 Information Elements

The following information elements are required:

Information element name	Required	Description
IMSI	M	The IMSI is used to identify the subscriber.
MSISDN	M	The MSISDN is used to identify the subscriber.
Call Forwarding SS data	C	This IE is described in a table below.
Call Barring SS data	C	This IE is described in a table below.
Operator Determined Barring data	C	This IE is described in a table below.
CAMEL Subscription Information	C	This IE is described in a table below.
M Mandatory (The IE shall always be sent). C Conditional (The IE shall be sent, if available).		

Call Forwarding SS data contains the following information:

Information element name	Required	Description
SS Code	C	This IE indicates Call Forwarding supplementary service as defined in 3GPP TS 22.004 [25].
Forwarding Feature List	C	See the table below.
Notification-to-CSE Flag	C	This IE indicates whether the gsmSCF is notified of a change of Call Forwarding SS data.
C Conditional (The IE shall be sent, if available).		

Forwarding Feature List contains 1 to 32 items of the following information:

Information element name	Required	Description
Basic Service	C	See 3GPP TS 22.002 [24]. Also compound basic service codes can be used in this operation if the subscriber has used a compound code when modifying the SS (e.g. all bearer services compound code).
SS Status	C	See 3GPP TS 23.011 [26].
Forwarded-to Number	C	See 3GPP TS 23.082 [27].
Forwarded-to Subaddress	C	See 3GPP TS 23.082 [27].
Subscription Options	C	See 3GPP TS 23.082 [27].
No Reply Condition Time	C	See 3GPP TS 23.082 [27].
C Conditional (The IE shall be sent, if available and applicable).		

Call Barring SS data contains the following information:

Information element name	Required	Description
SS Code	C	This IE indicates Call Barring supplementary service as defined in 3GPP TS 22.004 [25].
Call Barring Feature List	C	See the table below.
Password	C	See 3GPP TS 23.011 [26].
Wrong password attempts counter	C	See 3GPP TS 23.011 [26].
Notification-to-CSE flag	C	This IE indicates whether the gsmSCF is notified of a change of Call Barring SS data.
C Conditional (The IE shall be sent, if available).		

Call Barring Feature List contains 1 to 32 items of the following information:

Information element name	Required	Description
Basic Service	C	See 3GPP TS 22.002 [24]. Also compound basic service codes can be used in this operation if the subscriber has used a compound code when modifying the SS (e.g. all bearer services compound code).
SS Status	C	See 3GPP TS 23.011 [26].
C Conditional (The IE shall be sent, if available and applicable).		

Operator determined barring data contains the following information:

Information element name	Required	Description
ODB General Data	C	This IE indicates the set of subscribers features that the network operator or the service provider can regulate. When the ODB general data is removed for the subscriber, this IE indicates that the set of subscribers features is empty.
ODB HPLMN Specific Data	C	This IE indicates the set of subscribers features that the network operator or the service provider can regulate only when the subscriber is registered in the HPLMN. When the ODB HPLMN specific data is removed for the subscriber, this IE indicates that the set of subscribers features is empty.
Notification-to-CSE flag	C	This IE indicates whether the gsmSCF is notified of a change of ODB data.
C Conditional (The IE shall be sent, if available and applicable).		

CAMEL Subscription Information contains the following information:

Information element name	Required	Description
O-CSI	C	See clause 4.3.1.
D-CSI	C	See clause 4.3.2.
T-CSI	C	See clause 4.3.4.
VT-CSI	C	See clause 4.3.5.
TIF-CSI	C	See clause 4.3.6.2.
GPRS-CSI	C	See clause 6.3.1.
SMS-CSI	C	See clause 7.3.1.
SS-CSI	C	See clause 8.2.1.
M-CSI	C	See clause 9.2.1
C Conditional (The IE shall be sent, if it was modified).		

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Tdoc N2-010842

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CHANGE REQUEST

⌘ **23.078** **CR** **343** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Clarification on ATM
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL phase 3
Date:	⌘	01-10-18
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In the 3GPP TS 23.078 it is specified that a gsmSCF is allowed to erase SS data (as Call barring and call forwarding) when only the SS-code and (optionally) a Basic Service code are present in ATM. The verb “erase” could be ambiguous and the treatment should be defined.
Summary of change:	⌘	It is not allowed to a gsmSCF to provision or withdraw Supplementary Services So when only the SS-code and (optionally) a Basic Service code are present in ATM, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the 23.088 and 23.082.
Consequences if not approved:	⌘	Possible interworking problems.

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

10.2.2 Any Time Modification

Handling of Any Time Modification involves the following process:

- CAMEL_ATM_HLR.

The following procedures are involved:

- ATM_Modify_Data
  This procedure checks which data shall be modified and calls the appropriate data modification procedure.

- ATM_Modify_CSI_Data
  If the CSI indicated in the ATM request is not available in the HLR, then an error is returned.
  Otherwise, the CSI state and/or Notification-to-CSE flag are set as instructed with the ATM request.

- ATM_Modify_CF_Data
  When only the SS-code and (optionally) a Basic Service code are present in the ATM request, then all Call Forwarding data belonging to this SS code and basic service code is erased, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the state transition model defined in 3GPP TS 23.082.
  Otherwise, the behaviour is as follows:

  - If a valid SS state is present in the ATM request, then an SS state transition is performed.

  - If a valid FTN, FTN sub address or No Reply Condition Time is present in the ATM request, then the indicated variable is modified.

  - Before modification of CF data (SS state changed to 'registered', insert or change of FTN), the interaction checks between CF and ODB and between CF and CB shall be performed as described in 3GPP TS 23.015 [40] and TS 23.082 [27] respectively. The CF data shall only be modified if the changed new CF data ~~would~~does not conflict with the existing ODB or CB entries.

  - If an instruction to modify the notification-to-CSE flag is present in the ATM request, then the notification-to-CSE flag is modified.

- ATM_Modify_CB_Data
  When only the SS-code and (optionally) a Basic Service code are present in the ATM request, then all Call Barring ~~data~~ belonging to this SS code and basic service code is deactivated ~~erased~~, the associated notificationToCSE flag is unchanged and the SS-Status is amended according to the state transition model defined in 3GPP TS 23.088.
  Otherwise, the behaviour is as follows:

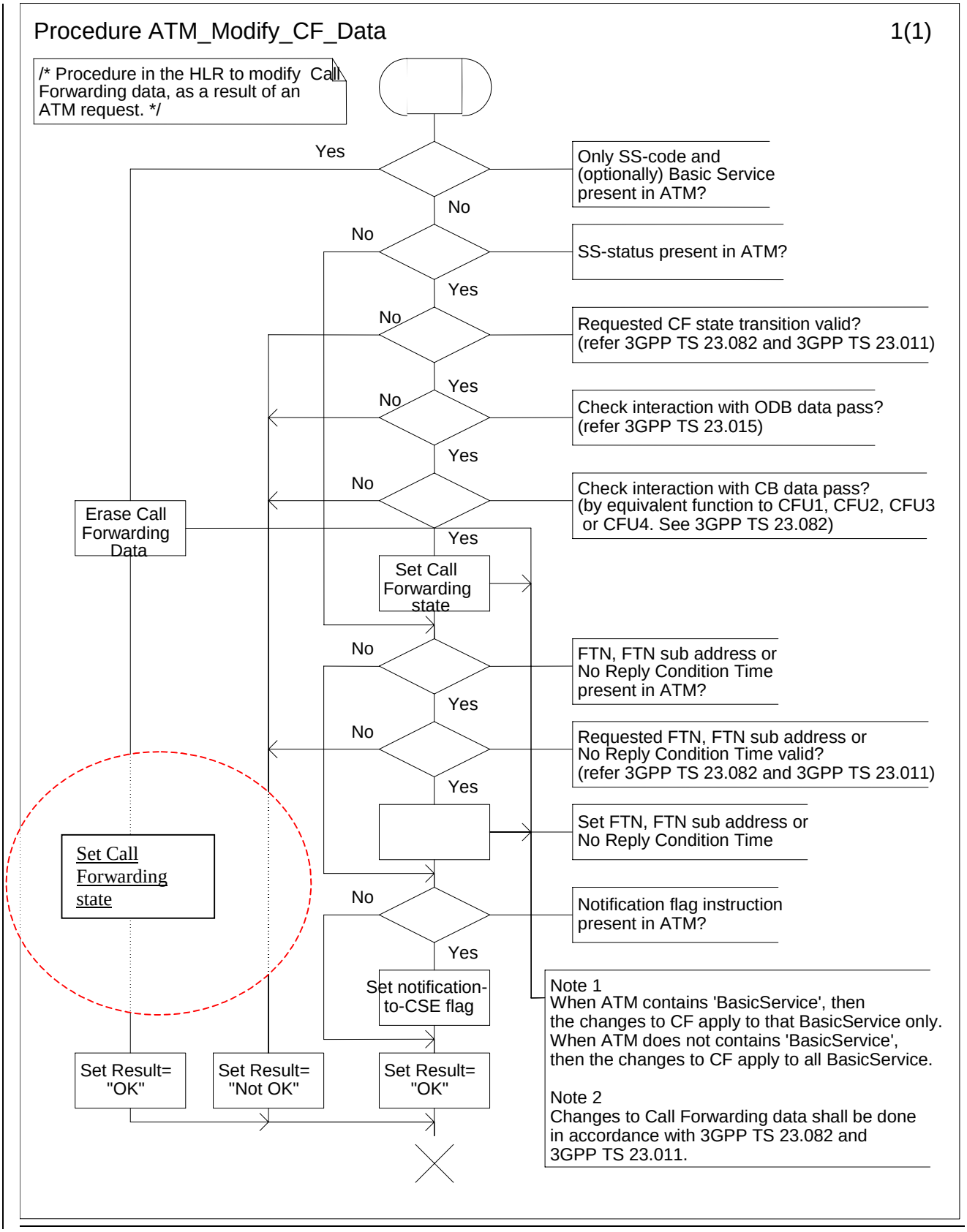
  - If a valid SS state is present in the ATM request, then an SS state transition is performed.

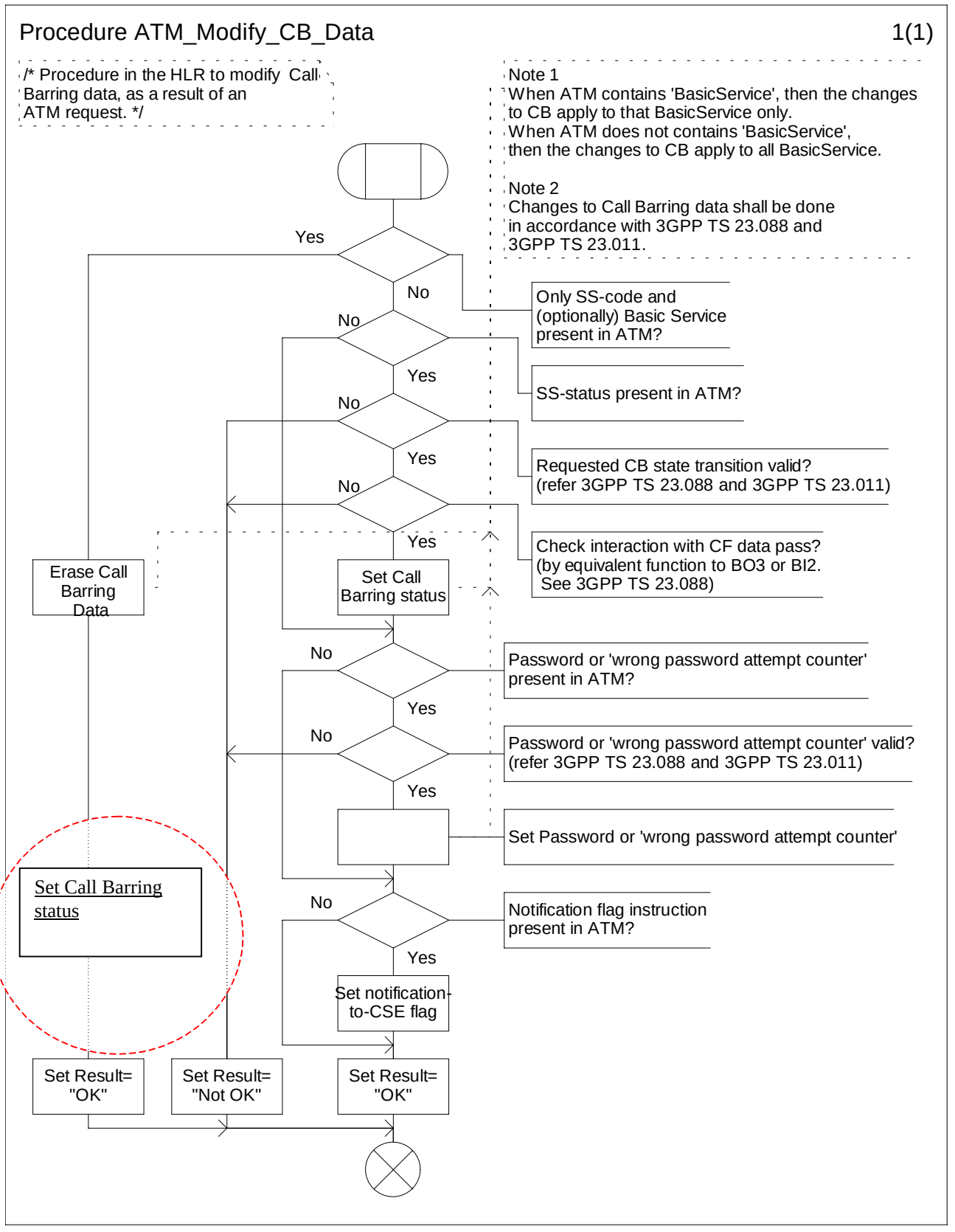
  - Before modification of CB data (SS state), the interaction checks between CF and CB shall be performed as described in 3GPP TS 23.088 [39]. The CB data shall only be modified if the changed new CB data ~~would~~does not conflict with the existing CF entries.

  - If a valid Password or 'Wrong password attempt counter' is present in the ATM request, then the indicated variable is modified.

  - If an instruction to modify the notification-to-CSE flag is present in the ATM request, then the notification-to-CSE flag is modified.

After having executed the Any Time Modification instruction from the gsmSCF, the HLR calls the procedure CAMEL_NSDC_HLR, which sends notifications to gsmSCF(s), if required.


Procedure ATM_Modify_CF_Data
1(1)
/* Procedure in the HLR to modify Call Forwarding data, as a result of an ATM request. */
Only SS-code and (optionally) Basic Service present in ATM?
SS-status present in ATM?
Requested CF state transition valid? (refer 3GPP TS 23.082 and 3GPP TS 23.011)
Check interaction with ODB data pass? (refer 3GPP TS 23.015)
Check interaction with CB data pass? (by equivalent function to CFU1, CFU2, CFU3 or CFU4. See 3GPP TS 23.082)
Erase Call Forwarding Data
Set Call Forwarding state
FTN, FTN sub address or No Reply Condition Time present in ATM?
Requested FTN, FTN sub address or No Reply Condition Time valid? (refer 3GPP TS 23.082 and 3GPP TS 23.011)
Set FTN, FTN sub address or No Reply Condition Time
Notification flag instruction present in ATM?
Set notification-to-CSE flag
Set Call Forwarding state
Set Result= "OK"
Set Result= "Not OK"
Set Result= "OK"
Yes
No
Note 1
When ATM contains 'BasicService', then the changes to CF apply to that BasicService only.
When ATM does not contains 'BasicService', then the changes to CF apply to all BasicService.
Note 2
Changes to Call Forwarding data shall be done in accordance with 3GPP TS 23.082 and 3GPP TS 23.011.


Procedure ATM_Modify_CB_Data
1(1)
/* Procedure in the HLR to modify Call Barring data, as a result of an ATM request. */
Note 1
When ATM contains 'BasicService', then the changes to CB apply to that BasicService only.
When ATM does not contains 'BasicService', then the changes to CB apply to all BasicService.
Note 2
Changes to Call Barring data shall be done in accordance with 3GPP TS 23.088 and 3GPP TS 23.011.
Yes
No
Only SS-code and (optionally) Basic Service present in ATM?
No
Yes
SS-status present in ATM?
No
Yes
Requested CB state transition valid? (refer 3GPP TS 23.088 and 3GPP TS 23.011)
No
Yes
Check interaction with CF data pass? (by equivalent function to BO3 or BI2. See 3GPP TS 23.088)
Erase Call Barring Data
Set Call Barring status
No
Password or 'wrong password attempt counter' present in ATM?
Yes
No
Password or 'wrong password attempt counter' valid? (refer 3GPP TS 23.088 and 3GPP TS 23.011)
Yes
Set Password or 'wrong password attempt counter'
Set Call Barring status
No
Notification flag instruction present in ATM?
Yes
Set notification-to-CSE flag
Set Result= "OK"
Set Result= "Not OK"
Set Result= "OK"

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

Tdoc N2-010845
(revision of N2-010825)

CHANGE REQUEST

⌘ **23.078** **CR** **340** ⌘ rev **2** ⌘ Current version: 3.10.0 ⌘

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

Title:	⌘	Introduction of SMS Reference Number
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	18 October 2001
Category:	⌘	F (agreed by concensus)
Release:	⌘	R99

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

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: ⌘

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

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

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

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

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

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

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

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

Summary of change: ⌘

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

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

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

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

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

7.5.2 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 clause:

- 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

A 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 gsmSCF 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 gsmSCF.

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.

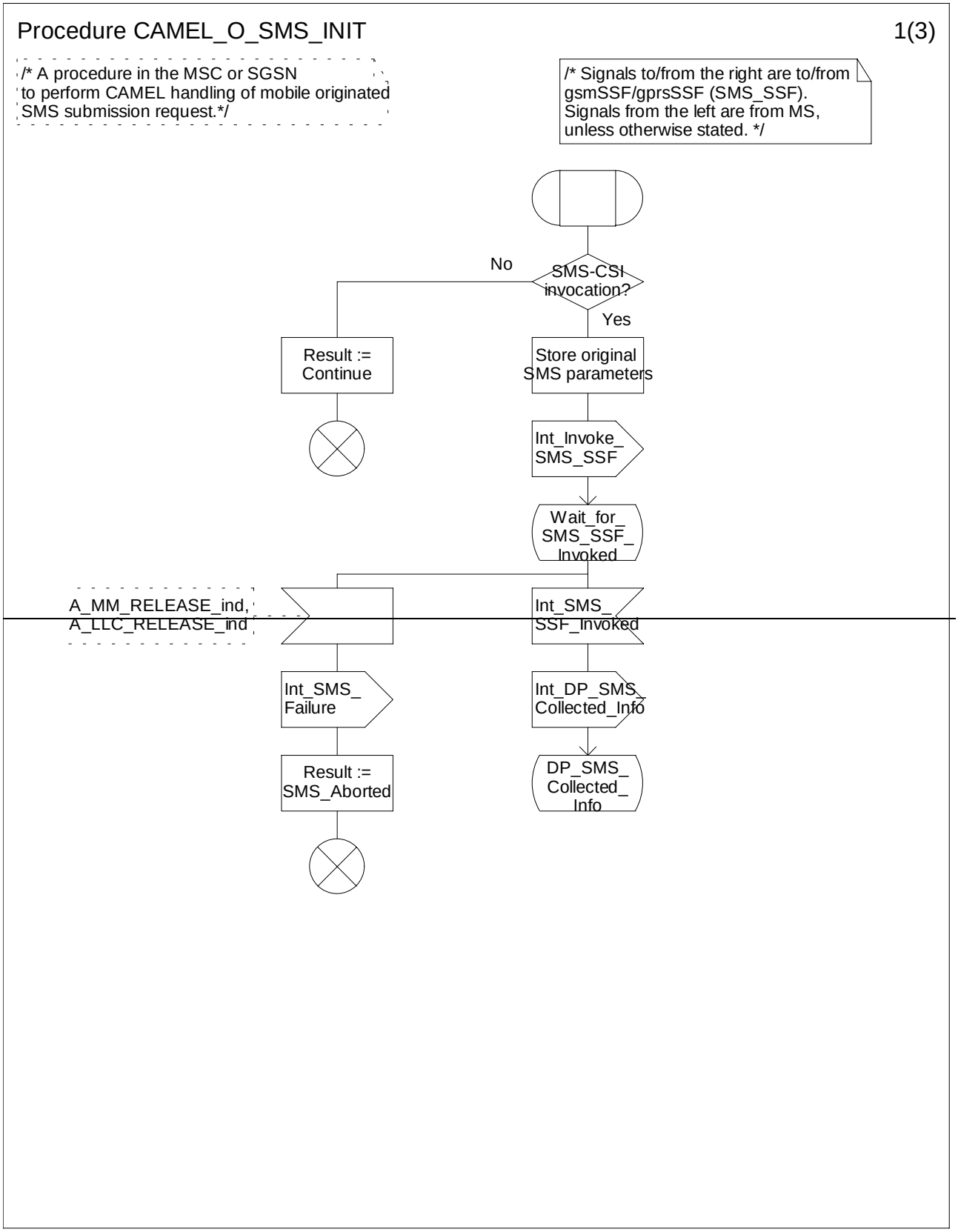
The SMS Reference Number in the MSC or SGSN is an optional feature.

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 7.7a: Procedure CAMEL_O_SMS_INIT (sheet 1)~~

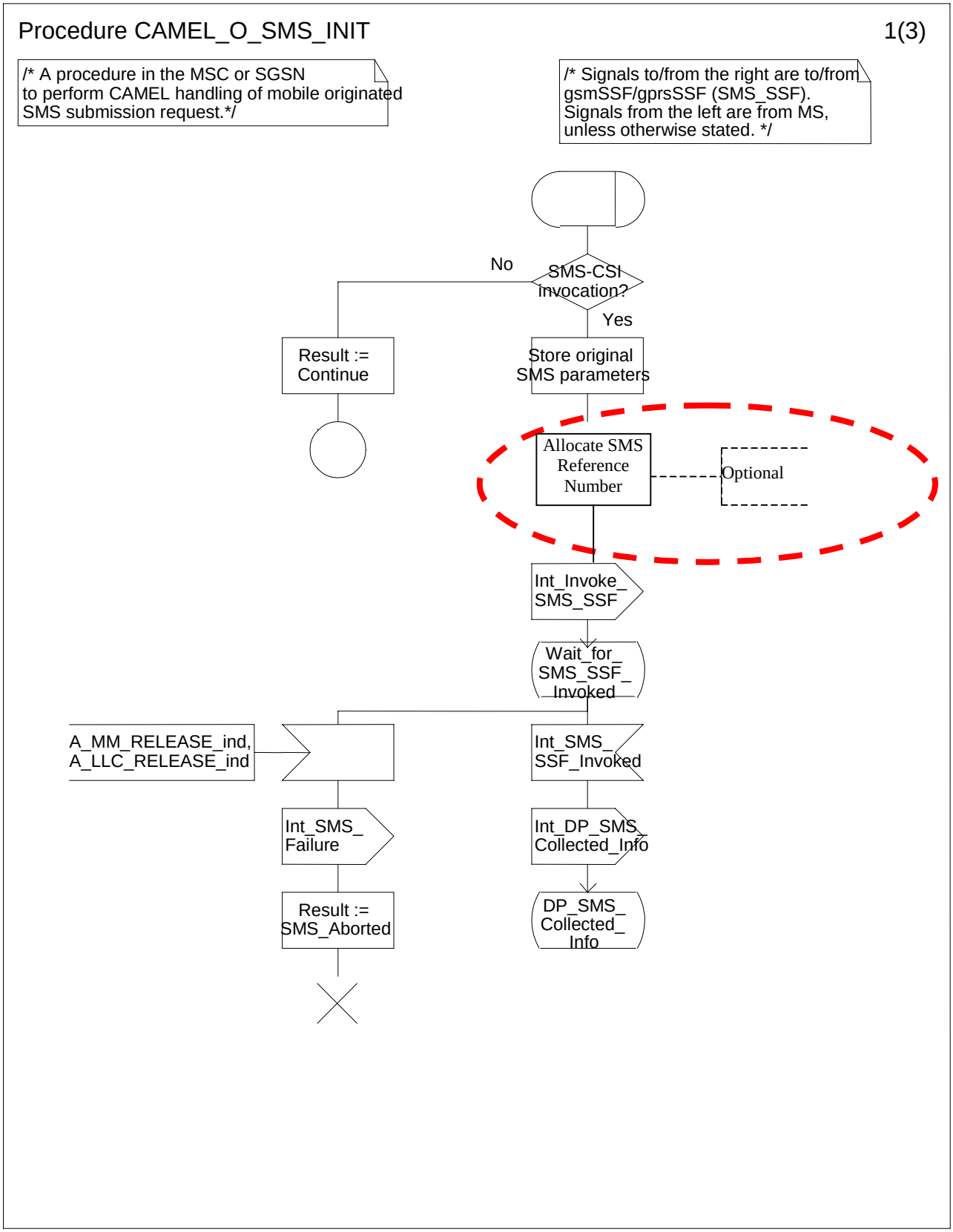


Figure Error! Reference source not found.**2a: Procedure CAMEL_O_SMS_INIT (sheet 1)**

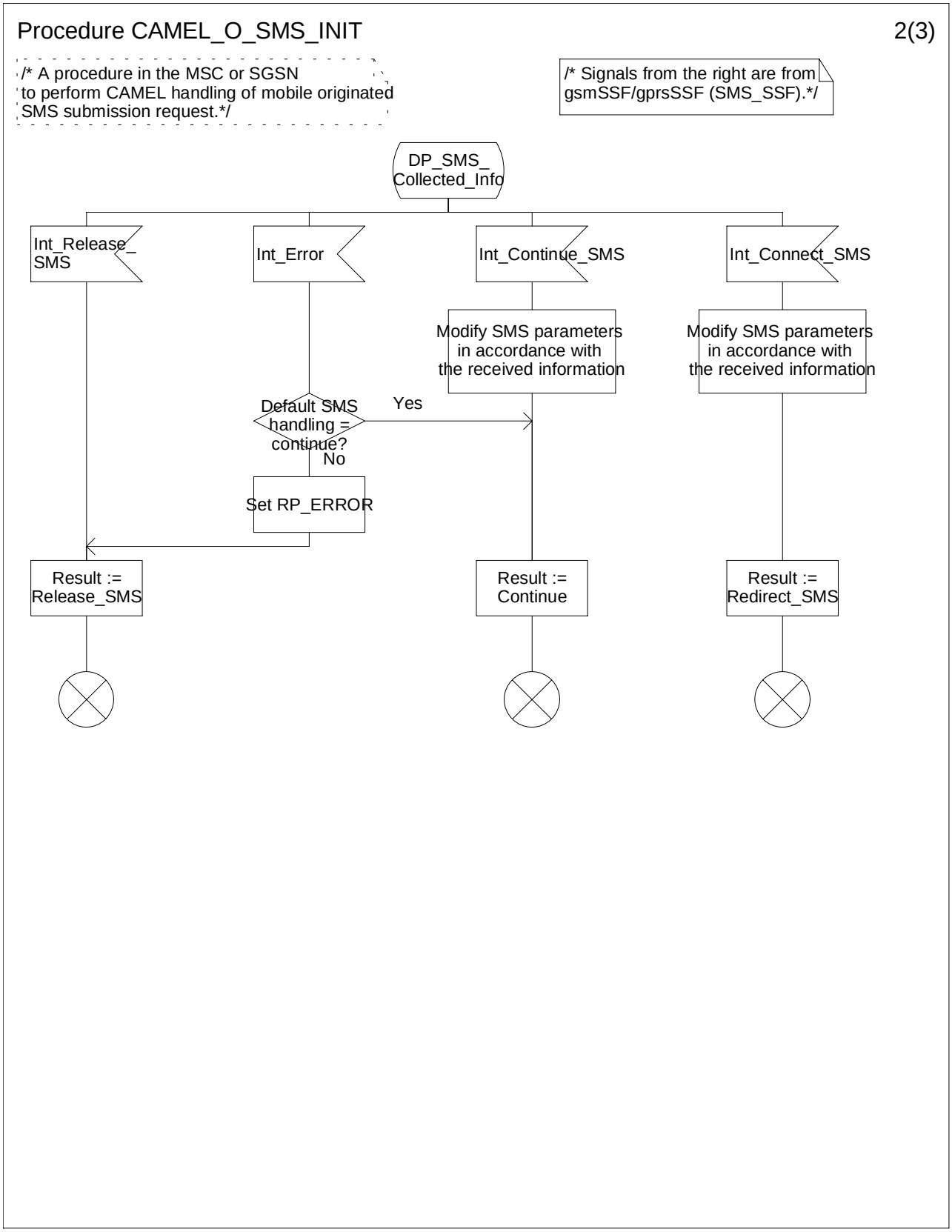


Figure b: Procedure CAMEL_O_SMS_INIT (sheet 2)

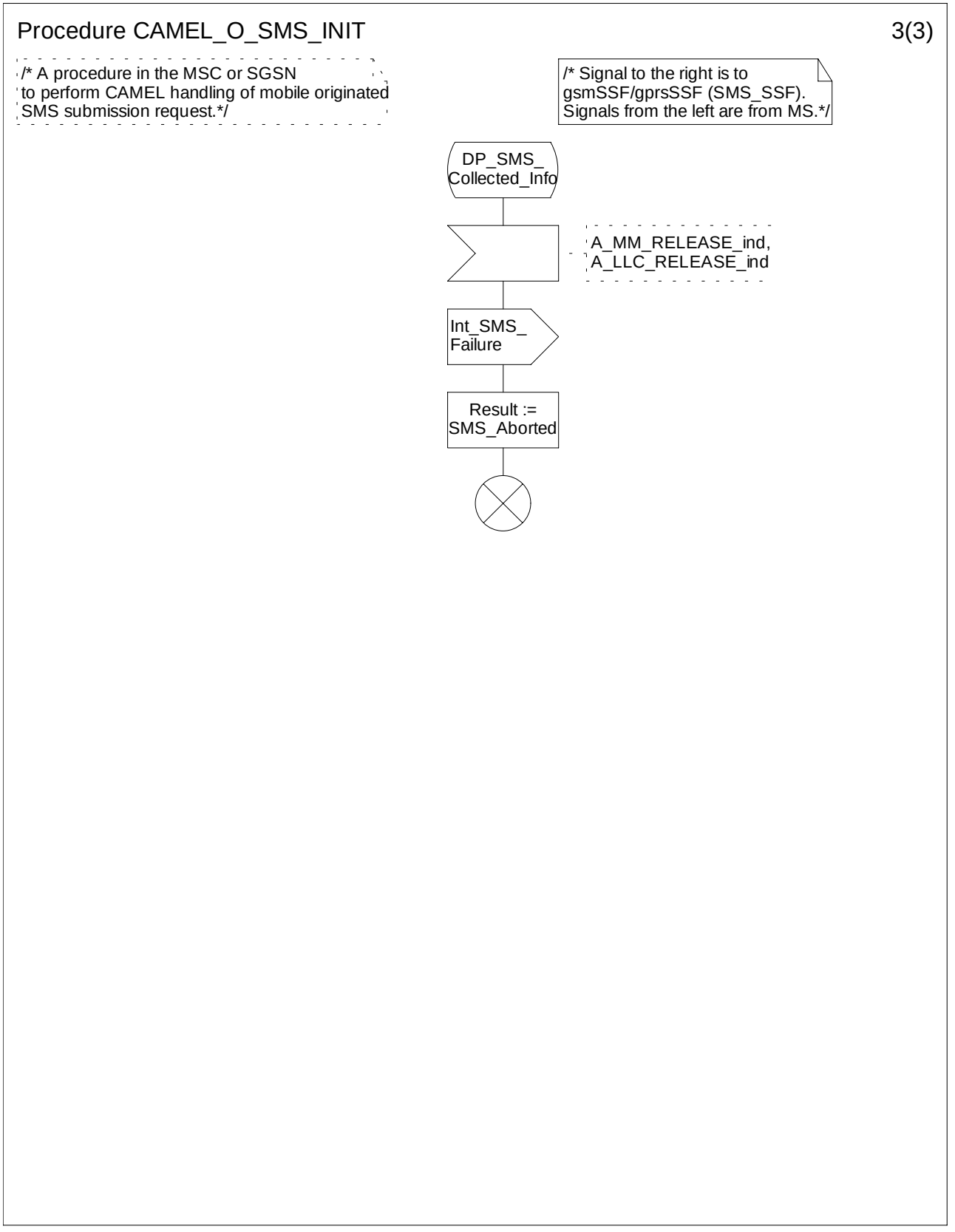


Figure c: Procedure CAMEL_O_SMS_INIT (sheet 3)

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

7.6.1.2 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	C1	This IE carries the SMS Reference Number. This Reference Number is allocated by the MSC or SGSN that processes the Short Message. It may be used by the gsmSCF for inclusion in a gsmSCF SMS record. The allocation of an SMS Reference Number and the inclusion thereof in the Initial DP SMS IF is optional.
MSC Address	C2	This IE carries the E.164 MSC Address. This IE shall be present if the SMS Reference Number is present in the Initial DP SMS IF and the Short Message processing takes place in an MSC. Otherwise shall be absent.
SGSN Number	C2	This IE carries the Global Title of the SGSN. See 3GPP TS 23.060 [11].

Information element name	Required	Description
		This IE shall be present if the SMS Reference Number is present in the Initial DP SMS IF and the Short Message 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). C1 Conditional (Refer to the description column for the conditions of presence). C2 Conditional (Refer to the description column for the conditions of presence).		

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 #20
Brighton, UK, 15th - 19th October, 2001

Tdoc N2-010846

CHANGE REQUEST

⌘ **23.078** **CR** **344** ⌘ rev ⌘ Current version: 4.2.0 ⌘

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

Title:	⌘	Introduction of SMS Reference Number
Source:	⌘	Ericsson
Work item code:	⌘	CAMEL3
Date:	⌘	18 October 2001
Category:	⌘	A
Release:	⌘	Rel-4

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

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change: ⌘

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

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

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

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

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

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

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

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

Summary of change: ⌘

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

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

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

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

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

7.5.2 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 clause:

- 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

A 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 gsmSCF 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 gsmSCF.

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.

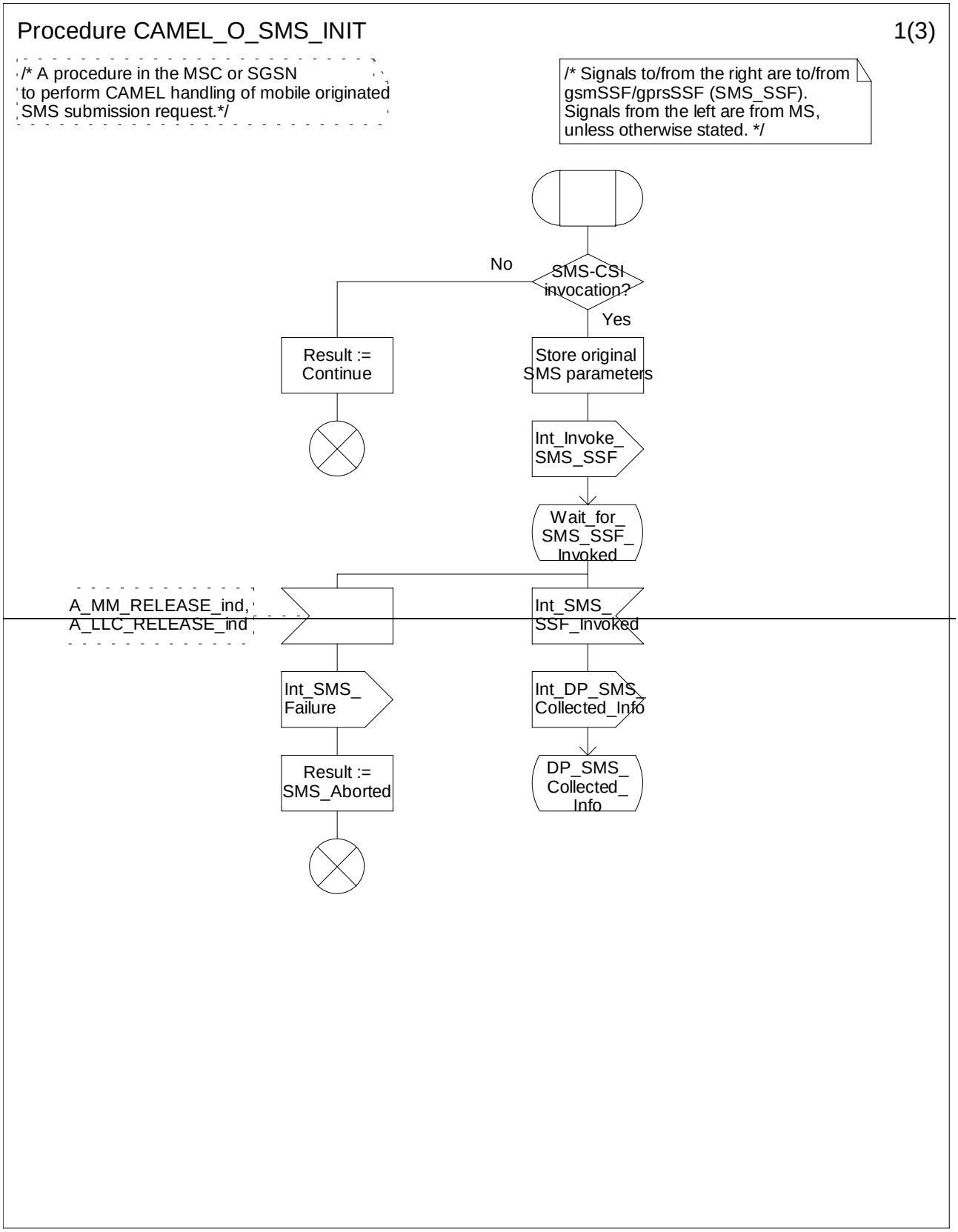
The SMS Reference Number in the MSC or SGSN is an optional feature.

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 7.7a: Procedure CAMEL_O_SMS_INIT (sheet 1)~~

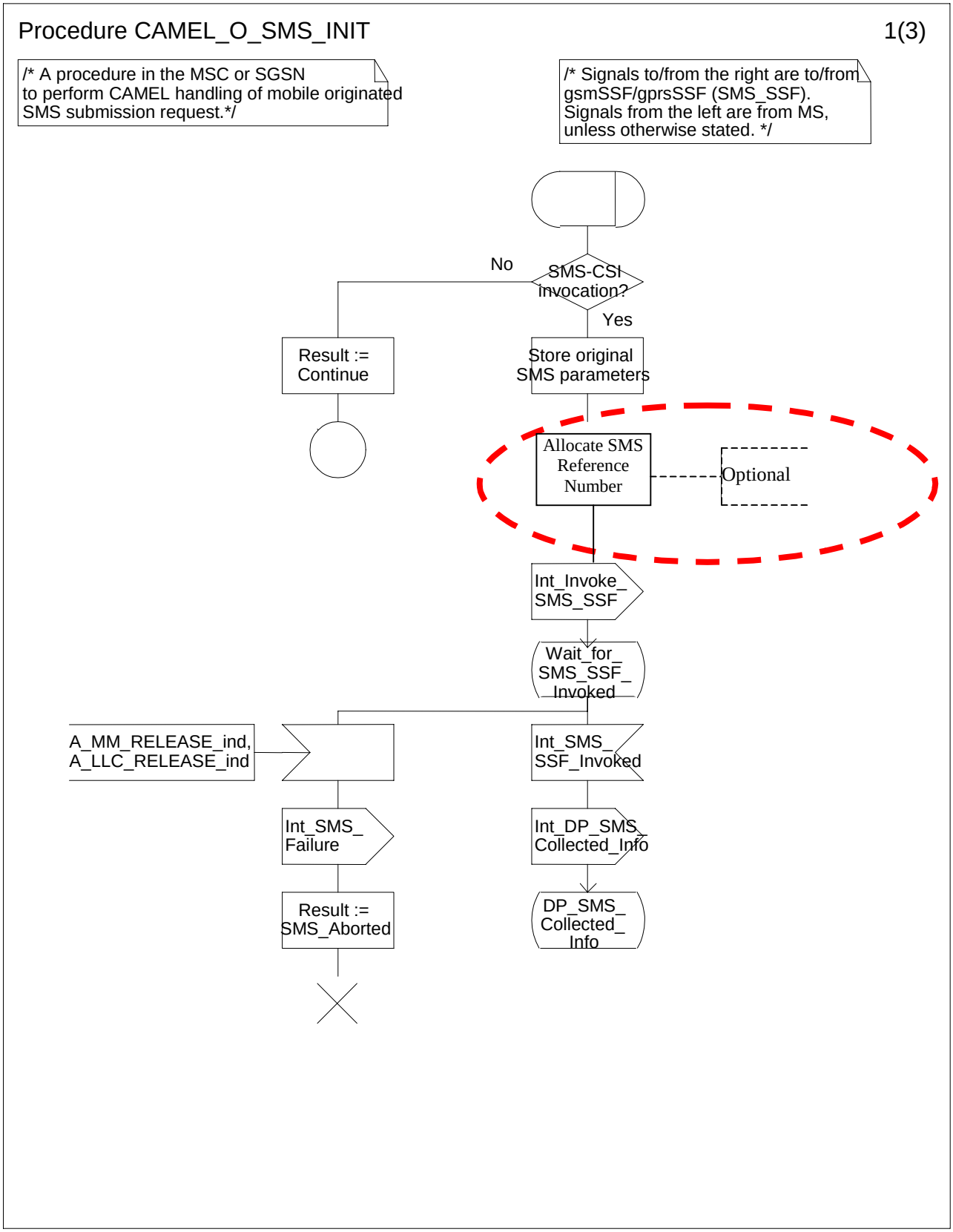


Figure Error! Reference source not found.**.2a: Procedure CAMEL_O_SMS_INIT (sheet 1)**

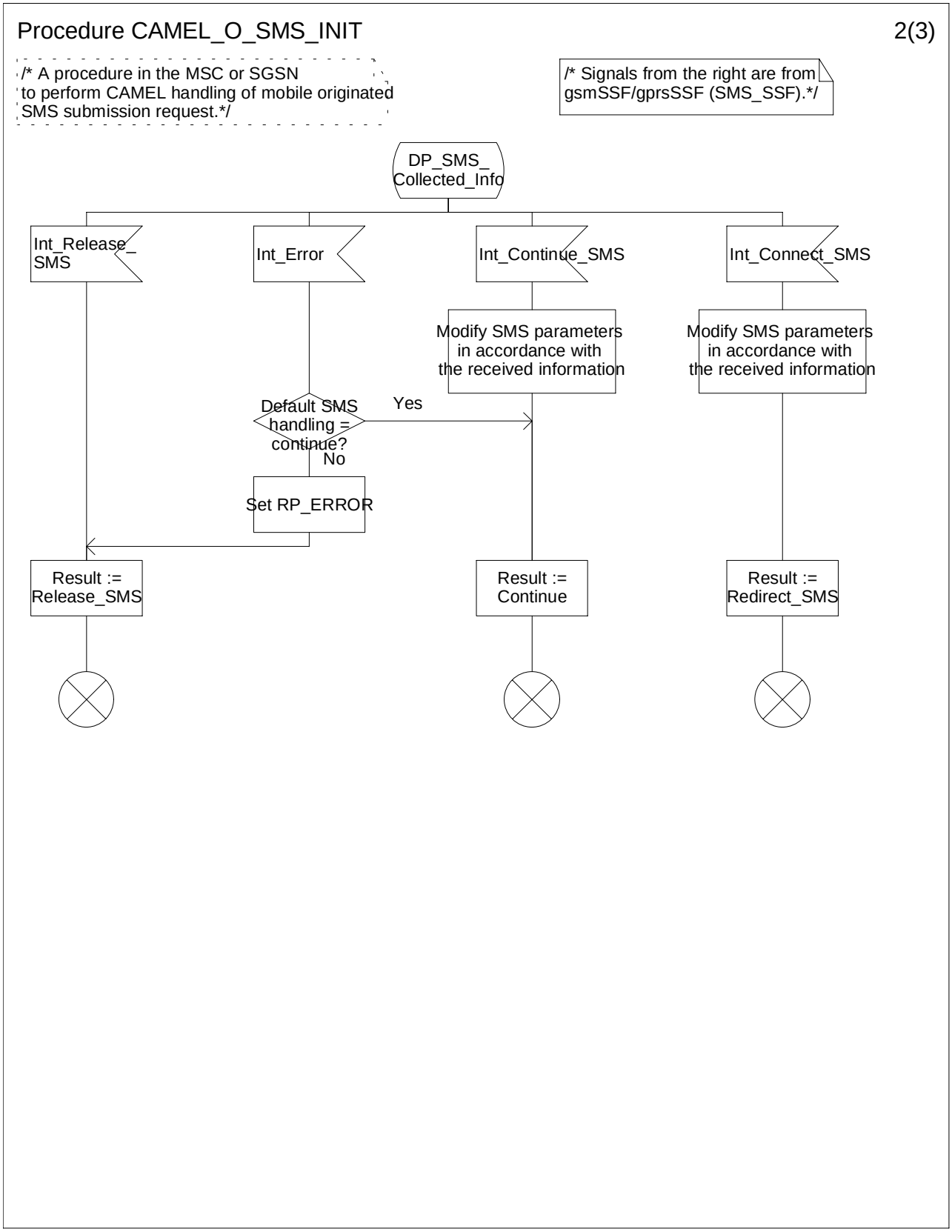


Figure b: Procedure CAMEL_O_SMS_INIT (sheet 2)

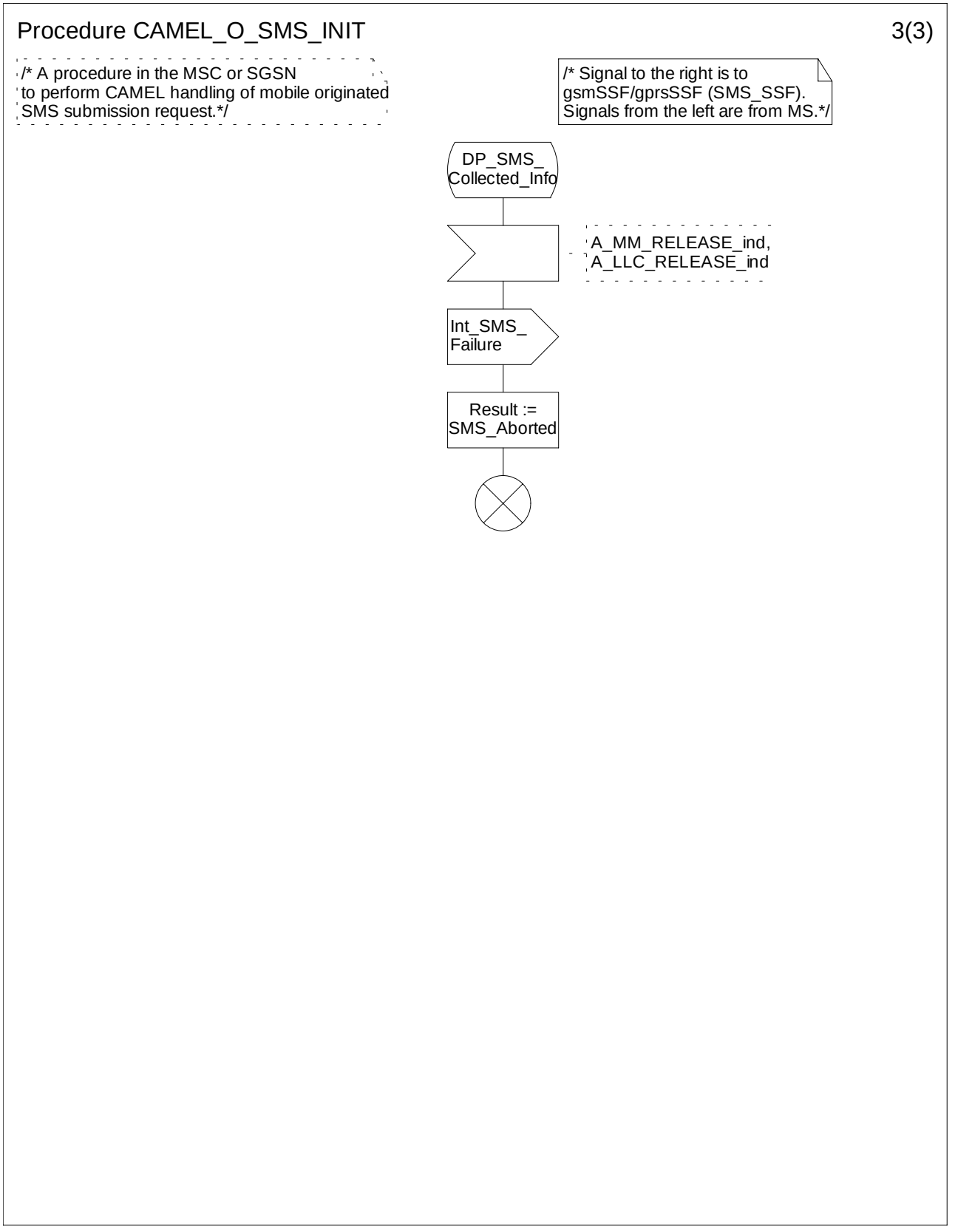


Figure c: Procedure CAMEL_O_SMS_INIT (sheet 3)

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

7.6.1.2 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	C1	This IE carries the SMS Reference Number. This Reference Number is allocated by the MSC or SGSN that processes the Short Message. It may be used by the gsmSCF for inclusion in a gsmSCF SMS record. The allocation of an SMS Reference Number and the inclusion thereof in the Initial DP SMS IF is optional.
MSC Address	C2	This IE carries the E.164 MSC Address. This IE shall be present if the SMS Reference Number is present in the Initial DP SMS IF and the Short Message processing takes place in an MSC. Otherwise shall be absent.
SGSN Number	C2	This IE carries the Global Title of the SGSN. See 3GPP TS 23.060 [11].

Information element name	Required	Description
		This IE shall be present if the SMS Reference Number is present in the Initial DP SMS IF and the Short Message 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). C1 Conditional (Refer to the description column for the conditions of presence). C2 Conditional (Refer to the description column for the conditions of presence).		

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 ******