3GPP TSG_CN#7 **NP-000028**
ETSI SMG3 Plenary Meeting #7,
Madrid, Spain
13th – 15th March 2000

Agenda item: **5.4.3**

Source: **TSG_N SS ad hoc**

Title: **CRs to 3G Work Item MSP phase 2**

Introduction:

This document contains **"2"** CRs on **MSP phase 2,** that have been agreed by **TSG_N SS ad hoc,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

Tdoc	Spec	CR	Rev	Cat	Rel	Old ver	New ver	Subject
NS-000008	23.097	004		D	R99	3.1.0	3.1.1	Minor editorial corrections

3GPP TSG-N SS ad hoc ***Tdoc NS-000008***
Sophia Antipolis, France, 17 - 18 Feb 2000

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.097	CR	004	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [ ] non-strategic [ ] *(for SMG use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [ ]

Source: SS ad hoc **Date:** 10/02/2000

Subject: Minor editorial corrections

Work item: MSP Phase 2

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]	**Release:**	Phase 2	[ ]
A	Corresponds to a correction in an earlier release	[ ]		Release 96	[ ]
B	Addition of feature	[ ]		Release 97	[ ]
C	Functional modification of feature	[ ]		Release 98	[ ]
D	Editorial modification	[X]		Release 99	[X]
				Release 00	[ ]

Reason for change: Minor editorial errors need correcting.

Clauses affected: 2, 3, 5.1, 6.2, 6.8, 7.2, 7.3, 7.4.1, 7.4.2, 7.5.2, 7.5.3.1, 7.5.3.10, 7.5.3.11, 7.5.3.18, 7.6, 7.8.1.2, 7.8.1.3, 7.8.2, 7.8.3, 7.8.6, 7.8.7, 7.8.9, 7.8.10, 7.9.1, 7.9.2, 7.9.5, 7.11.1, 7.11.1.6, 7.11.2, 7.11.3.

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


help.doc

<--------- Double-click here for help and instructions on how to create a CR.

****** First Modified Section ******

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

…

[9] TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) – Phase 3~~2~~; Stage 2".

…

****** Next Modified Section ******

3 Definitions and abbreviations

3.1 Definitions

For the purpose of this specification, the following definitions apply:

Default Profile: The profile used when the MSP subscriber roams to a non-supporting network. ~~The MSP subscriber will not be able to change outgoing call barrings for the default profile.~~

MSP Subscriber: The subscriber provisioned with the MSP service

Profile Identity: The numerical identity (between 1 and 4) of the profile

Profile Status: Specifies if the profile is the registered profile and/or the default profile

Registered Profile: The profile used for all MO calls and short messages if a profile has not been explicitly selected

3.2 Abbreviations

The abbreviations used in this specification are listed in TR 21.905.

For the purpose of this specification, the following abbreviations apply:

CD	The Call Deflection supplementary service
MSP	The Multiple Subscriber Profile supplementary service
UUS	The User-to-User Signalling supplementary service
SII2	The Service Interaction Indicators Two parameter (see TS 23.078~~[9]~~)

****** Next Modified Section ******

5.1 Data stored in the HLR

The HLR contains all the common data (the data valid for all profiles) and some data specific to the default profile.

The data stored in the HLR are defined in TS 23.008. The elements specifically used for MSP are:

- List of MSISDNs and associated Bearer Capabilities for each profile;~~;~~
- Default profile (associated with the Basic MSISDN);
- Capabilities of VLR (support of CAMEL Phase 2 and 3);
- Supplementary services (per BSG) provisioned per subscriber (CW, CH, MPTY,~~-~~…);
- Call Barring Data (see subclause 7.6.8: Call Barring);
- ODB Data (see subclause 7.7.5: Operator Determined Barring);
- HOLD Data (see subclause 7.8.2: Call Hold)
- ECT Data (see subclause 7.8.9: Explicit Call Transfer)
- MPTY Data (see subclause 7.8.5: Multi Party)
- CCBS Data (see subclause 7.8.10: Completion of Calls to Busy Subscriber)
- CW Data (see subclause 7.8.3: Call Waiting)
- CLIR Data (see subclause 7.8.1.2)
- CAMEL data including the MSP service key, O-CSI, T-CSI, VT-CSI, UG-CSI, SS-CSI and Location information / Subscriber state Interrogation.

****** Next Modified Section ******

6.2 ODB flags

The ODB flag for the relevant category shall be set in the HLR if ODB is provisioned in the gsmSCF for that category.

If the ODB flag is set for that category, then

- When the subscriber roams to a VLR which supports CAMEL Phase 2 or later, the HLR shall not send any ODB data for that category to the VLR;

- When the subscriber roams to a VLR which does not support CAMEL Phase 2 or later, the HLR shall send to the VLR ODB data for that category ~~to the VLR~~ as stored in the HLR.

****** Next Modified Section ******

6.8 CLIR_flag

The CLIR_flag shall be set in the HLR if the subscriber data for the CLIR SS are controlled by the gsmSCF.

If the CLIR_flag is set, then:

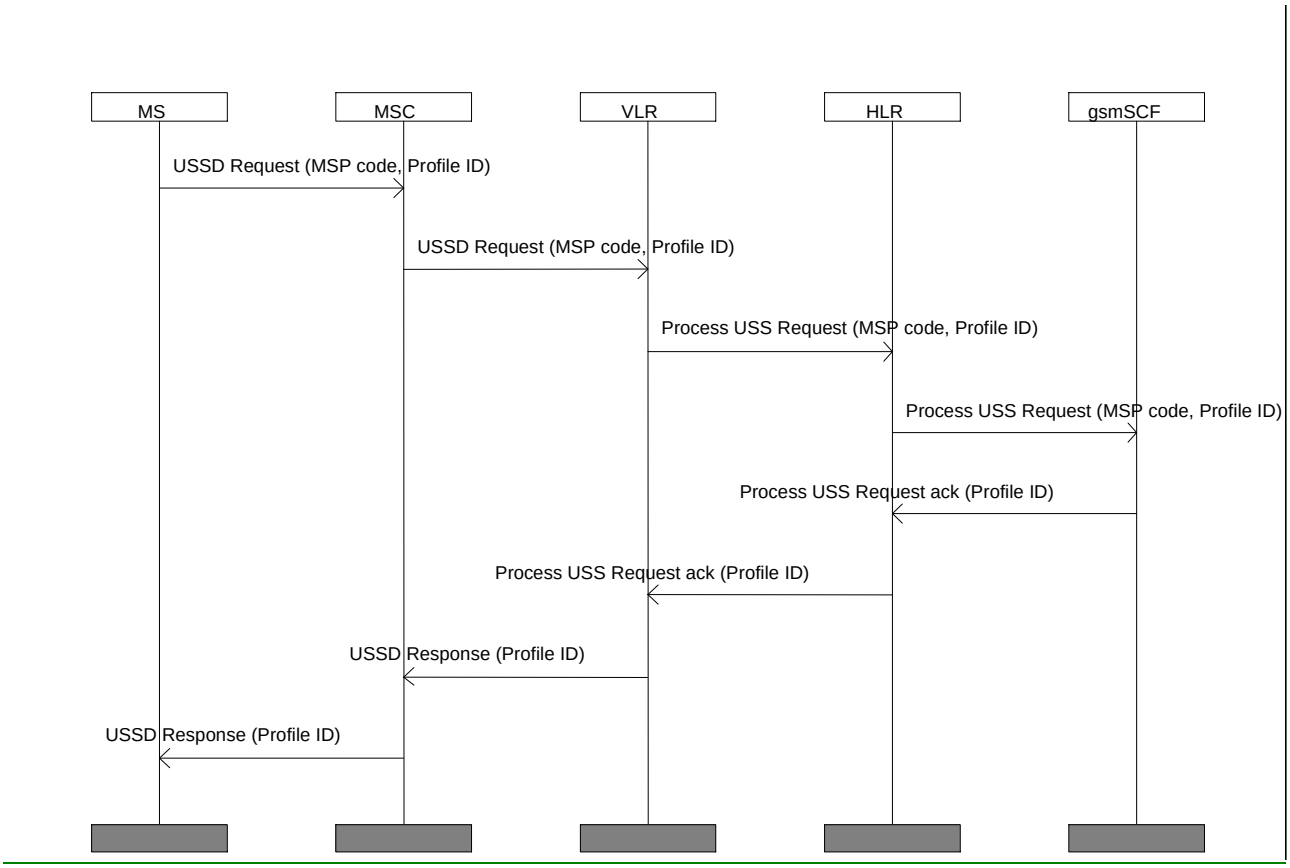
- When the subscriber roams to a VLR which supports CAMEL Phase 3 or later, the HLR shall send to the VLR the activateion state of the CLIR SS as Active and Operative, and the presentation mode as "temporary (presentation allowed)".
- When the subscriber roams to a VLR which does not support CAMEL Phase 3 or later, the HLR shall send to the VLR the activation state and presentation mode for the CLIR SS as stored in the HLR.
- The subscriber shall not be allowed to alter the CLIR data in the HLR.

****** Next Modified Section ******

7.2 Registration of a Profile

Registration of a profile allows the subscriber to register a provisioned profile to be used for mobile originated calls and activities. The request to register a profile shall contain the MSP code and the profile identity and will be sent to the gsmSCF using USSD, see TS 23.078 and TS 23.090. The registered profile is stored in the gsmSCF. In response to a successful registration request, the gsmSCF shall return a positive acknowledgement, including the identity of the registered profile, using USSD.

The registration process in the gsmSCF is shown in figure 2. The information flow for successfully registering a profile is shown in figure 1.



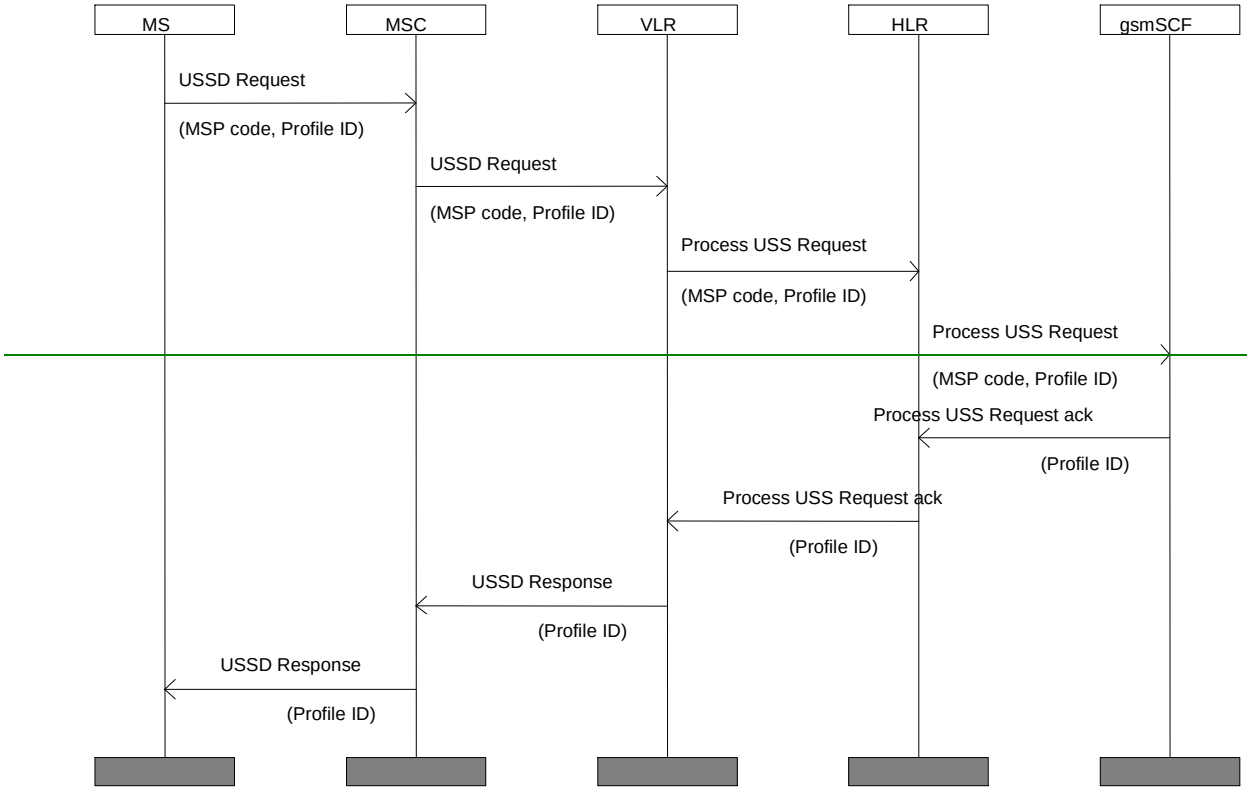


Figure 1: Registration Process: information flow

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****** Next Modified Section ******

7.3 Interrogation

The MS can interrogate MSP, using USSD, to identify which profiles are provisioned and which of the provisioned profiles is the currently registered profile. The interrogate MSP operation shall contain the MSP code and will be sent to the gsmSCF using USSD. In response to a successful interrogation request, the gsmSCF shall return the profile identity and profile status for each provisioned profile. If the MSP service is not provisioned then the gsmSCF shall return the service status indicating not provisioned.

The interrogation process is shown in figure 4. The information flow for interrogation of MSP is shown in figure 3.

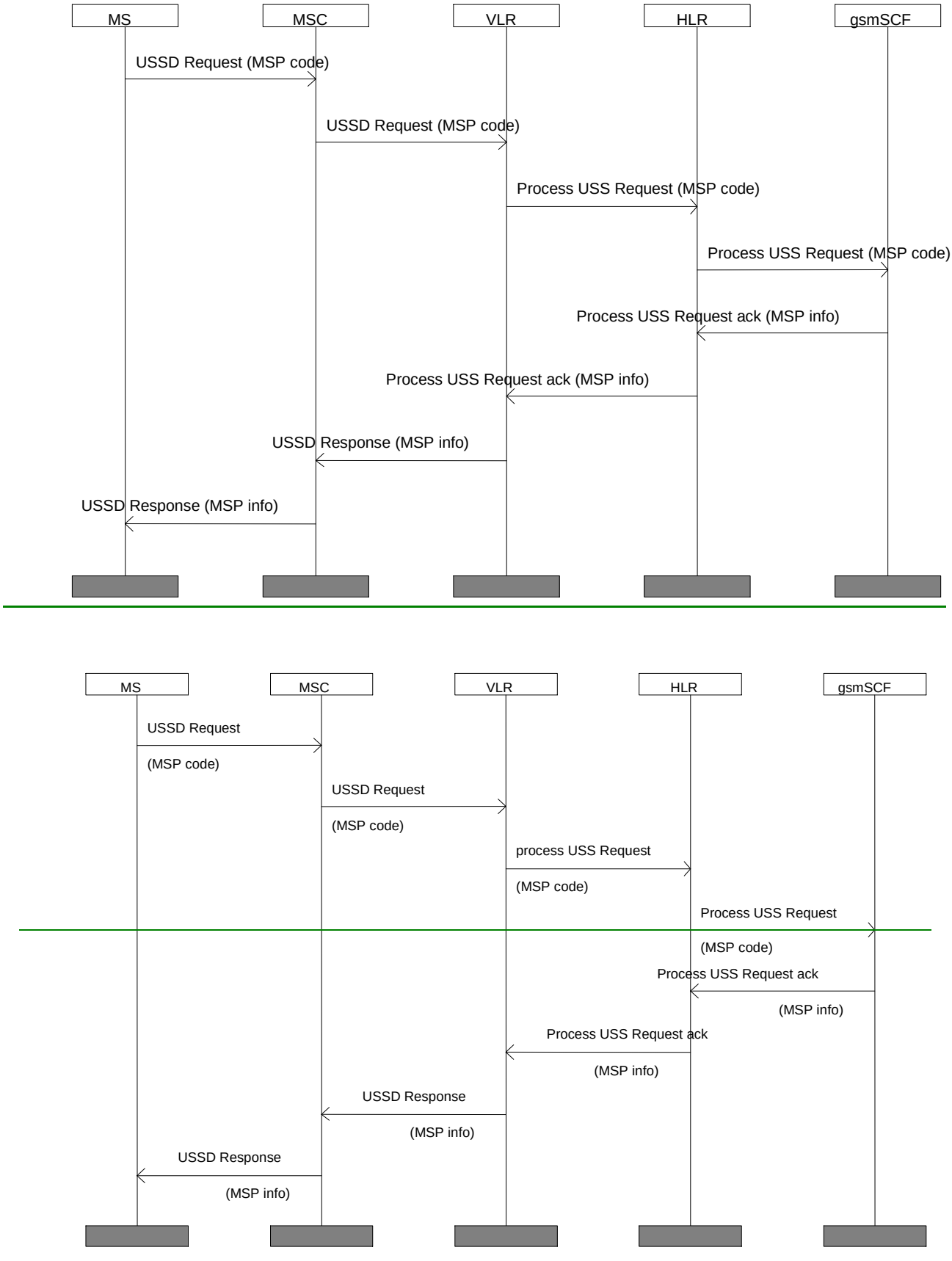

Figure 3: Interrogating MSP: information flow

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****** Next Modified Section ******

7.4.1 Mobile Originating (MO) call handling

The served subscriber may use the registered profile or explicitly select a provisioned profile to set up an MO call. If the profile is explicitly selected, the selection information will be included in the called party BCD number and transported to the gsmSCF. If the gsmSCF recognises that a profile has not been explicitly selected (there is no profile selection information~~-~~ in the called party BCD number) then the registered profile is used. The MMI for explicitly selecting a profile is defined in TS 22.030.

The information flow for an MO call is shown in figure 28.

When the gsmSCF receives an Initial_DP message containing MO call parameters from the gsmSSF, the process MO_MSP_Call_gsmSCF will be invoked, see figure 5. All other call handling is described in TS 23.018 and TS 23.078.

****** Next Modified Section ******

7.4.2 Mobile Terminating (MT) call handling

The profile used for an MT call to the served subscriber is determined by the called MSISDN.

The information flow for an MT call is shown in figure 29.

When the gsmSCF receives an Initial_DP message containing MT call parameters from the gsmSSF, the process MT_MSP_Call_gsmSCF will be invoked, see figure~~s~~ 8. All other call handling is described in TS 23.018 and TS 23.078.

****** Next Modified Section ******

7.5.2 MT call handling in the gsmSCF

7.5.2.1 Process MT_MSP_Call_gsmSCF

Handles an MT call for an MSP subscriber. See figure 8.

…

Figure 8a: Process MT_MSP_Call_gsmSCF (sheet 1 of 5)

…

Figure 8b~~Error! Reference source not found.~~: Process MT_MSP_Call_gsmSCF (sheet 2 of 5)

…

Figure 8c~~Error! Reference source not found.~~: Process MT_MSP_Call_gsmSCF (sheet 3 of 5)

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Figure 8d~~Error! Reference source not found.~~: Process MT_MSP_Call_gsmSCF (sheet 4 of 5)

…

Figure 8e~~Error! Reference source not found.~~: Process MT_MSP_Call_gsmSCF (sheet 5 of 5)

****** Next Modified Section ******

7.5.3.1 Procedure Check_CLIR_gsmSCF

Checks whether the CLI Presentation Indicaetor shall be set to Presentation Restricted. See figure 9.

****** Next Modified Section ******

7.5.3.10 Procedure Check_HOLD_gsmSCF

Checks whether a HOLD request shallshould be accepted or rejected during the ongoing call. See figure 18.

****** Next Modified Section ******

7.5.3.11 Procedure Check_MPTY_gsmSCF

Checks whether an MPTY request should shall be accepted or rejected during the ongoing call. See figure 19.

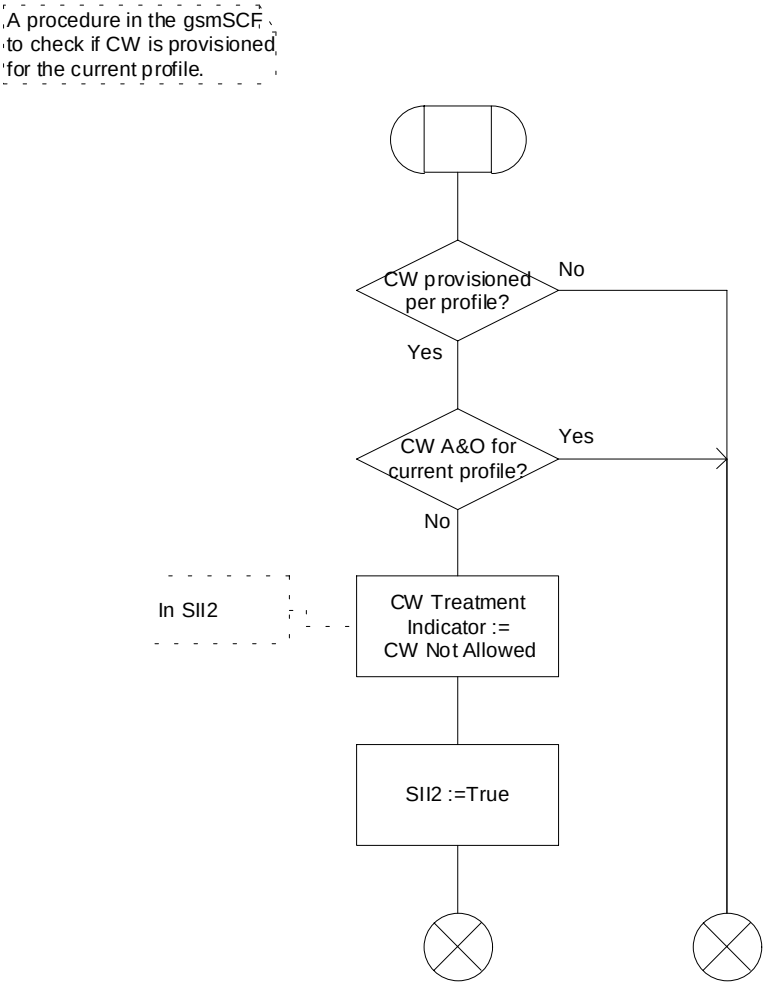
****** Next Modified Section ******

7.5.3.18 Procedure Check_ECT_gsmSCF

Checks whether an ECT request should shall be accepted or rejected during the ongoing call. See figure 26.

…

Procedure Check_CW_gsmSCF C_CW_G_1(1)



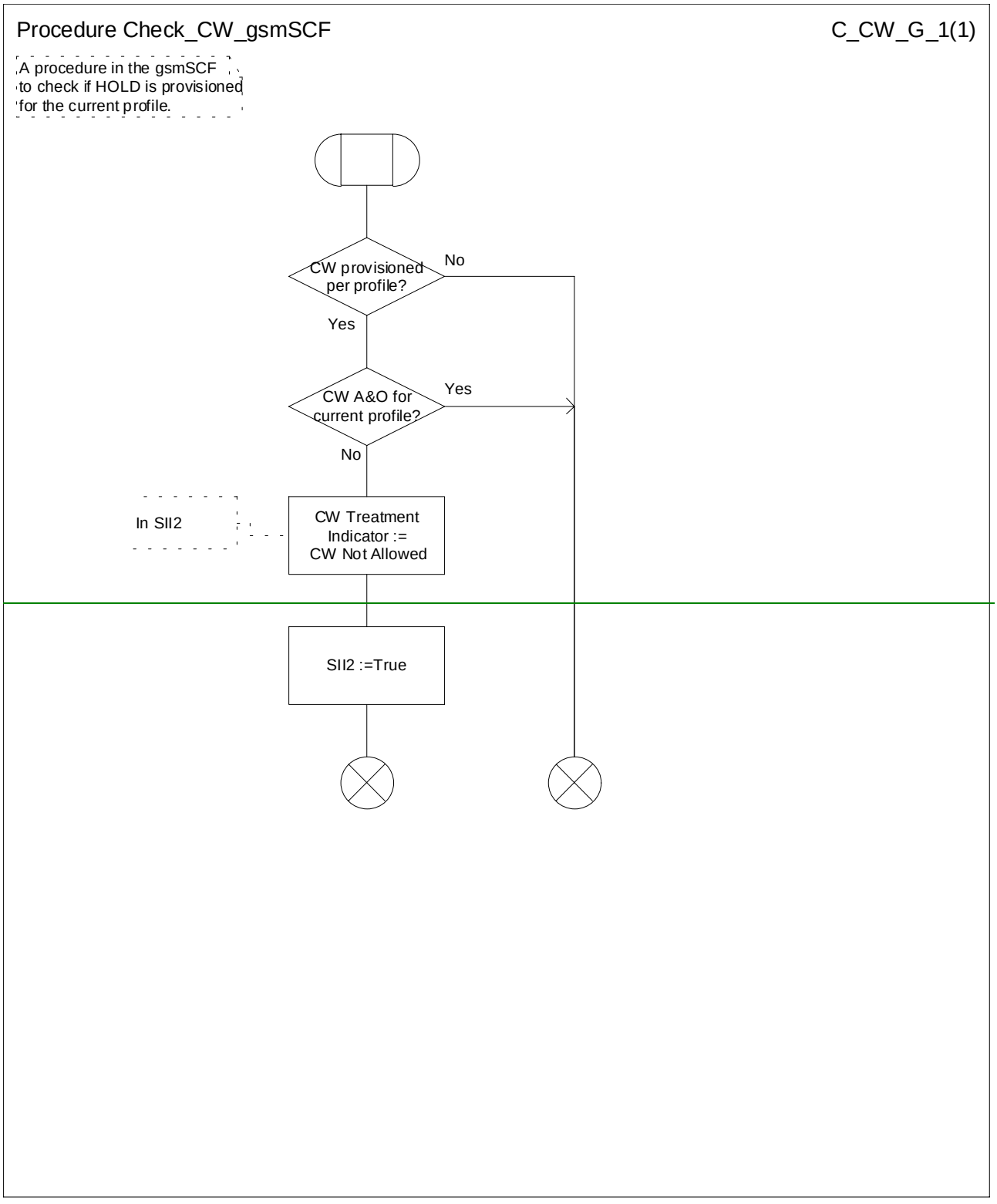


Figure 17: Procedure Check_CW_gsmSCF

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****** Next Modified Section ******

7.6 SMS handling

MSP Phase 2 does not apply to MT short messages. ~~MT short messages will be received by t~~The MSP subscriber will receive MT short messages but no profile indication will be given.

When the gsmSCF receives an Initial SMS Event message from the gsmSSF, the process MO_MSP_SMS_gsmSCF will be invoked, see figure 30.

****** Next Modified Section ******

7.8.1.2 CLIR

CLIR can~~will~~ be provisioned per subscriber or per profile.

If CLIR is provisioned per subscriber and CLIR is active, it will be active for all profiles. Data for the CLIR Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. CLIR will function as specified in TS 23.081 and will not distinguish between MSP and non-MSP subscribers.

If CLIR is provisioned per profile then the CLIR_flag shall be set in the HLR (see subclause 6.8: CLIR_flag) and the CLIR subscription information for the default profile shall be stored in the HLR in the usual manner. For an MO call, if the CLIR subscription information for the Calling profile indicates that the CLI shall be restricted, the gsmSCF shall set the Calling Party Presentation Indicator to Presentation Restricted in the SII2 parameter.

****** Next Modified Section ******

7.8.1.3 COLP

No interaction.

****** Next Modified Section ******

7.8.2 Call Hold (HOLD)

Call Hold can be provisioned per subscriber or per profile.

If Call Hold is provisioned per subscriber and Call Hold is active, it will be active for all profiles. Data for the Call Hold Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. Call Hold will function as specified in TS 23.083 and will not distinguish between MSP and non-MSP subscribers.

If Call Hold is provisioned per profile then the HOLD_flag shall be set in the HLR (see subclause 6.3: HOLD_flag). On receipt of an Initial_DP message for an MO or MT call, the gsmSCF will check the subscription information for the profile in use for that call. If HOLD is not active and operative, then the SII2 will be included in the Connect message with the HOLD Treatment Indicator set to- Reject HOLD Request.

****** Next Modified Section ******

7.8.3 Call Waiting (CW)

Call Waiting can~~will~~ be provisioned per subscriber or per profile.

If Call Waiting is provisioned per subscriber and Call Waiting is active, it will be active for all profiles. Data for the Call Waiting Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. Call Waiting will function as specified in TS 23.083 and will not distinguish between MSP and non-MSP subscribers.

If Call Waiting is provisioned per profile then the CW_flag shall be set in the HLR (see subclause 6.4: CW_flag). On receipt of an Initial_DP message for an MO or MT call, the gsmSCF will check the subscription information for the profile in use for that call. If Call Waiting is not active and operative, then the SII2 will be included in the Connect message with the CW Treatment Indicator set to CW Not Allowed. The subscriber shall be able to modify CW information per profile by making contact with the gsmSCF using USSD. However, the subscriber shall not be able to modify CW data for the default profile.

****** Next Modified Section ******

7.8.6 Closed User Group (CUG)

The Closed User Group Supplementary Service ~~ca~~can be provisioned per subscriber or per profile.

If CUG is provisioned per subscriber and CUG is active, it will be active for all profiles. Data for the CUG Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. CUG will function as specified in TS 23.085 and will not distinguish between MSP and non-MSP subscribers. The interaction between CAMEL and CUG ~~(in the case of forwarding CUG calls)~~ is defined in TS 23.078.

CUG provisioning per profile is supported by CAMEL Phase 3 and is FFS.

****** Next Modified Section ******

7.8.7 Advice of Charge (AoC)

The Advice of Charge Supplementary Service can~~will~~ be provisioned per subscriber. However, services equivalent to the Advice of Charge supplementary services, implemented in the gsmSCF, will be available to the MSP subscriber per profile. This is described in subclause 7.11.4: Advice of Charge (AoC). Signalling on the access interface will be as specified in TS 24.086.

If AoC is active, it will be active for all profiles. Data for the AoC Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. AoC will function as specified in TS 23.086 and will not distinguish between MSP and non-MSP subscribers.

****** Next Modified Section ******

7.8.9 Explicit Call Transfer (ECT)

The Explicit Call Transfer supplementary service can be provisioned per subscriber or per profile.

If ECT is provisioned per subscriber and ECT is active, it will be active for all profiles. Data for the ECT Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner. ECT will function as specified in TS 23.091 and will not distinguish between MSP and non-MSP subscribers.

If ECT is provisioned per profile then the ECT_flag shall be set in the HLR (see subclause 6.6: ECT_flag). On receipt of an Initial_DP message for an MO or MT call, the gsmSCF will check the subscription information for the profile in use for that call leg. If ECT is not active and operative, then the SII2 will be included in the Connect message with the ECT Treatment Indicator set to Reject ECT Request.

****** Next Modified Section ******

7.8.10 Completion of Calls to Busy Subscriber (CCBS)

CCBS can be provisioned per subscriber or per profile.

If CCBS is provisioned per subscriber and CCBS is active, it will be active over all profiles. Data for the CCBS Supplementary Service will be stored in the HLR, and if appropriate in the VLR, in the usual manner.

If CCBS is provisioned per profile then the CCBS_flag shall be set in the HLR (see subclause 6.7: CCBS_flag).

On receipt of an Initial_DP message for an MO call, the gsmSCF will check the subscription information for the calling profile. If CCBS is not active and operative, then the SII2 will be included in the Connect message with the Call Completion Treatment Indicator set to Call Completion Not Allowed.

On receipt of an Initial_DP message for an MT call, the gsmSCF will check the subscription information for the called profile. If CCBS is not active and operative, then the SII2 will be included in the Connect message with the Call Completion Treatment Indicator sent to Call Completion not allowed.

The subscriber shall be able to modify CCBS information per profile by making contact with the gsmSCF using USSD. However, the subscriber shall not be able to modify CCBS data for the default profile.

If a CFU-equivalent service is activated while there are queue entries in MS-B's target queue, HLR-B will not know about this activation and will process these queue entries as normal. As a consequence, the CCBS calls related to these queue entries will be forwarded to the new destination. CCBS activation is not possible if this forwarded call meets NDUB. This results in expiry of recall timer T9 and deletion of the queue entry from MS-B's target queue. For further details on the interaction between CCBS and CAMEL, refer to TS 23.093.

The same applies to Incoming Call Barring-equivalent services which are activated while there are queue entries in MS-B's target queue.

An MSP subscriber will have CCBS set in the SS-CSI. The gsmSCF will be informed of CCBS Request and CCBS Setup messages for the MSP subscriber. This allows the service logic in the gsmSCF to assign the correct profile to the CCBS call.

****** Next Modified Section ******

7.9.1 The Multi-Numbering Scheme

If the MSP subscriber has different MSISDNs allocated for different Basic Services, all MSISDNs and associated Basic Services will be stored in the HLR. Each MSISDN and associated Basic Services will also be stored in the gsmSCF with associated profile ID.

****** Next Modified Section ******

7.9.2 The Short Message Service

Mobile terminated short messages can be received on any profile although the profile will not be~~-~~ indicated to the user.

It shall be possible to select a profile for mobile originated short messages. If a profile is explicitly selected~~,~~ the MO short message will be sent by and charged to the selected profile. If a profile is not explicitly selected~~,~~ the MO short message will be sent by and charged to the registered profile.

****** Next Modified Section ******

7.9.5 Operator Determined Barring

ODB, as described in TS 23.015, can only be provisioned per subscriber.

A service, implemented in the gsmSCF, equivalent to ~~some elements of~~ the ODB service will be available for an MSP subscriber per profile. This is described in subclause 7.11.3: Operator Determined Barring (ODB); it requires the mechanism described in subclause 6.2: ODB flags.~~.~~

Outgoing ODB for the default profile will be stored in the HLR for use when the subscriber roams into a non-supporting network, see subclause 7.11.3: Roaming into a network not supporting CAMEL Phase 2 for further details.

****** Next Modified Section ******

7.11.1 Call Forwarding

Call Forwarding services will be provided in the gsmSCF per profile. An MT call to an MSP subscriber will be subject to the provided call forwardings for the called profile.

The Call Forwarding services, implemented by the gsmSCF, should operate in the same way as the Call Forwarding Supplementary Services. The MSP subscriber should have control over the call forwarding data (Registration, Erasure, Activation, Deactivation~~,~~ and Interrogation). The method for controlling this data is a network option.

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****** Next Modified Section ******

7.11.1.6 Late CFNRc

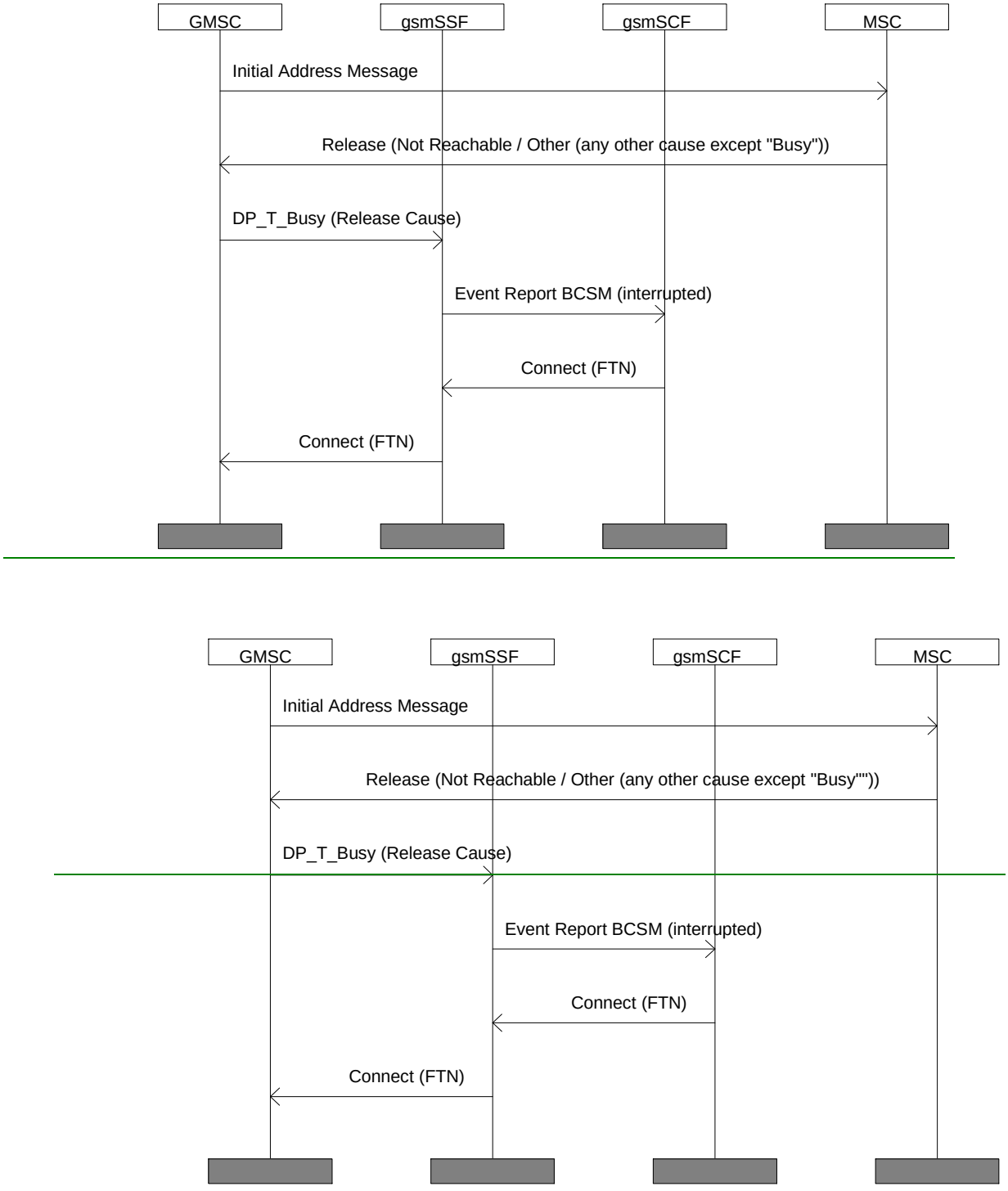

Figure 36: Information flow for an MT call to a profile with CFNRc active and operative in the gsmSCF, where late CFNRc is invoked

****** Next Modified Section ******

7.11.2 Call Barring

Call Barring services can~~will~~ be provided by the gsmSCF per profile. An MO call made by an MSP subscriber will be subject to the outgoing call barrings provided for the Calling profile. An MT call to an MSP subscriber will be subject to the incoming call barrings provided for the Called profile. If an MT call to an MSP subscriber is forwarded, the forwarded call will be subject to the outgoing call barrings provided for the Called profile.

The Call Barring services available per profile are:

- Barring of all outgoing calls (BAOC);
- Barring of outgoing international calls (BOIC);
- Barring of outgoing international calls except those directed to the home PLMN country (BOIC-exHC);
- Barring of all incoming calls (BAIC);
- Barring of incoming calls when roaming outside the home PLMN country (BIC-roam).

The Call Barring services, implemented by the gsmSCF, should operate in the same way as the Call Barring Supplementary Services. The MSP subscriber should have control over the call barring data (Registration, Erasure, Activation, Deactivation~~,~~ and Interrogation). The method for controlling this data is a network option.

If the MSP subscriber changes the Outgoing Call Barrings for the default profile by contacting the gsmSCF, the gsmSCF will change the barrings stored in the gsmSCF and inform the HLR using ATM to change the barrings stored in the HLR. The Call Barring Supplementary Services may require a password before Call Barring data can be changed. For the Call Barring Services implemented in the gsmSCF, use of a password is a network option.

The operator should ensure that if the equivalent call barring service is provided then:

- The OCB_flag is set in the HLR (See subclause 6.1:OCB_flag).
- If an equivalent outgoing call barring service is in a "Provisioned and Active" state in the gsmSCF for the default profile, that outgoing call barring supplementary service will be in a "Provisioned and Active" state in the HLR.
- If an equivalent outgoing call barring service is in a "Not Active" state in the gsmSCF for the default profile, that outgoing call barring supplementary service will be in a "Not Provisioned" state in the HLR.
- Incoming Call Barrings shall not be provisioned in the HLR.

NOTE: Barrings will not apply to MT short messages.

****** Last Modified Section ******

7.11.3 Operator Determined Barring (ODB)

Operator Determined Barring will be available per profile in the gsmSCF for the following categories:

- Barring of outgoing calls;
- Barring of incoming calls;
- Barring of roaming;
- Barring of outgoing Premium Rate Calls;
- Barring specific to the home PLMN;
- Barring of registration of call forwarding;~~.~~
- Barring of invocation of call transfer.

However, if zone related barring is implemented in the gsmSCF, the appropriate data will be needed in the gsmSCF as well as the HLR. For barring of incoming calls when roaming outside the zone of the home country, the gsmSCF will need to use Any Time Interrogation to establish the location of the called party.

Management of ODB data is operator specific.

The operator should ensure that if the equivalent ODB service for an ODB category is provided then:

- The ODB flag for the correct category is set in the HLR (See subclause 6.2: ODB flags).
- The ODB data for that category for the default profile is duplicated in the HLR

NOTE 1: Barring ~~of outgoing calls and barring~~ of incoming calls in the gsmSCF will not disallow ~~MO or~~ MT short messages.