3GPP TSG CN Plenary Meeting #18 **NP-020522**
4th - 6th December 2002. New Orleans, USA.

Source: **TSG CN WG 2**

Title: **LSs sent from CN2 since TSG#17 Meeting**

Agenda item: **6.2.1**

Document for: **Information**

Introduction:

This document contains 4 Liaison Statements agreed by TSG CN WG2, that are forwarded to TSG CN Plenary meeting #18 for information.

Meeting	Doc-2nd-Level	Source	Tdoc Title	Comments
CN2#26	N2-020932	CN2	Dissapearance of CN2 endorsed CAMEL4 23.078 CR	To: SA1
CN2#26	N2-020936	CN2	Response to LS on the CAMEL PS notification procedure	To: SA2
CN2#26	N2-020898	CN2	Packet switched SMS handling in UMTS network	To: SA2, T2
CN2#27	N2-021062	CN2	LS on Enhanced CSE capability for Dialled Services	To: SA1

3GPP TSG-CN WG2#26 **Tdoc N2-020898**
Miami, USA 23rd - 27th September 2002

Title: LS on Packet switched SMS handling in UMTS network
Response to: -
Release: R99
Work Item: CAMEL3

Source: CN2
To: SA2, T2
Cc: -

Contact Person:
Name: Rogier Noldus
Tel. Number: +31 161 24 9400
E-mail Address: **rogier.noldus@eln.ericsson.se**

Attachments: -

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1. Overall Description:

3GPP TS 23.060 (R99) specifies the interworking between CAMEL and packet switched SMS in the SGSN.

- Section 16.1.1 (Point-to-point Short Message Service (GSM only)) specifies the SMS handling for an SGSN in a GSM network. This section specifies, amongst others, the points at which the SGSN shall interact with the smsSSF for the CAMEL control of MO-SMS (R99 and onwards) and for the CAMEL control of MT-SMS (Rel-5 and onwards).

- Section 16.1.2 (Point-to-point Short Message Service (UMTS only)) specifies the SMS handling for an SGSN in a UMTS network. That section does not specify the handling of the SMS; instead, it refers to TS 23.040.

  However, TS 23.040 does not contain any reference to the interworking between CAMEL and SMS.

This leaves SGSN designers in doubt as to how to implement CAMEL control of SMS in a UMTS network.

2. Actions:

To SA2 and T2 group.

ACTION: CN2 would like to ask SA2 and T2 to provide guidance on the implementation of CAMEL control of SMS in a UMTS network. The current versions of the specifications, TS 23.060 and TS 23.040, are ambiguous in this regard and may need to be corrected.

As a proposal, CN2 suggests that section 16.1.2 in TS 23.060 is enhanced to reflect the handling of Point-to-Point SMS in a UMTS network. That description should include the CAMEL interworking.

If section 16.1.2 in TS 23.060 is enhanced, then the R99 version (and later) shall include CAMEL interworking for MO-SMS and the Rel-5 version (and later) shall include CAMEL interworking for MT-SMS.

CN2 assumes that the CAMEL handling of Point-to-Point SMS in a UMTS network is identical to the CAMEL handling of Point-to-Point SMS in a GSM network, as specified in section 16.1.1 of TS 23.060.

CN2 would like to leave it over to SA2 and T2 to decide whether the correction shall be done for R99 (and later) or for Rel-5 (and later).

3. Date of Next CN2 Meetings:

CN2_27	11th - 15th November 2002	Bangkok, Thailand

3GPP TSG-CN WG2#26 **Tdoc N2-020932**
Miami, USA. 23rd - 27th September. 2002

Title: **LS on Disappearance of CN2 endorsed CAMEL4 22.078 CR**
Release: **Release 5**
Work Item: **CAMEL Phase 4**

Source: **CN2**
To: **SA1**

Contact Person:
Name: Christian Homann, Alcatel
Tel. Number: +49 711 821 45632
E-mail Address: c.homann@alcatel.de

Attachments: N2-020895 Rel5 22.078-CR Change "CAMEL-connected" to "CAMEL-PDP context active" state

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1. Overall Description:

At CN2 #23 (April 2002, Helsinki), Tdoc N2-020419 was presented, a CR to 22.078 on Change "CAMEL-connected" to "CAMEL-PDP context active" state. CN2 endorsed the CRs to 22.078 and 29.002 and the CR to 23.078 was incorporated in the CAMEL Phase 4 draft of 23.078. The CR to 29.002 was approved at CN #26 and incorporated in the specification.

However, unfortunately the CR to 22.078 never got submitted to SA1.

2. Actions:

To 3GPP TSG SA WG1 group

CN2 kindly asks 3GPP TSG SA WG1 to consider this late CR and to incorparate this in the CAMEL Phase 4 22.078 v5.8.0 specification.

3. Date of Next CN2 Meetings:

CN2_27	11th – 15th November 2002, Bangkok, Thailand
CN2_28	10th – 14th February 2003, Dublin, Ireland

3GPP TSG CN WG2 Meeting #26 ***Tdoc ⌘ N2-020895***
Miami Beach, Florida, USA, 23rd – 27th September 2002 N2-020419rev

CR-Form-v7

CHANGE REQUEST

⌘ **22.078** **CR** ⌘ **rev** ⌘ Current version: **5.8.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Change "CAMEL-connected" to "CAMEL-PDP context active" state
Source:	⌘	Alcatel
Work item code:	⌘	CAMEL4
Date:	⌘	23/09/2002
Category:	⌘	**D**
Release:	⌘	Rel-5

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)
Rel-6 (Release 6)

Reason for change:	⌘	CAMEL is using the state <<connected>> to say that there is at least a PDP context active. However, this state doesn't correspond to the 3G state <<PMM connected>> and can be missinterpreted.
Summary of change:	⌘	Proposal to change CAMEL <<connected>> into CAMEL <<PDP context active>>
Consequences if not approved:	⌘	Possible mixing of CAMEL states and 3G states.
Clauses affected:	⌘	

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

Other comments:	⌘	This new name is used in 23.078 and in 29.002.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Start of CR

First modification

3 Definitions and abbreviations

Operator Specific Service (OSS): Any non-standardised service offered to a mobile user.

Interrogating PLMN (IPLMN): The PLMN which interrogates the HPLMN for information to handle a mobile terminating call.

CAMEL Service Environment (CSE): A CSE is a logical entity which processes activities related to Operator Specific Services (OSS).

Route select failure: A condition when routeing to the called party fails. Route Select Failure can be reported in an existing relationship or a new relationship can be initiated.

Service event: A specific event of a process which may be used as part of an operator specific service.

Initial service event: A service event which triggers the establishment of a relationship between the CSE and the controlled entity.

Subsequent service event: A service event which is reported in the context of an existing relationship between the CSE and the reporting entity.

Service procedure: A part of the CAMEL feature to be used when a specific CAMEL service event is detected.

Network CAMEL Service Information (N-CSI): Identifies services offered by the serving PLMN operator equally for all subscribers.

NOTE: These services may also be provided using a technology other than CAMEL.

CAMEL Subscription Information (CSI): Identifies that CAMEL support is required for the subscriber and the identities of the CSEs to be used for that support. The CSI also contains information related to the OSS of the subscriber, e.g. Service Key.

The OSS may include both services provisioned for individual subscribers and services provisioned equally for all users of a VPLMN.

Location Area Code: Indicates the global identity of that part of the service area of a VLR in which the subscriber is currently located, and in which the subscriber will be paged for mobile terminated traffic

Location Information: The location information shall be an identification of the location of the served subscriber.

The following location information shall be sent to the CSE (if available):

- **Geographical information** indicates the location (latitude and longitude) of the served subscriber. When Cell ID or Location Area Code is known the latitude and longitude may be calculated as the nominal central point of the cell or of the location area; alternative mechanisms for determining latitude and longitude may also be supported. The uncertainty of the indicated location is part of the geographical information.

- **Geodetic Information** provides the same functional capability as geographical information; however it is encoded differently.

- **Cell ID** indicates the global identity of the current or last cell which the subscriber is using or has used if the subscriber is using GERAN. The VPLMN shall update the stored Cell ID at establishment of every radio connection and whenever the subscriber is handed over between cells.

- **Routing Area ID** indicates the global identity of the current or last GPRS routing area which the subscriber is using or has used if the subscriber is using GERAN radio access in a GPRS serving network.

- **Service Area ID** indicates the global identity of the current or last service area which the subscriber is using or has used if the subscriber is using UTRAN radio access. The VPLMN shall update the stored Service Area ID at establishment of every radio connection and whenever the subscriber is handed over between service areas.

- **VLR number** is the number of the serving VLR stored in the HPLMN.

- **Location status** indicates whether or not the location information has been confirmed by radio contact. If the location information has not been confirmed by radio contact a time stamp is sent indicating the time elapsed since the last radio contact with the subscriber.

- **Location number** is the number received on the incoming circuit (for an incoming call) or to be sent on the outgoing circuit (for an outgoing call).

Service Key: An identifier of the OSS which shall be transparent to the IPLMN/VPLMN.

Subscriber Status: An indication of the status of a subscriber, determined by the state of the subscriber's MS. The subscriber status depends on the domain for which it is requested:

The **Subscriber Status in the circuit switched domain** can take one of three values:

- **CAMEL-busy**: The MS is engaged in a mobile-originated or mobile-terminated circuit-switched call.

- **Network determined not reachable**: The network can determine from its internal data that the MS is not reachable. This includes detached and purged mobile stations.

- **Assumed idle**: The MS is not CAMEL-busy or network determined not reachable.

The **Subscriber Status in the packet switched domain** can take one of five values:

- **Detached:** The network can determine from its internal data that the MS is not registered to the GPRS data network.

- **CAMEL-attached, MS not reachable for paging:** The MS is registered to the GPRS data network, but there are no PDP contexts active for this MS; the GPRS data network can determine from its internal data that the MS is not reachable for paging.

- **CAMEL-attached, MS may be reachable for paging:** The MS is registered to the GPRS data network, but there are no PDP contexts active for this MS; the GPRS data network has not determined from its internal data that the MS is not reachable for paging.

- **CAMEL-PDP context active~~connected~~, MS not reachable for paging:** The MS is registered to the GPRS data network, and there is at least one PDP context active for this MS; the GPRS data network can determine from its internal data that the MS is not reachable for paging. The status includes the information for each active PDP context, as specified in 3GPP TS 23.060 [13].

- **CAMEL-PDP context active~~connected~~, MS may be reachable for paging:** The MS is registered to the GPRS data network, and there is at least one PDP context active for this MS; the GPRS data network has not determined from its internal data that the MS is not reachable for paging. The status includes the information for each active PDP context, as specified in 3GPP TS 23.060 [13].

GPRS session: The period during which the GPRS subscriber is registered to the GPRS data network. A GPRS session starts when the GPRS subscriber attaches to the GPRS data network. It ends when the GPRS subscriber detaches from the GPRS data network.

PDP Context: A transaction for the exchange of data between an MS and a peer entity, which is addressed by the Access Point Name. A PDP context starts when the request from a GPRS subscriber successfully establishes the PDP context and ends when the subscriber deactivates the PDP context.

PDP: Packet Data Protocol (as defined in TS 22.060 [6])

Carrier Identification Code: Identifies uniquely the Carrier (NAEA).

Carrier Selection Information: An indication of whether the subscriber selected a carrier, or the carrier is predefined for the subscriber (NAEA).

Originating Line Identification: Identifies uniquely the subscriber to be charged for the usage of the carrier (NAEA).

Charge Number: Identifies uniquely the organisation to be charged for the usage of the carrier (NAEA).

North American Equal Access (NAEA): A service used in the North American region whereby a subscriber may select the carrier to be used for long distance calls.

Subscribed Dialled Services: Identifies a set of at most ten service numbers. The served subscriber can originate calls by entering a service number for the destination. This is in addition to the possibility to route calls by entering the destination number. Each service number is defined at the HPLMN operator's discretion. The set of service numbers forms part of the subscriber's profile, whether she is registered in the HPLMN or another PLMN.

Call Party Handling (CPH): A method of manipulating call legs which includes creating new parties in a call, placing individual call parties on hold, reconnecting them to the group of call parties and disconnecting individual call parties.

CPH Configuration: One or more groups of call legs that share a common dialogue to the CSE.

Call Leg: The connection joining the call party to the CPH configuration.

Call Party: A party (e.g. served subscriber, called party, PSTN subscriber etc.) in the CPH configuration.

IP multimedia session (IPMM session): See [11] for definition.

IM CN subsystem (IP Multimedia Core Network subsystem): See [11] for definition.

IM application level registration: See [12] for definition.

First modification end
End of CR

3GPP TSG-CN WG2#26 **Tdoc N2-020936**
Miami, USA. 23rd - 27th September. 2002

Title: **CN2 conclusion on CAMEL_PS_Notification procedure**

Response to: **LS (N2-020821 (S2-022632)) on "Liaison statement on the CAMEL_PS_Notification procedure" from SA2**

Source: **CN2**

To: **SA2**

Cc:

Contact Person:
Name: Sumio Miyagawa
Tel. Number: +43 51707 21381
E-mail Address: sumio.miyagawa@siemens.com

Attachments: CR 23.078-456, 23.078-457, 29.002-496 for information

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1. Overall Description:

TSG CN WG2 thanks SA2 for the information contained in the above mentioned liaison. During CN2 meeting held in Miami 23rd - 27th September 2002, the issues were discussed and resulted as follows.

- No notification by the old SGSN in the case of inter-SGSN routeing area update: CN2 recognised that the first comment provided in the liaison was valid and added the notification to the gsmSCF by the old SGSN. As a result, even if the target SGSN (new) does not support CAMEL phase 4 in the inter-SGSN routeing area update, the gsmSCF is able to recognise that the MS has moved to the area where the notification is no more expected until the MS further moves to the CAMEL-phase-4-supported SGSN area.
  To realise the notification by the old SGSN, CR 23.078-457r1 (N2-020902) was approved during the above mentioned CN2 meeting. CR 23.060-399 shall be further modified. The procedure call of CAMEL will also be done by the old SGSN.

- Missing the return result of the CAMEL_PS_Notification: CN2 recognised that the second comment provided in the liaison was valid and added the return result "Continue" no matter which result of the mobility management, notification successful or failure, obtained in the CAMEL procedure. It is because the mobility management should be treated only as the notification to the gsmSCF and should not restrict in any way the "basic" GPRS handling hereafter specified in TS 23.060.
  To return the result "Continue", CR 23.078-456 (N2-020832) was approved during the above mentioned CN2 meeting.

2. Actions:

To SA2 group.

ACTION: CN2 asks SA2 group to note the above conclusion and examine whether the updated CR 23.060-399 could be acceptable in terms of the issues mentioned in the liaison.

Please note that, since TS 23.060 v5.3.0 to be the base version of the revised CR is not available at the time of this liaison written, the updated CR will be submitted to SA2 separately on a later date by CN2 or an individual company.

3. Date of Next CN2 Meetings:

CN2_27	11th - 15th November 2002	Bangkok

3GPP TSG-CN WG2 Meeting #26
Miami, USA, 23rd - 27th September 2002.

Tdoc ⌘N2-020832

CR-Form-v7

CHANGE REQUEST

⌘ **23.078** **CR** **456** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Add result from GPRS mobility management procedure
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL4
Date:	⌘	18/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Current mobility mangement procedure for GPRS subscriber does not have the result returned to the parent procedure in 23.060. It is not useful if no indication as the result of CAMEL procedure is provided. This CR proposes the result as the same as other GPRS-related CAMEL procedures.
Summary of change:	⌘	Add result := Continue in the procedure CAMEL_PS_Notification
Consequences if not approved:	⌘	The parent procedures in 23.060 could not handle the GPRS mobility management procedures as other GPRS-related CAMEL procedures. Since GPRS mobility management does not affect the basic GPRS handling, CAMEL procedure should provide the result to continue the procedure no matter what happened in the CAMEL procedure.

Clauses affected:	⌘	9

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

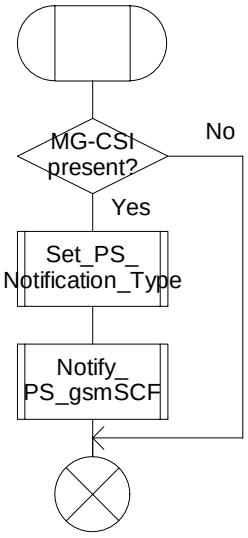
Other comments:	⌘	

9.3.2.1 Procedure CAMEL_PS_Notification

This procedure is called from processes in 3GPP TS 23.060 [15]. When this procedure is called, it checks the presence of MG-CSI. If there is no MG-CSI, then no notification is sent to the gsmSCF.

Procedure CAMEL_PS_Notification 1(1)

/* procedure in the SGSN for mobility management for GPRS subscriber */



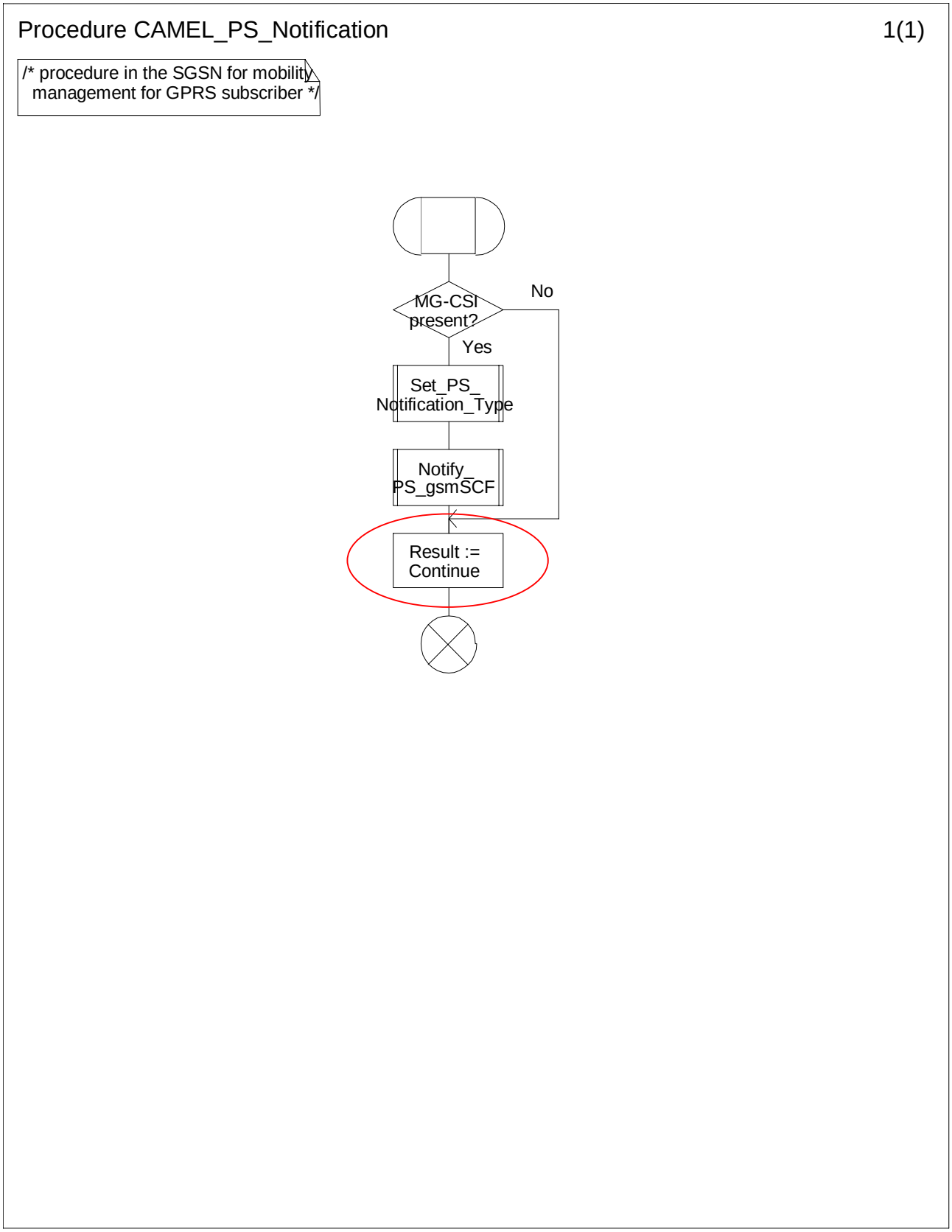


Figure 9.6a: Procedure CAMEL_PS_Notification (sheet 1)

3GPP TSG-CN WG2 Meeting #26
Miami, USA, 23rd - 27th September 2002.

Tdoc ⌘N2-020902

CR-Form-v7

CHANGE REQUEST

⌘ **23.078** **CR** **457** ⌘ **rev** **1** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Detach report in inter-SGSN routeing area update
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL4
Date:	⌘	24/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Mobility management for GPRS subscriber described in clause 9 reports by the new SGSN in the case of inter-SGSN routeing area update and not by the old SGSN (detach indication). If the inter-SGSN routeing area update occurs from the CAMEL4-supporting SGSN (old) to the CAMEL4-non-supporting SGSN (new), then the gsmSCF does not receive any notification, which keeps the gsmSCF still believing that the MS resides under the CAMEL4-supporting SGSN service area. This may lead the service logic mal-functioning.
Summary of change:	⌘	Sends indication by the old SGSN in the case of inter-SGSN routeing area update. To distinguish the "simple" detach from the detach due to the routeing area update to another SGSN service area, MM triggers are also enhanced.
Consequences if not approved:	⌘	Above problem could not be solved. The gsmSCF may try to provide the serviced based on the already-irrelavant location information if the MS moves to the new SGSN which does not support CAMEL phase 4.

Clauses affected:	⌘	9

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	29.002-496
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

*** First modified part ***

9.2.2 Mobility Management for GPRS CAMEL Subscription Information (MG-CSI)

This subclause specifies the contents of the Mobility Management for GPRS CAMEL Subscription Information (MG-CSI).

9.2.2.1 Mobility Management Triggers

This data indicates which Mobility Management events shall result in a notification to the gsmSCF. One or more events may be marked per subscriber. These events are:

- Routeing area update of MS to a different SGSN service area (update from new SGSN);
- Routeing area update of MS to a different SGSN service area (disconnect by detach;
- Routeing area update of MS within the same SGSN service area;
- GPRS attach (e.g. MS switched on, successful routeing area update after network initiated transfer to "MS not reachable for paging");
- MS-initiated GPRS detach (e.g. MS switched off);
- Network-initiated GPRS detach.
- Network-initiated transfer to the "not reachable for paging" state (the network has not received a periodic routeing area update from the MS and assumes that the MS is unreachable).

9.2.2.2 gsmSCF address

This is the address of the gsmSCF where the Mobility Management event notification shall be sent to. The gsmSCF address is in E.164 format.

9.2.2.3 Service Key

The Service Key is included in the notification information flow to the gsmSCF. It indicates to the gsmSCF which Service Logic shall be applied.

9.2.2.4 CSI state

The CSI state indicates whether the MG-CSI is active or not.

9.2.2.5 Notification flag

The notification flag indicates whether the change of the MG-CSI shall trigger Notification on Change of Subscriber Data or not.

9.2.3 gsmSCF address list for CSI

The gsmSCF address list indicates the gsmSCF addresses to which Notification on Change of Subscriber Data shall be sent. This list is common to all CSI.

*** Next modified part ***

9.3.2 Procedures for Mobility management for GPRS subscriber

The different procedures for Mobility Management are shown in figures 9.5a to 9.5e.

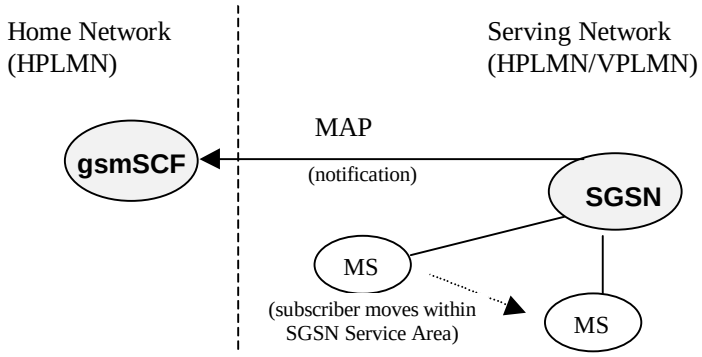


Figure 9.5a: Routeing Area Update within SGSN Service Area

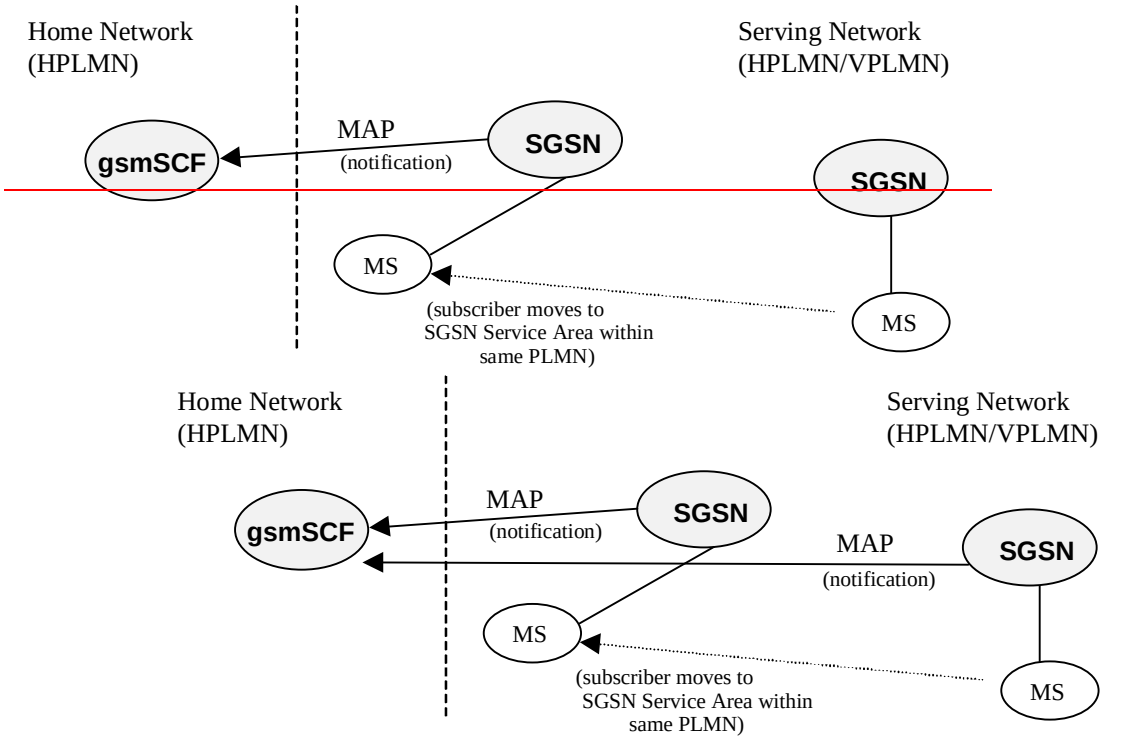


Figure 9.5b: Routeing Area Update from one SGSN Service Area to another SGSN Service Area

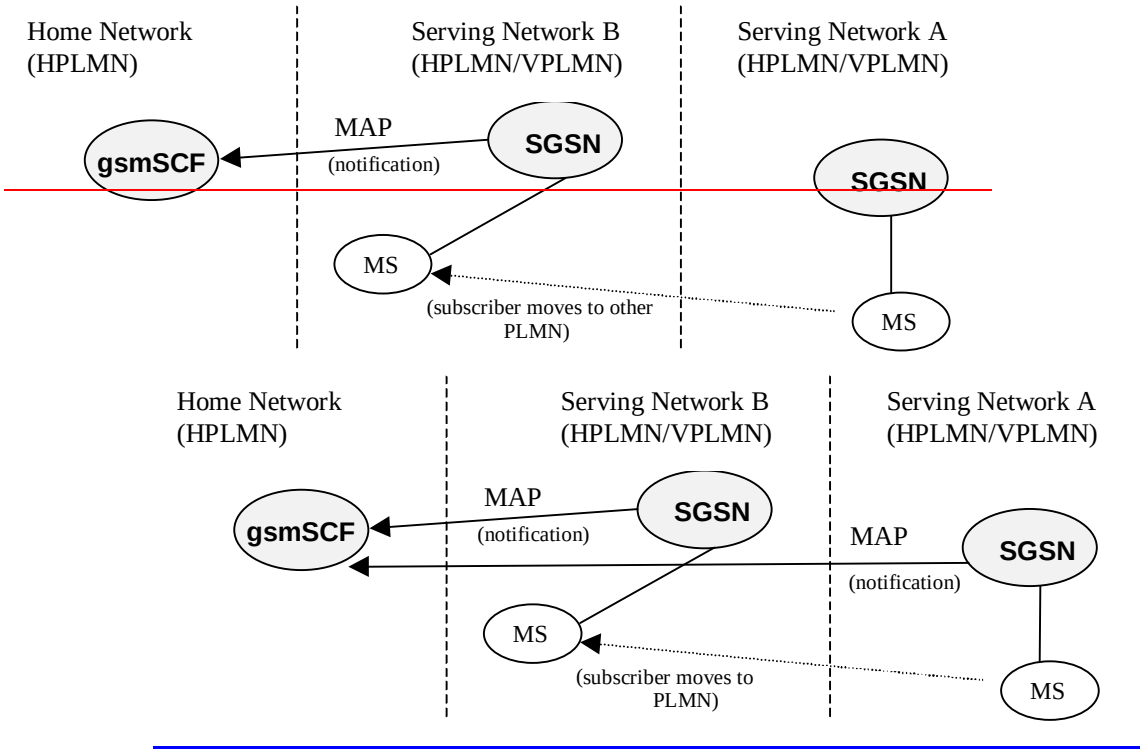


Figure 9.5c: Routeing Area Update from one PLMN to another PLMN

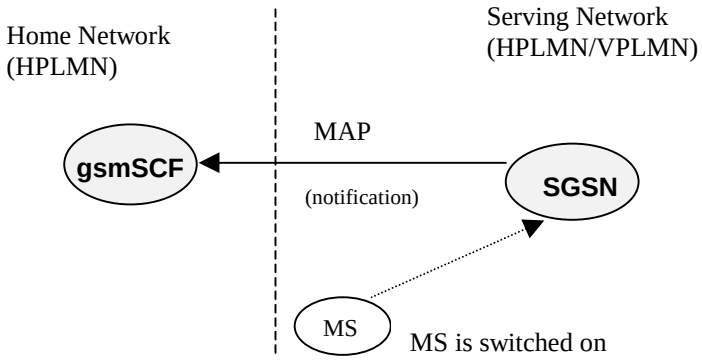


Figure 9.5d: Attach of MS

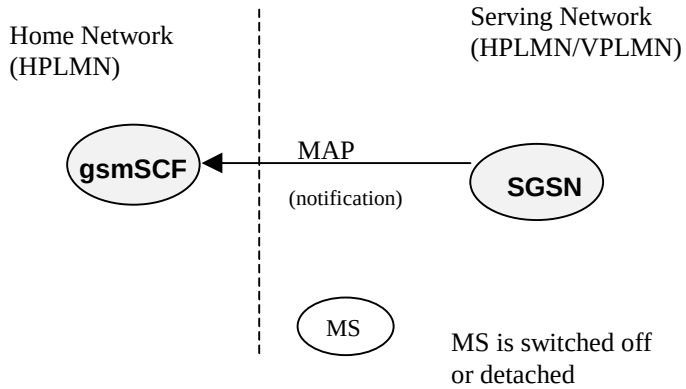


Figure 9.5e: GPRS detach

When a Mobility Management Event has taken place and the processing has been completed, then the SGSN may have to send a notification to the gsmSCF.

The sending of a Mobility Management notification to gsmSCF is independent of other CAMEL subscription data for a subscriber. E.g. a subscriber may have MG-CSI without GPRS-CSI.

The sending of a Mobility Management event notification is subscription based.

Refer to subclause 9.2.2 for a description of MG-CSI and the different Mobility Management events that may lead to a notification to the gsmSCF.

9.3.2.1 Procedure CAMEL_PS_Notification

This procedure is called from processes in 3GPP TS 23.060 [15]. When this procedure is called, it checks the presence of MG-CSI. If there is no MG-CSI, then no notification is sent to the gsmSCF.

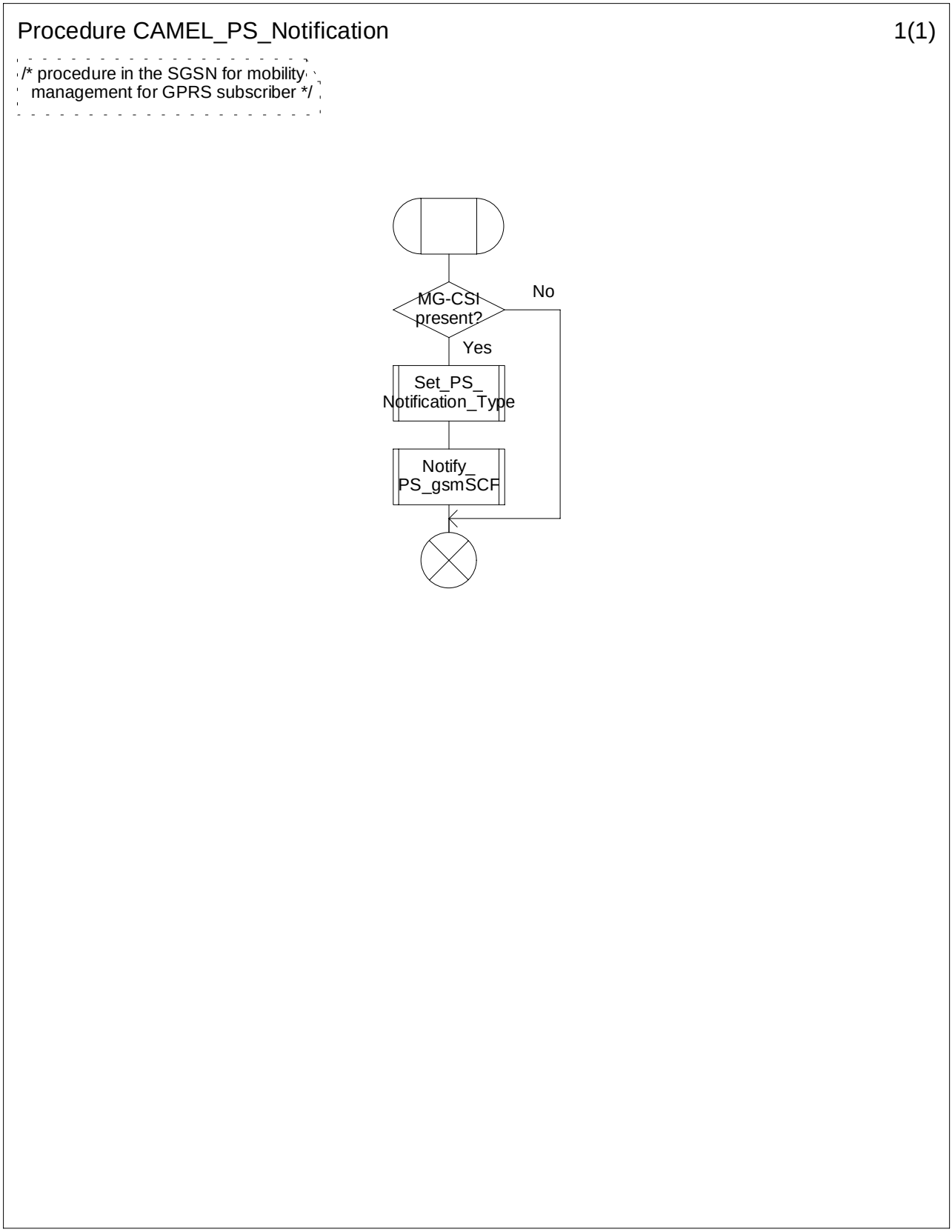
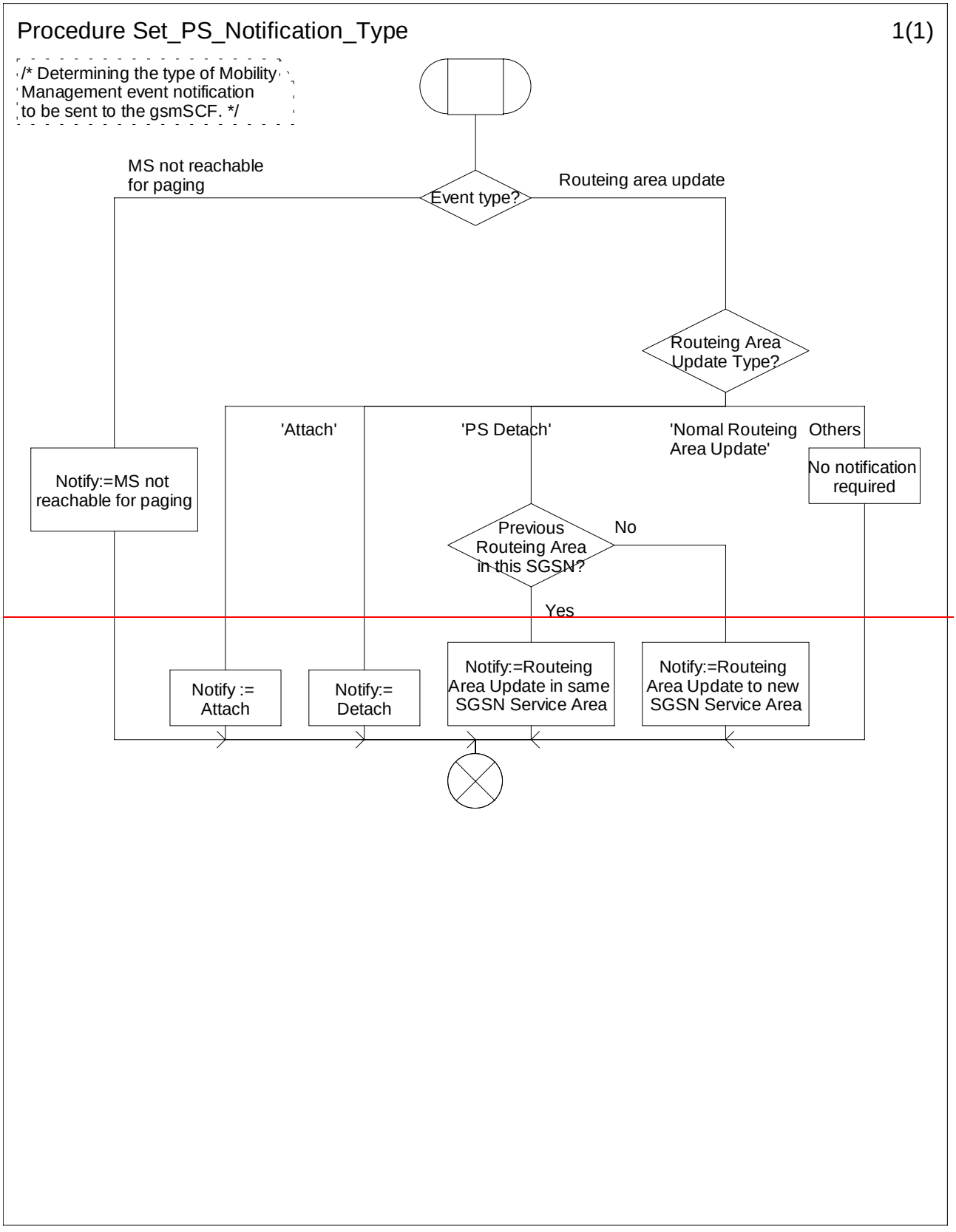


Figure 9.6a: Procedure CAMEL_PS_Notification (sheet 1)


Procedure Set_PS_Notification_Type
1(1)
/* Determining the type of Mobility Management event notification to be sent to the gsmSCF. */
Event type?
MS not reachable for paging
Routeing area update
Routeing Area Update Type?
'Attach'
'PS Detach'
'Nomal Routeing Area Update'
Others
No notification required
Notify:=MS not reachable for paging
Previous Routeing Area in this SGSN?
No
Yes
Notify := Attach
Notify:= Detach
Notify:=Routeing Area Update in same SGSN Service Area
Notify:=Routeing Area Update to new SGSN Service Area

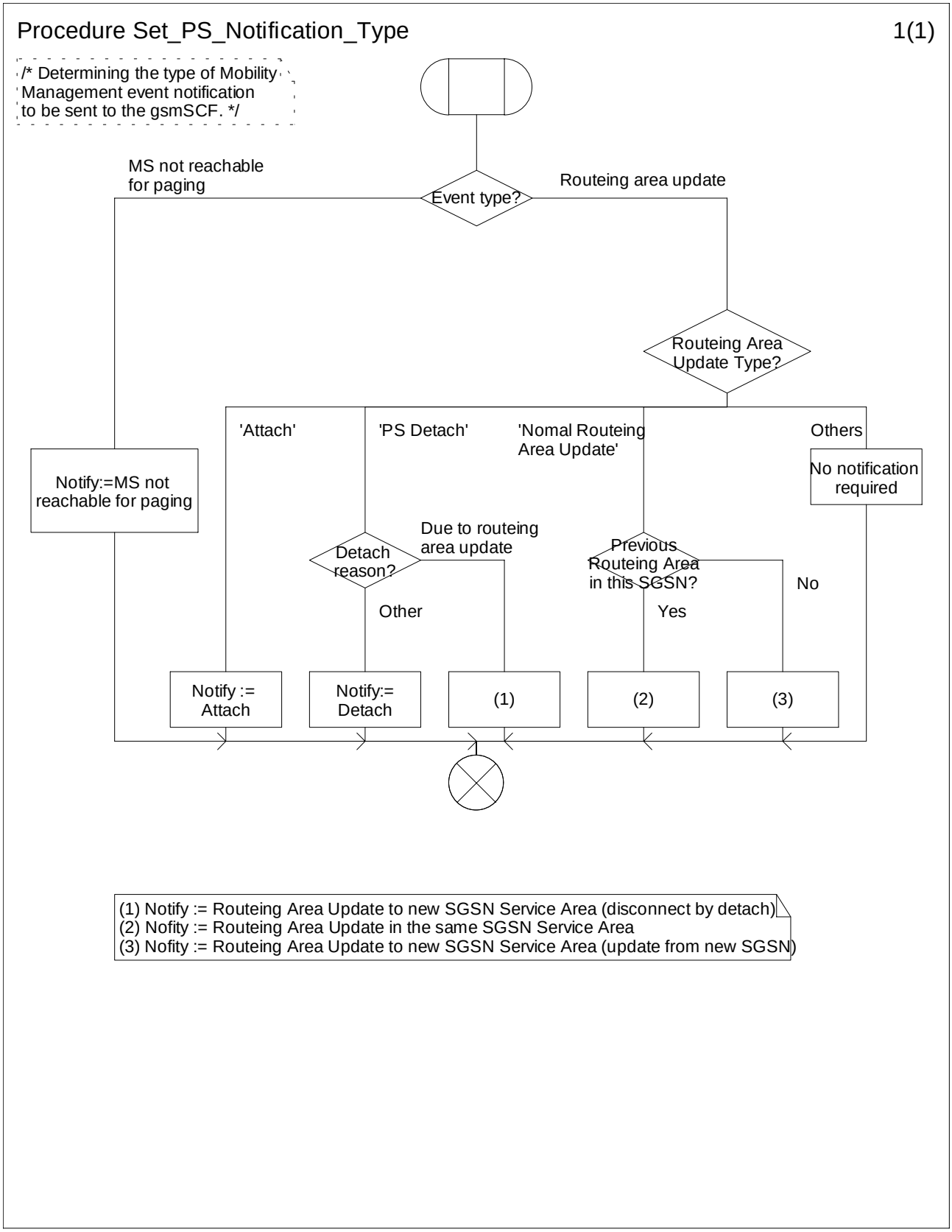


Figure 9.7a: Procedure Set_PS_Notification_Type (sheet 1)

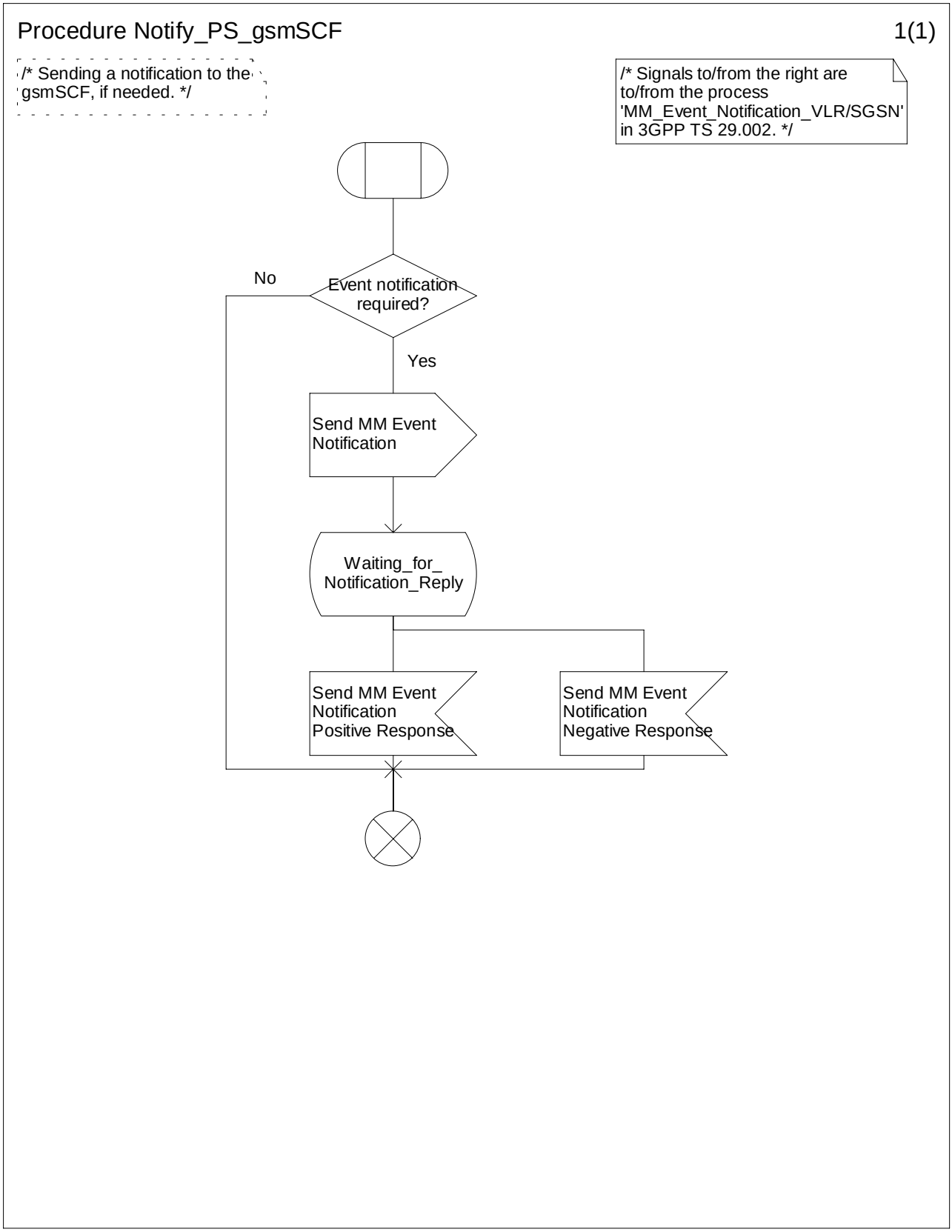


Figure 9.8a: Procedure Notify_PS_gsmSCF (sheet 1)

3GPP TSG CN WG4 Meeting #16 ***N4-021264***
Miami, USA, 23rd – 27th September 2002

3GPP TSG-CN WG2 Meeting #26 ***N2-020903***
Miami, USA, 23rd - 27th September 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **496** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Additional MM-Code for MG-CSI
Source:	⌘	Siemens AG
Work item code:	⌘	CAMEL4
Date:	⌘	24/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the stage 2, the mobility management for GPRS subscriber has been refined to indicate the update from the new SGSN and the disconnect by detach (old SGSN) in the case of inter-SGSN routeing area update.
Summary of change:	⌘	Align with the stage 2 for the MM-Code data type in the stage 3.
Consequences if not approved:	⌘	Mis-alignment between stage 2 and stage 3.

Clauses affected:	⌘	17.7.1

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	23.078-457
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

17.7 MAP constants and data types

17.7.1 Mobile Service data types

....
....
....

```
M-CSI ::= SEQUENCE {
     mobilityTriggers                    MobilityTriggers,
     serviceKey                          ServiceKey,
     gsmSCF-Address                      [0]  ISDN-AddressString,
     extensionContainer                  [1]  ExtensionContainer          OPTIONAL,
     notificationToCSE                   [2] NULL                         OPTIONAL,
     csi-Active                          [3] NULL                         OPTIONAL,
     ...}
--   notificationToCSE and csi-Active shall not be present when M-CSI is sent to VLR.
--   They may only be included in ATSI/ATM ack/NSDC message.
```

```
MG-CSI ::= SEQUENCE {
     mobilityTriggers                    MobilityTriggers,
     serviceKey                          ServiceKey,
     gsmSCF-Address                      [0]  ISDN-AddressString,
     extensionContainer                  [1]  ExtensionContainer          OPTIONAL,
     notificationToCSE                   [2] NULL                         OPTIONAL,
     csi-Active                          [3] NULL                         OPTIONAL,
     ...}
--   notificationToCSE and csi-Active shall not be present when MG-CSI is sent to SGSN.
--   They may only be included in ATSI/ATM ack/NSDC message.
```

```
MobilityTriggers  ::= SEQUENCE SIZE (1..maxNumOfMobilityTriggers) OF
     MM-Code
```

```
maxNumOfMobilityTriggers INTEGER ::= 10
```

```
MM-Code ::= OCTET STRING (SIZE (1))
--   This type is used to indicate a Mobility Management event.
--   Actions for the following MM-Code values are defined in CAMEL Phase 4:
--
--   CS domain MM events:
--   Location-update-in-same-VLR         MM-Code ::= '00000000'B
--   Location-update-to-other-VLR        MM-Code ::= '00000001'B
--   IMSI-Attach                         MM-Code ::= '00000010'B
--   MS-initiated-IMSI-Detach            MM-Code ::= '00000011'B
--   Network-initiated-IMSI-Detach       MM-Code ::= '00000100'B
--
--   PS domain MM events:
--   Routeing-Area-update-in-same-SGSN   MM-Code ::= '10000000'B
--   Routeing-Area-update-to-other-SGSN-update-from-new-SGSN
--                                       MM-Code ::= '10000001'B
--   Routeing-Area-update-to-other-SGSN-disconnect-by-detach
--                                       MM-Code ::= '10000010'B
--   GPRS-Attach                         MM-Code ::= '10000011'B
--   MS-initiated-GPRS-Detach            MM-Code ::= '10000100011'B
--   Network-initiated-GPRS-Detach       MM-Code ::= '10000101'B
--   Network-initiated-transfer-to-MS-not-reachable-for-paging
--                                       MM-Code ::= '10000101'B
--
--   If the MSC receives any other MM-code than the ones listed above for the
--   CS domain, then the MSC shall ignore that MM-code.
--   If the SGSN receives any other MM-code than the ones listed above for the
--   PS domain, then the SGSN shall ignore that MM-code.
```

3GPP TSG CN WG2 Meeting #27 **N2-021062**
Bangkok, Thailand, 11th – 15th November 2002

Title: LS on Enhanced Dialled Services
Release: Rel-6

Source: CN2
To: SA1
Cc:

Contact Person:
Name: Keijo Palviainen
Tel. Number:
E-mail Address: Keijo.Palviainen@nokia.com

Attachments: N2-021061 [Draft CR on 22.078]. N2-021063 [Enhancement of dialled service CAMEL4 Work Item Description (WID) for TSG-CN]

---

1. Overall Description:

CN2 discussed the issue of enhanced dialled services, which is proposed for Rel-6. CN2 noted following issues:

1. The existing capability of CAMEL3 to give e-parameters in dialled services should be kept. I.e. CN2 proposes to cancel changes to remove sending of e-parameters for dialled services.
2. CN2 found it useful to keep the proposed warning note about interaction of multiple CAMEL services. I.e. the operator shall ensure that multiple CAMEL triggerings will not try to instruct MSC in charging in conflicting ways.
3. CN2 assumed that dialled services enhancements would not apply to IMS, especially because IMS uses CAMEL3 capabilities and enhanced dialled service would use CAMEL4.

The attached files contain the revised 22.078 CR and revised Work Item Description. The modifications are based on comments in CN2 but CN2 did not check the revised CR due to time constraint.

It is worth highlighting that CN2 did not discuss the feasibility of the requirement. This is seen to fit into SA1's remit. I.e. CN2 does neither endorse the CR nor oppose it. CN2 did not discuss the work amount because the discussion would be potentially "political".

2. Actions:

To SA1 group.

ACTION1: CN2 asks SA1 group to decide on the service requirement for Rel-6.

ACTION2: CN2 asks SA1 guidance on the 3GPP procedures for the work item approval.

- On one hand, SA1 is the primary responsible group for CAMEL, but on the other hand, the main work would be done in CN2.
- It is not worth approving WI in CN2 if SA1 does not approve the requirement. Also finding the consensus in CN2 is difficult unless SA1 has approved the requirement.
- It is not clear whether potential new Rel-6 CAMEL requirements should be under one umbrella.

3. Date of Next CN2 Meetings:

CN2_27	11th -15th November 2002, Bangkok, Thailand
CN2_28	10th – 14th February 2003, Dublin, Ireland

CR-Form-v7

CHANGE REQUEST

⌘ **22.078** **CR** **CR151** ⌘ **rev** **0** ⌘ Current version: **6.0.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Enhanced CSE capability for Dialled Services
Source:	⌘	Samsung Electronics Co. and SK Telecom
Work item code:	⌘	CAMEL 4
Date:	⌘	11/11/2002
Category:	⌘	**C**
Release:	⌘	Rel-6

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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Enhance CSE capability for Dialled Service is removed by requesting CN2. CN2 did not have a time for stage 3 specification work. But this capability is needed for control of charging in case of multiple services per one subscriber. SK Telecom and Samsung have a solution for this feature and would like to continue the related SA1 and CN2 works.
Summary of change:	⌘	Modifing 1., 5.3.2.2., 7
Consequences if not approved:	⌘	It will not be possible to charge for multiple services per one subscriber.

Clauses affected:	⌘	

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		TS 23.018, TS23.078, TS29.078
				Test specifications		
				O&M Specifications		

Other comments:	⌘	

1 Scope

This standard specifies the stage 1 description for the CAMEL feature (Customised Applications for Mobile network Enhanced Logic) which provides the mechanisms to support services consistently independently of the serving network. The CAMEL features shall facilitate service control of operator specific services external from the serving PLMN. The CAMEL feature is a network feature and not a supplementary service. It is a tool to help the network operator to provide the subscribers with the operator specific services even when roaming outside the HPLMN.

If an IPLMN or VPLMN supports CAMEL Phase 4, it shall also provide the functionality of all previous CAMEL phases.

Phase 4 network signalling shall support interworking with CAMEL Phases 3 and 2.

The CAMEL feature is applicable

- To mobile originated and mobile terminated call related activities;
- To supplementary service invocations;
- To SMS MO, to GPRS sessions and PDP contexts, to the control of HLR subscriber data, to the control of network signalling load.

The mechanism described addresses especially the need for information exchange among the VPLMN, HPLMN and the CAMEL Service Environment (CSE) for support of such operator specific services. Any user procedures for operator specific services are outside the scope of this standard.

This specification describes the interactions between the functions of the VPLMN, HPLMN, IPLMN and the CSE.

The second phase of CAMEL enhances the capabilities of phase 1 where the following capabilities have been added:

- Additional event detection points;
- Interaction between a user and a service using announcements, voice prompting and information collection via in band interaction or USSD interaction;
- Control of call duration and transfer of Advice of Charge Information to the mobile station;
- The CSE can be informed about the invocation of the supplementary services ECT, CD and MPTY;
- For easier post-processing, charging information from a serving node can be integrated in normal call records.

The third phase of CAMEL enhances the capabilities of phase 2. The following capabilities are added:

- Support of facilities to avoid overload;
- Capabilities to support Dialled Services;
- Capabilities to handle mobility events, such as (Not-)reachability and roaming;
- Control of GPRS sessions and PDP contexts;
- Control of mobile originating SMS through both circuit switched and packet switched serving network entities.
- Interworking with SoLSA. (Support of Localised Service Area). Support for this interworking is optional.
- The CSE can be informed about the invocation of the supplementary services CCBS.

Detailed information is given in the respective sections.

The fourth phase of CAMEL enhances the capabilities of phase 3. The following capabilities are added:

- CAMEL support for Optimal Routeing of circuit-switched mobile-to-mobile calls;
- The capability for the CSE to create additional parties in an existing call;

- The capability for the CSE to create a new call unrelated to any other existing call;
- Capabilities for the enhanced handling of call party connections;
- ~~—~~The capability for the CSE to control sessions in the IP Multimedia Subsystem~~.~~
- Enhanced CSE capability for Dialled Services.

With CAMEL Phase 4, it is possible that only a limited subset of the new functionalities is supported, in addition to the complete support of CAMEL Phase 3.

5.3.2 Procedure for subscribed dialled services

The purpose of this procedure is to detect a call set-up request at the point where the called party number has been compared with the dialled services information, and allow the CSE to modify the handling of the call set-up request. Triggering of this procedure shall happen immediately after the procedure when dialled digits have been collected.

5.3.2.1 Initiation of contact with the CSE

If (according to the CSI):

- The subscriber is provisioned with a CAMEL based originating service; and
- The call set-up request occurs; and
- The criteria are satisfied.

Then the VPLMN/IPLMN shall suspend call processing, make contact with the CSE and await further instructions.

Contact with the CSE shall (if necessary) be made in this manner before network dialled services are invoked.

5.3.2.2 Further processing of the call

If a relationship exists with a CSE, then ~~When~~ when the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- Perform charging activities The CSE is only allowed to~~ send e-values (refer to sect. 15.1, 'CSE controlled e-values') and~~ send e-values (refer to sect. 15.1, 'CSE controlled e-values') and include free format data in Call Data Records (refer to sect. 15.2, 'Inclusion in charging records of information received from the CSE');
- Order in-band user interaction. (Interaction between the service triggered from previous triggering may be needed to avoid duplicated guidance etc.).

Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Release the call;
- Continue the call processing;
- Continue the call processing with modified information~~;~~.
- ~~release the call.~~

If no relationship exists with a CSE for the call, then when the VPLMN/IPLMN has made contact with the CSE, the CSE shall be able to instruct the VPLMN/IPLMN to act as described below:

- Perform charging activities~~, except send of e-values~~;
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:

- The subsequent service event which shall be detected and reported:
  - Called party alert;
  - Called party connection;
  - Call disconnection;
  - Calling party abandon;
  - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
  - Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid. Out-band information may be detected during alerting phase of the call.
- The party in the call for which the event shall be detected and reported (calling or called party);
- The type of monitoring (control or notification).
- Order in-band user interaction.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Allow the call processing to continue unchanged;
- Allow the call processing with modified information;
- Release the call.

Due to interworking problems, the service operator shall ensure that sending of e-values and call period control is not used by the other services in the same call of the served subscriber with *Enhanced CSE capability for Dialled Services*.

7 Procedures for serving network dialled services

The purpose of this procedure is to detect a match between the called party number and a stored network service number at the call set-up request. It is to allow the CSE to modify the handling of the call set-up request. If this procedure is triggered it shall happen after processing of Subscribed Dialled Services triggered via the CSI. If any other CAMEL dialogue has changed the called party number then the modified called party number is used for conditional triggering check.

7.1 Initiation of contact with the CSE

If:

- The call set up request occurs, and
- The call set up request procedure is passed, and
- The PLMN is provisioned with network based service information

Then the VPLMN shall suspend call processing, make contact with the CSE and await further instructions.

7.2 Further processing of the call

If a relationship exists with a CSE, then when~~When~~ the serving network has made contact with the CSE, the CSE shall be able to instruct the serving network to act as described below:

- Release the call;

- Continue the call processing;
- Continue the call processing with modified information;
- Perform charging activities (the CSE is only allowed to include charging data in the Call Data Record);
- Order in-band user interaction. (Interaction between the service triggered from previous triggering may be needed to avoid duplicated guidance etc.)

If no relationship exists with a CSE for the call, then when the serving network has made contact with the CSE, the CSE shall be able to instruct the serving network to act as described below:

- Perform charging activities~~, except send of e-values~~;
- Activate subsequent control service events for the call. The CSE shall have the possibility to send the following information:
  - The subsequent service event which shall be detected and reported:
    - Called party alert;
    - Called party connection;
    - Call disconnection;
    - Calling party abandon;
    - Unsuccessful call establishment. In the case of no answer the CSE may provide a no answer timer;
    - Mid call event (DTMF or out of band information). The CSE shall specify the digit string(s) or the out of band information for which the instruction is valid. Out-band information may be detected during alerting phase of the call.
  - The party in the call for which the event shall be detected and reported (calling or called party);
  - The type of monitoring (control or notification).
- Order in-band user interaction.

There shall be no restriction regarding the order of the above instructions or the number of times each of the above instructions can be repeated. Once the CSE has concluded issuing the above instructions, it shall issue one and only one of the following instructions:

- Allow the call processing to continue unchanged;
- Allow the call processing with modified information;
- Release the call.

Due to interworking problems, the service operator shall ensure that sending of e-values and call period control is not used by the other services in the same call of the served subscriber with *Enhanced CSE capability for Dialled Services.*

Further processing of the call continues as detailed in Section 5.3, and the CSE contact initiated at this procedure is terminated.

B.2.2.2 CSI criteria applicable at IPMM session setup after analysis of called identity

A CSI criterion on the contents of the called identity shall be defined for subscribed dialled services. A list of up to 10 called identities may be defined in the criterion. Each entry in the called identity list has associated with it a CSE identity and a service key which defines the service to be triggered if the criterion is satisfied.

If any other CAMEL dialogue has changed the called number, then the modified called identity shall be used for the conditional triggering check.

The called identity criterion is satisfied if the called identity matches a called identity string defined in the criterion.

The Enhanced dialled services is not applicable for the IMS.

3GPP TSG CN2 Meeting #27 **N2-021063**
Bangkok Thailand, 11th –15th October 2002

Source: **Samsung Electronics, SK Telecom**

Title: **Enhancement of dialled service for CAMEL4 Work Item Description (WID) for TSG-CN**

Agenda item:

Document for: **Discussion/Decision**

Work Item Description

Title: Enhancement of dialled service for CAMEL4

1 3GPP Work Area

	Radio Access
X	Core Network
X	Services

2 Linked work items

3 Justification

It was agreed to use CAMEL (as distinct from other toolkits, existing or new ones) as a proper toolkit to provide services. The feature "Enhanced CSE capability for dialled services" was introduced as Rel-5 feature. This feature enables richer CAMEL services based on dialling patterns. Even though the related CRs were incorporated with TS 22.078 v5.5.0, the feature had been removed from Rel-5 CAMEL4 WI.

This Work Item Description describes the work to be done for Release 6 CAMEL Phase 4 to complete the feature "Enhancements of dialled services" within Release 6 time schedule.

4 Objectives

- "Enhanced CSE capability for dialled services" is needed for the control of charging for Release 6 CAMEL 4.

5 Service Aspects

New services and multiple services per one subscriber will be controlled for charging, but not performed at DP2 and DP3 simultaneously.

6 MMI-Aspects

None.

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes				X	
No	X	X	X		X
Don't know					

10 Expected Output and Time scale (to be updated at each plenary)

The results of this Work item shall be provided in a Technical Standard.

In order to complete Release 6 CAMEL4 in a timely fashion the following Work Plan is proposed.

CN2	***Dates***	***Actions***
CN2#28	10-14 Feb, 2003	• Discussion on principles
CN2#29	19-23 May, 2003	• Prepare any new State 2's work
CN2#30	18-22 Aug, 2003	• Prepare any new Stage 2's and 3's work for submission to CN#21 (17-19 Sep).
CN#21	17-19 Sep, 2003	• Approve CR's to the 23-series and 29-series.

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
22.078	CAMEL 4 Stage 1	SA1				Release 6
23.078	CAMEL 4 Stage 2	CN2			CN#21	Release 6
29.078	CAMEL 4 Stage 3	CN2			CN#21	Release 6
29.002	MAP specification	CN4			CN#21	CN4 work may be required if Enhanced dialled services is a partial implementation feature (subset).
23.008	Organization of Subscriber Data	CN4			CN#21	CN4 work may be required if Enhanced dialled services is a partial implementation feature (subset).
23.016	Subscriber Data Management, Stage 2	CN4			CN#21	CN4 work may be required if Enhanced dialled services is a partial implementation feature (subset).
23.018	Basic Call Handling	CN4			CN#21	CN4 work may be required
Comment: there will be potentially other new specs, yet to be identified						

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments
Comment:				

11 Work item raporteurs

[Samsung Electronics]

12 Work item leadership

CN2

13 Supporting Companies

[Nokia, Nortel, Samsung, SK Telecom, Alcatel]

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block:

Enhancements of dialled services

14c The WI is a Work Task: parent Building Block