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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do something

shall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

1 Scope

The network feature Operator Determined Barring (ODB) allows a network operator or service provider to regulate access by subscribers to services (Circuit/Packet Oriented and Interworking WLAN), by the barring of certain categories of incoming or outgoing calls/ Packet Oriented Services or of roaming. Operator Determined Barring applies to all bearer services and teleservices except the Emergency Call teleservice and Emergency Bearer Services; the teleservice Short Message Point-to-Point is therefore subject to Operator Determined Barring in the same way as circuit-switched calls.

The application of specific categories of Operator Determined Barring to a subscription is controlled by the network operator or service provider, using administrative interaction at the HLR; this interface is not standardised.

1.1 Normative 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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TS 21.905: "Abbreviations and acronyms".

[2] 3GPP TS 22.041: "Operator Determined Barring".

[3] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[4] 3GPP TS 23.060: " General Packet Radio Service (GPRS) Service description Stage 2".

[5] 3GPP TS 29.234: Release 11 "3GPP system to Wireless Local Area Network (WLAN) interworking; stage 3".

[6] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[7] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

1.2 Definitions and abbreviations

Abbreviations used in this specification are listed in 3GPP TS 21.905.

2 Method of realisation

The entities which control the application of Operator Determined Barring (ODB), and the methods used, are described in this clause. Two cases are considered for each type of barring: the effect of administrative action in the HLR to modify the application of the category to a particular subscription, and the effect of the category on the handling of calls or other traffic involving the subscriber.

2.1 Barring of Outgoing Calls or Mobile Originated Short Messages

Barring of outgoing calls or mobile originated short messages includes the categories "outgoing calls" and "outgoing premium rate calls" defined in 3GPP TS 22.041 [2], and the "operator specific barring" category where this is defined by the PLMN operator to apply to outgoing calls or mobile originated short messages.

2.1.1 Application or Change of Barring in the HLR

If barring of outgoing calls or mobile originated short messages is applied to a subscription (or existing barring of outgoing calls or mobile originated short messages is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly, and transfer the updated subscription information to the VLR and the SGSN using one or more Insert Subscriber Data operations, as shown in figure 2.1.1/1.

If operator specific barring is applied to a subscription (or existing operator specific barring is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly. If the mobile subscriber is registered in the home PLMN, the HLR will transfer the updated subscription information to the VLR and the SGSN using one or more Insert Subscriber Data operations, as shown in figure2.1.1/ 1.

If the VPLMN does not support Operator Determined Barring of outgoing calls, the VLR and the SGSN shall indicate this in the acknowledgement of the Insert Subscriber Data message. The HLR shall then, as an operator option, apply the Outgoing Calls Barred supplementary service, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

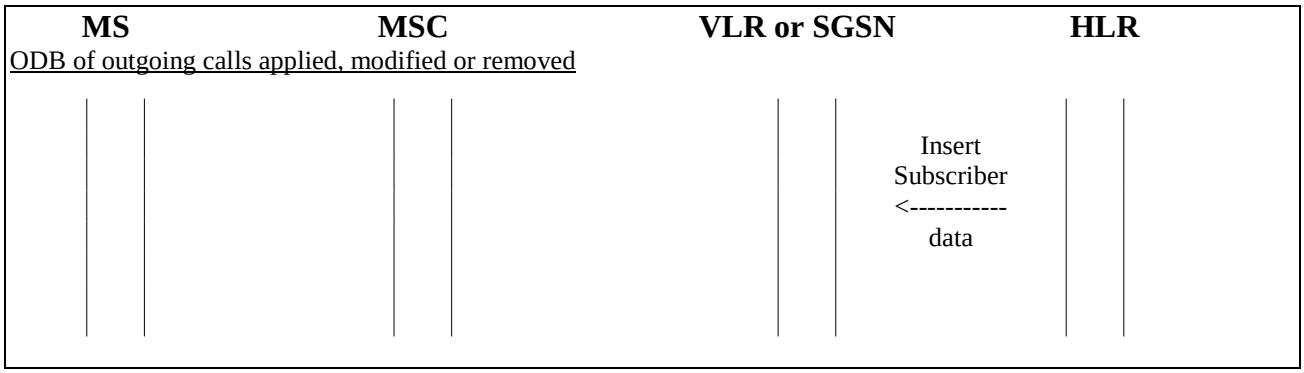

Figure 2.1.1/1: Transfer of updated subscription information to VLR or SGSN

2.1.2 Invocation of Barring

Barring of outgoing calls or mobile originated short messages is invoked in the VLR. If the VLR receives a request for subscription information for an outgoing call or mobile originated short message which is prohibited by Operator Determined Barring, the VLR will return a negative response to the request for subscription information, with an appropriate error indication. The MSC may relay this error indication via the BSS/RNS to the mobile station over the radio path, or (in the case of an outgoing call) may connect the mobile station to an address to be determined by the network operator.

Barring of mobile originated short messages is invoked in the SGSN. If the SGSN receives a request for a mobile originated short message which is prohibited by Operator Determined Barring, the SGSN will return a negative response to the request with an appropriate error indication via the BSS/RNS to the mobile station over the radio path.

Barring of all international calls, barring of all international calls except those directed to the home PLMN country, barring of all premium rate (information) calls or barring of all premium rate (entertainment) calls requires the VLR or the SGSN to analyse the called number to determine whether the requested call is barred.

Barring of all outgoing calls when roaming outside the home PLMN country requires the HLR to determine whether a request for location updating originates from a PLMN outside the home PLMN country. If the request does originate from a PLMN outside the home PLMN country, the HLR will transfer subscription information to the requesting node to indicate that the mobile station is subject to barring of all outgoing calls.

Operator Specific Barring may apply to outgoing or incoming calls, or mobile originated or mobile terminated short messages; if it applies to outgoing calls or mobile originated short messages, it is invoked in the VLR or the SGSN, as described above. If the barring applies to calls directed to a specific class of destination, the called number must be analysed to determine whether the requested call is barred.

Indicative message flow diagrams for the handling of Operator Determined Barring of outgoing calls or mobile originated short messages are given in figures 2.1.2/1 and 2.1.2/2. For the case where the mobile station is connected to an address determined by the network operator, this address is assumed to be directly connected to the MSC, so that no inter-MSC signalling is required.

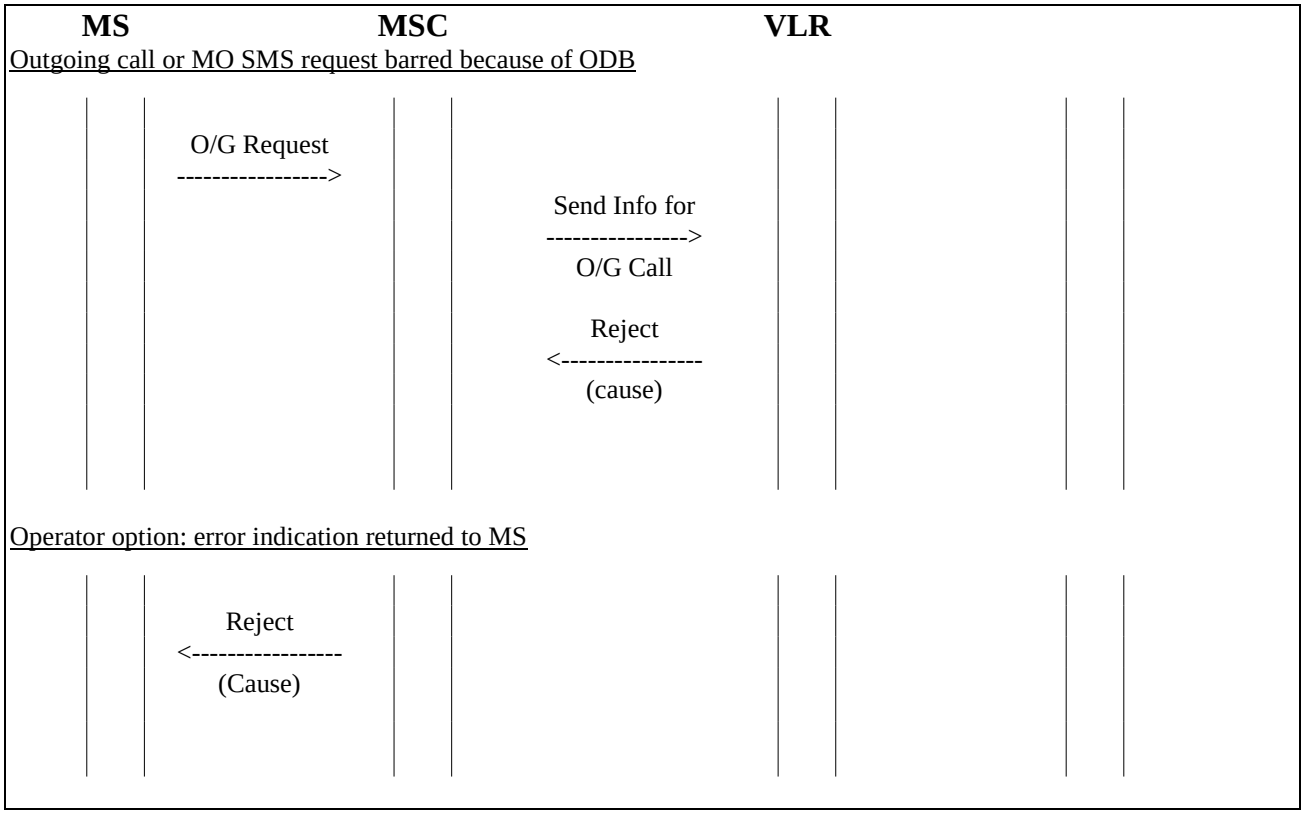

Figure 2.1.2/1: Operator Determined Barring of Outgoing Calls or Mobile Originated Short Messages invocation in the VLR

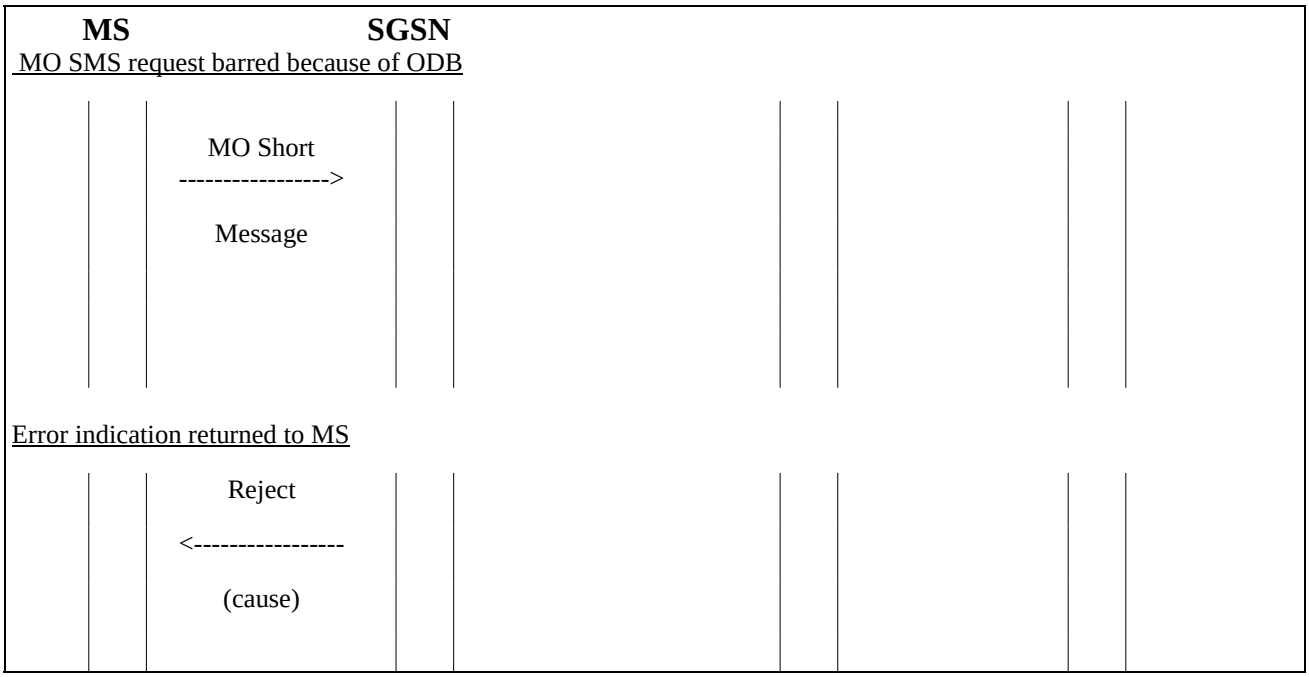

Figure 2.1.2/2: Operator Determined Barring of Mobile Originated Short Messages invocation in the SGSN

2.2 Barring of Incoming Calls or Mobile Terminated Short Messages

2.2.1 Application or Change of Barring in the HLR

If barring of incoming calls or mobile terminated short messages is applied to a subscription (or existing barring of incoming calls or mobile terminated short messages is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly. It is not necessary to transfer the updated subscription information to the VLR or the SGSN.

2.2.2 Invocation of Barring

Barring of incoming calls is invoked in the HLR. If the HLR receives a request for routing information for a call directed to a mobile station which is subject to barring of incoming calls, the HLR will return a negative response to the request for routing information, with an appropriate error indication. The Gateway MSC may relay this error indication to the originating network using the appropriate telephony signalling system, or may connect the call to a recorded announcement to be determined by the network operator.

Barring of mobile terminated short messages is invoked in the HLR. If the HLR receives a request for routing information for a short message directed to a mobile station which is subject to barring of incoming calls, the HLR will return a negative response to the request for routing information, with an appropriate error indication. This error indication will be relayed to the originating Short Message service centre by the Gateway MSC using the protocol defined in 3GPP TS 23.040.

Operator Specific Barring may apply to outgoing or incoming calls, or mobile originated or mobile terminated short messages; if it applies to incoming calls or mobile terminated short messages, it is invoked in the HLR, as described above.

An indicative message flow diagram for the handling of Operator Determined Barring of incoming calls is given in figure 2.2.2/1. For the case where the call is connected to an address determined by the network operator, this address is assumed to be directly connected to the GMSC, so that no inter-MSC signalling is required.

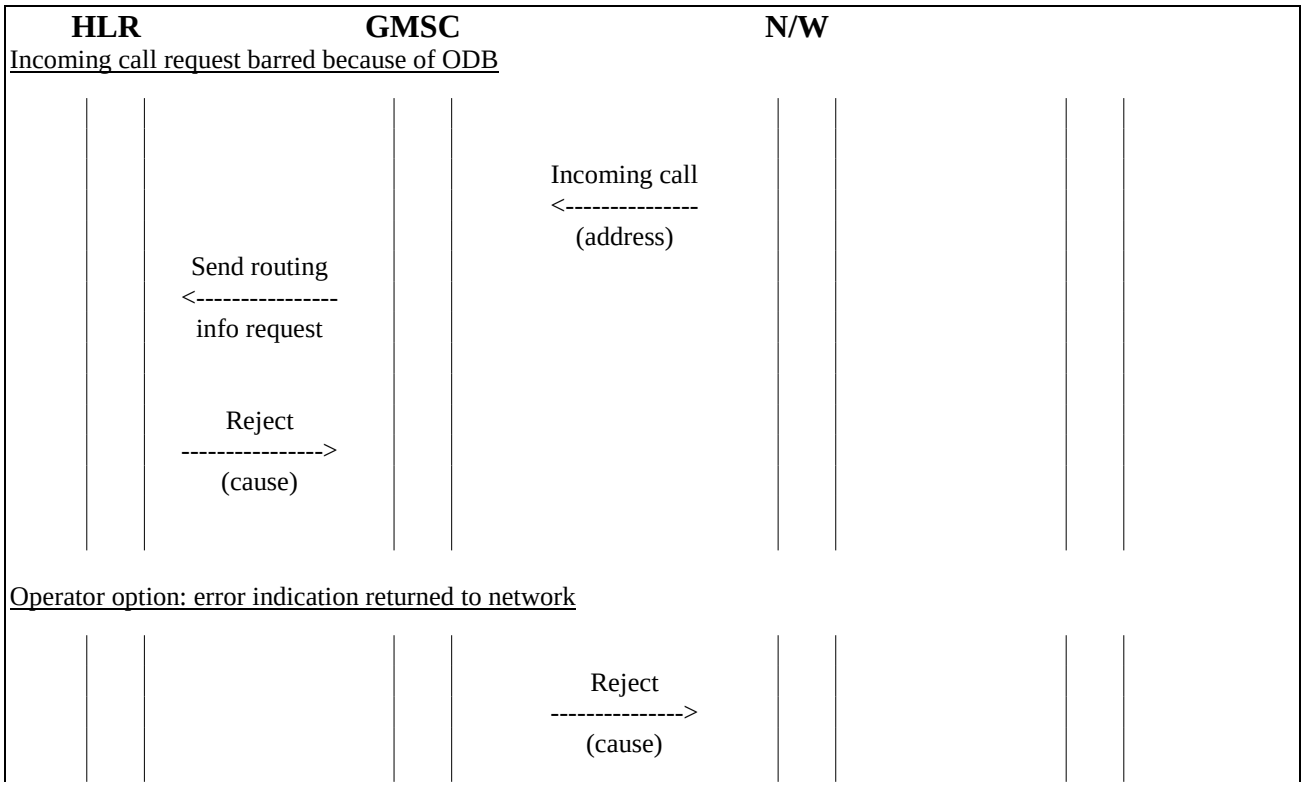

Figure 2.2.2/1: Operator Determined Barring of Incoming Calls

An indicative message flow diagram for the handling of Operator Determined Barring of mobile terminated short messages is given in figure 2.2.2/2.

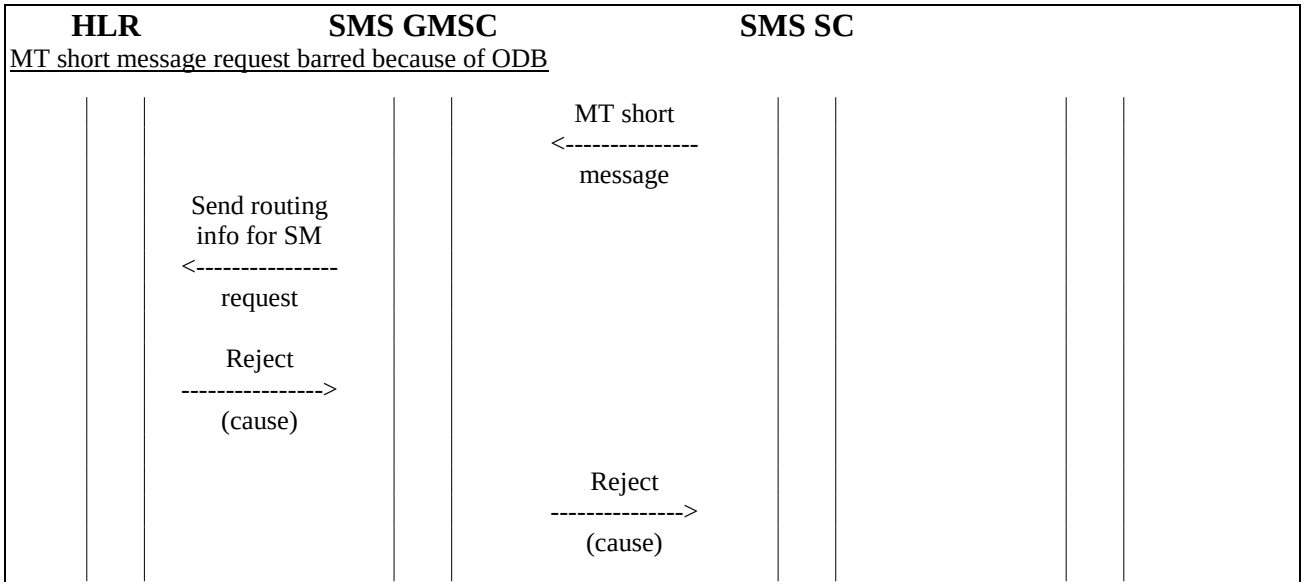

Figure 2.2.2/2: Operator Determined Barring of Mobile Terminated Short Messages

2.3 Barring of Roaming

2.3.1 Application or Change of Barring in the HLR/HSS/UDM

If barring of roaming is applied to a subscription (or modified or removed) by administrative action in the HLR/HSS/UDM, the HLR/HSS/UDM shall update the subscription information accordingly. If the HLR/HSS/UDM determines from the identity of the VLR and/or the SGSN and/or MME and/or the AMF that the mobile subscriber is currently registered in a barred PLMN, the HLR/HSS/UDM shall put the barring into effect by using a Cancel Location operation to the VLR and/or the SGSN and /or to the MME when applied in HLR/HSS or a UECM Deregistration to AMF when applied in UDM, as shown in figure 2.3.1/1. In the 5G Core case, barring of roaming may be stored in UDR. Upon change of barring of roaming in UDR, UDM clears also user registration in UDR using Nudr_DM_Update operation and unsubscribes to changes on barring of roaming data using Nudr_DM_Unsubscribe operation.

If the mobile subscriber is not currently registered in a barred PLMN, the HLR/HSS/UDM shall take no further action.

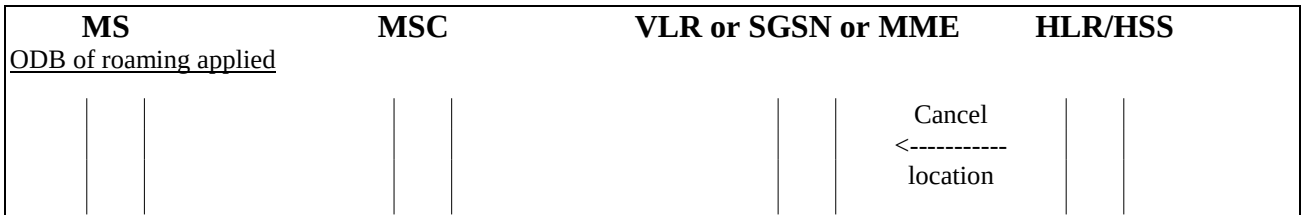

Figure 2.3.1/1: Immediate Application of Barring of Roaming in HLR/HSS

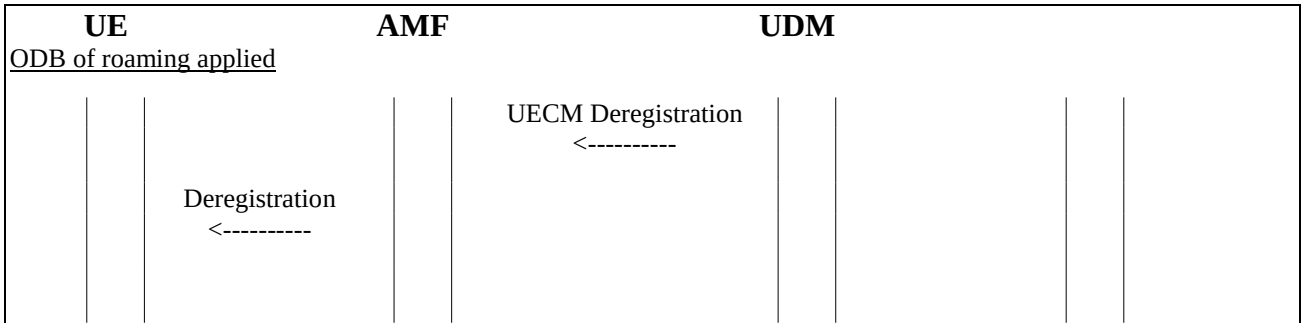

Figure 2.3.1/2: Immediate Application of Barring of Roaming in UDM

2.3.2 Invocation of Barring

Barring of roaming is invoked in the HLR/HSS/UDM. If the HLR receives a request from a VLR for location updating for a mobile which is attempting to roam to an area prohibited by Operator Determined Barring, the HLR shall reject the location updating request with an appropriate error indication and this error indication shall be relayed by the MSC and the BSS/RNS to the mobile station over the radio path. If the HLR receives a request from a SGSN for location updating for a mobile which is attempting to roam to an area prohibited by Operator Determined Barring, the HLR shall reject the location updating request with an appropriate error indication and this error indication shall be relayed by the SGSN and the BSS/RNS to the mobile station over the radio path. If the HSS receives a request from a MME for location updating for a mobile which is attempting to roam to an area prohibited by Operator Determined Barring, the HSS shall reject the location updating request with an appropriate error indication and this error indication shall be relayed by the MME to the mobile station over the radio path. If the UDM receives a request from an AMF for 5G registration for a user equipment who is attempting to roam to an area prohibited by Operator Determined Barring, the UDM shall reject the registration request with an appropriate error indication and this error indication shall be relayed by the AMF to the user equipment over the radio path.

In the 5G Core case, barring of roaming can be optionally stored in UDR. Upon change of barring of roaming in UDR, UDM clears also user registration in UDR using Nudr_DM_Update operation and unsubscribes to changes on barring of roaming data using Nudr_DM_Unsubscribe operation.

Indicative message flow diagrams for the handling of Operator Determined Barring of roaming are given in figures 2.3.2/1, 2.3.2/2, 2.3.2/3 and 2.3.2/4.

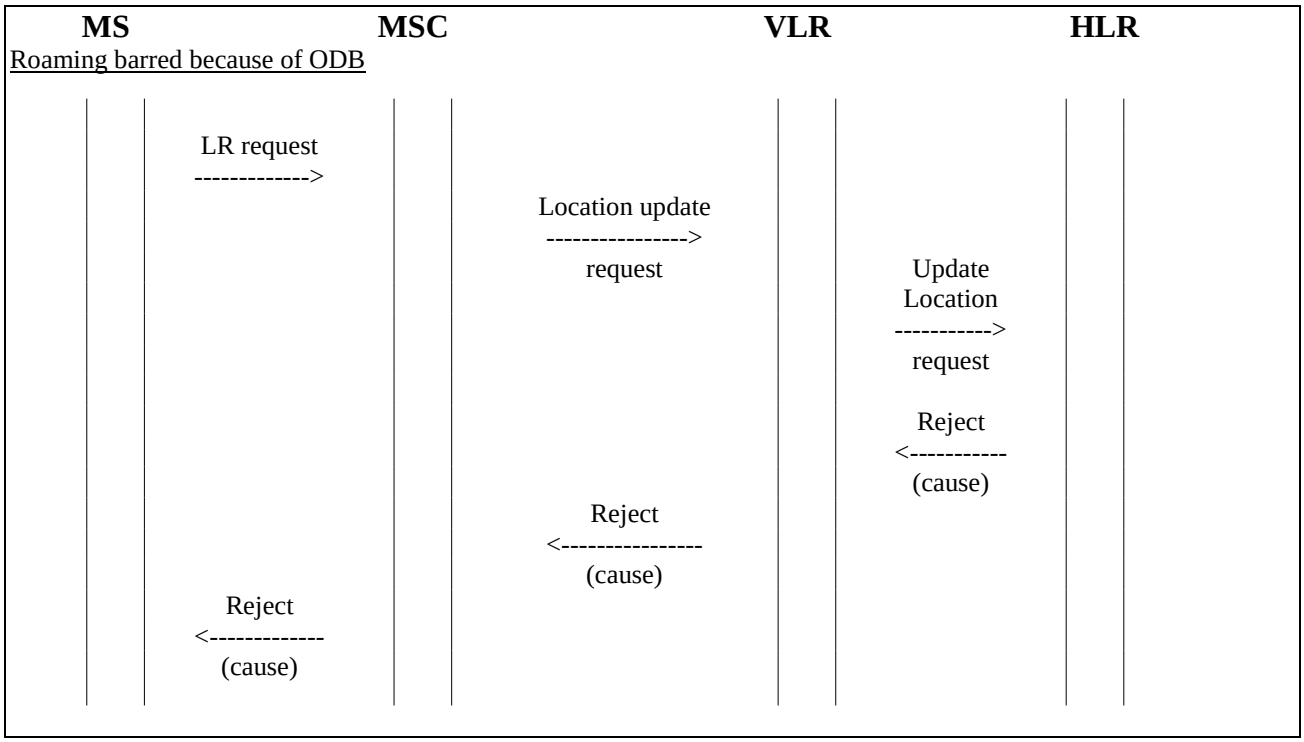

Figure 2.3.2/1: Operator Determined Barring of Roaming invocation in HLR. Roaming in a prohibited VLR

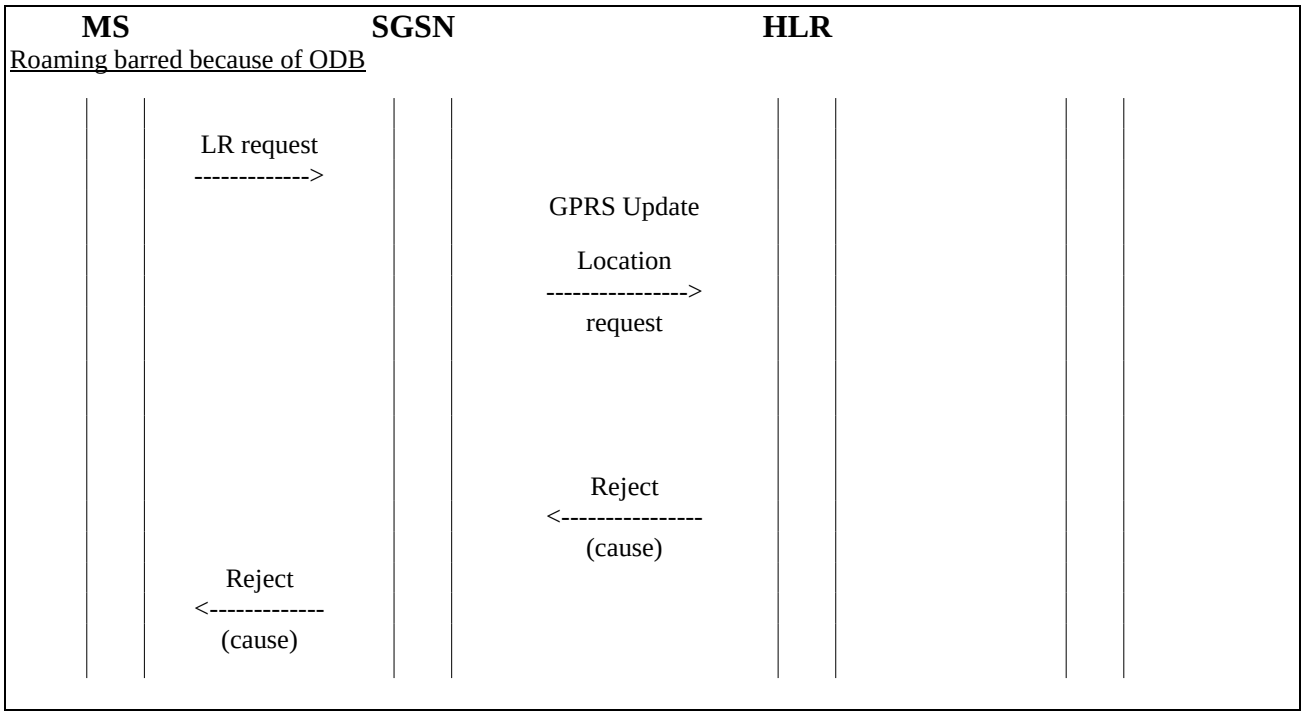

Figure 2.3.2/2: Operator Determined Barring of Roaming invocation in HLR. Roaming in a prohibited SGSN

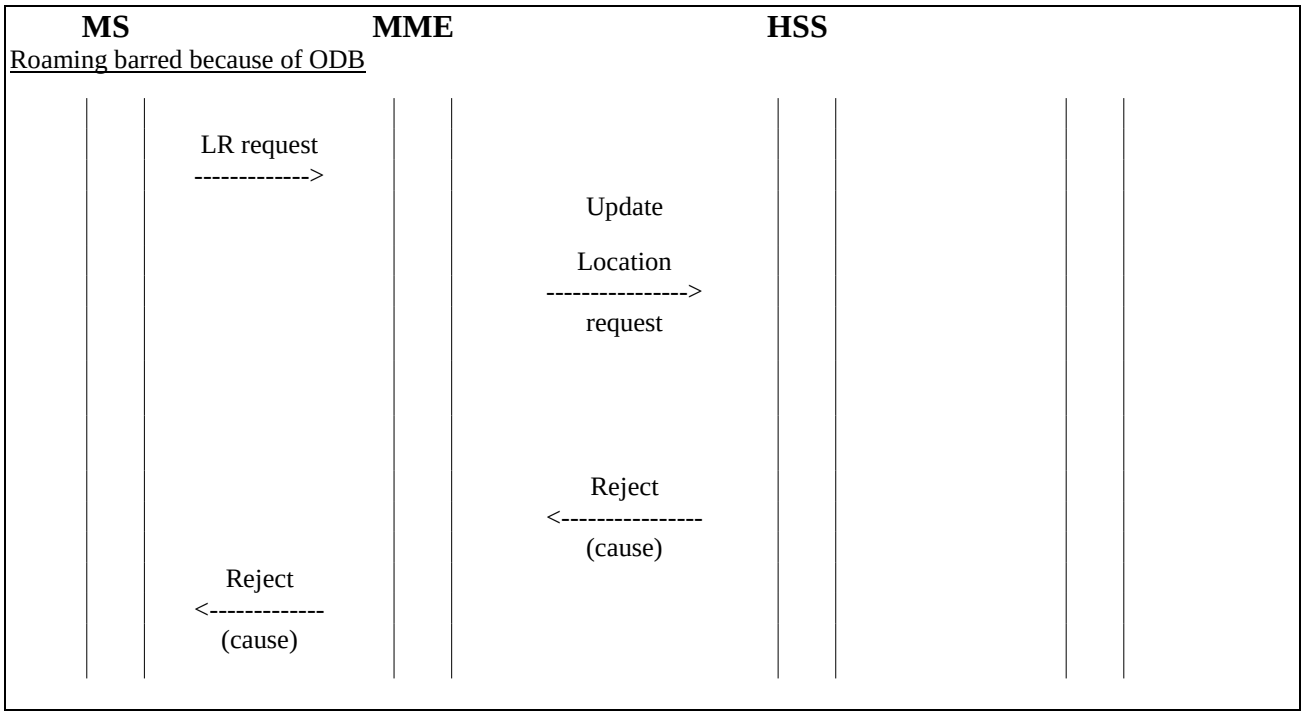

Figure 2.3.2/3: Operator Determined Barring of Roaming invocation in HSS. Roaming in a prohibited MME

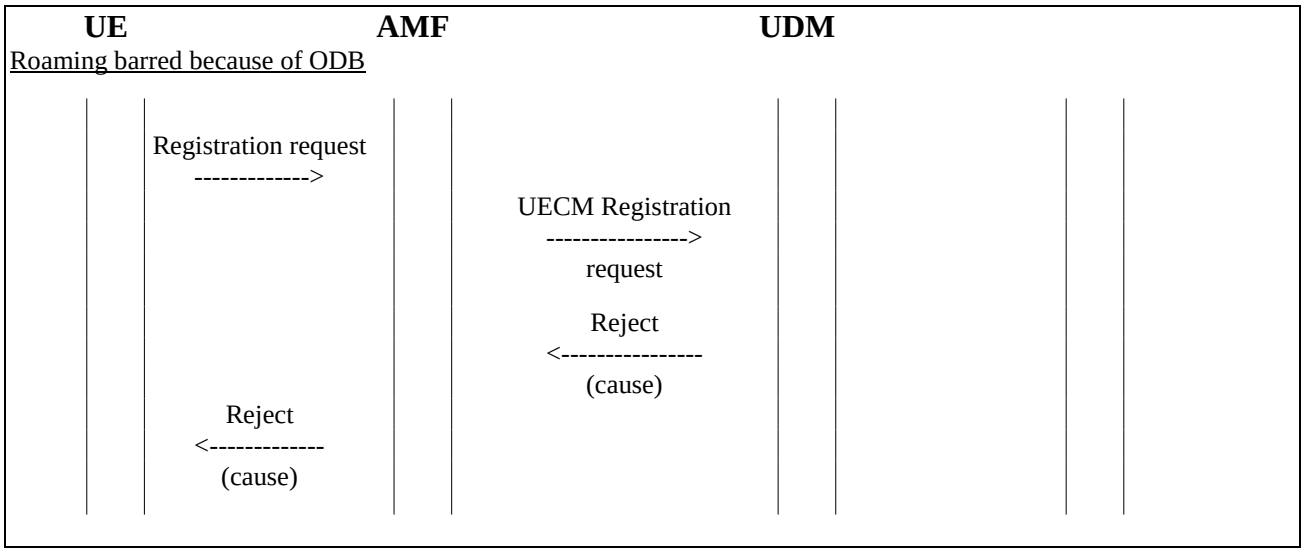

Figure 2.3.2/4: Operator Determined Barring of Roaming invocation in UDM. Roaming in a prohibited AMF

2.4 Barring of Supplementary Services Access

Barring of supplementary services access encompasses the general barring of supplementary services management category specified in 3GPP TS 22.041 [2] and the specific categories of barring of registration of a call forwarded-to number and barring of invocation of call transfer.

2.4.1 Application or Change of Barring in the HLR

If barring of supplementary services access is applied to a subscription (or existing barring of supplementary services access is modified or removed) by administrative action in the HLR, the HLR will update the subscription information

accordingly, and, if necessary, transfer the updated subscription information to the VLR using one or more Insert Subscriber Data operations, as shown in figure 2.1.1/1.

If the VPLMN does not support Operator Determined Barring of supplementary service access, the VLR shall indicate this in the acknowledgement to the Insert Subscriber Data message. The HLR shall then, as an operator option, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

2.4.2 Invocation of Barring

Barring of supplementary services access is invoked in the HLR or the VLR, depending on the supplementary service operation.

Barring of access to the following supplementary service operations is invoked in the HLR:

- registration;
- erasure;
- activation;
- deactivation;
- password registration;
- processing unstructured SS data.

An indicative message flow diagram for the handling in the HLR of Operator Determined Barring of access to supplementary services is given in figure 2.4.2/1.

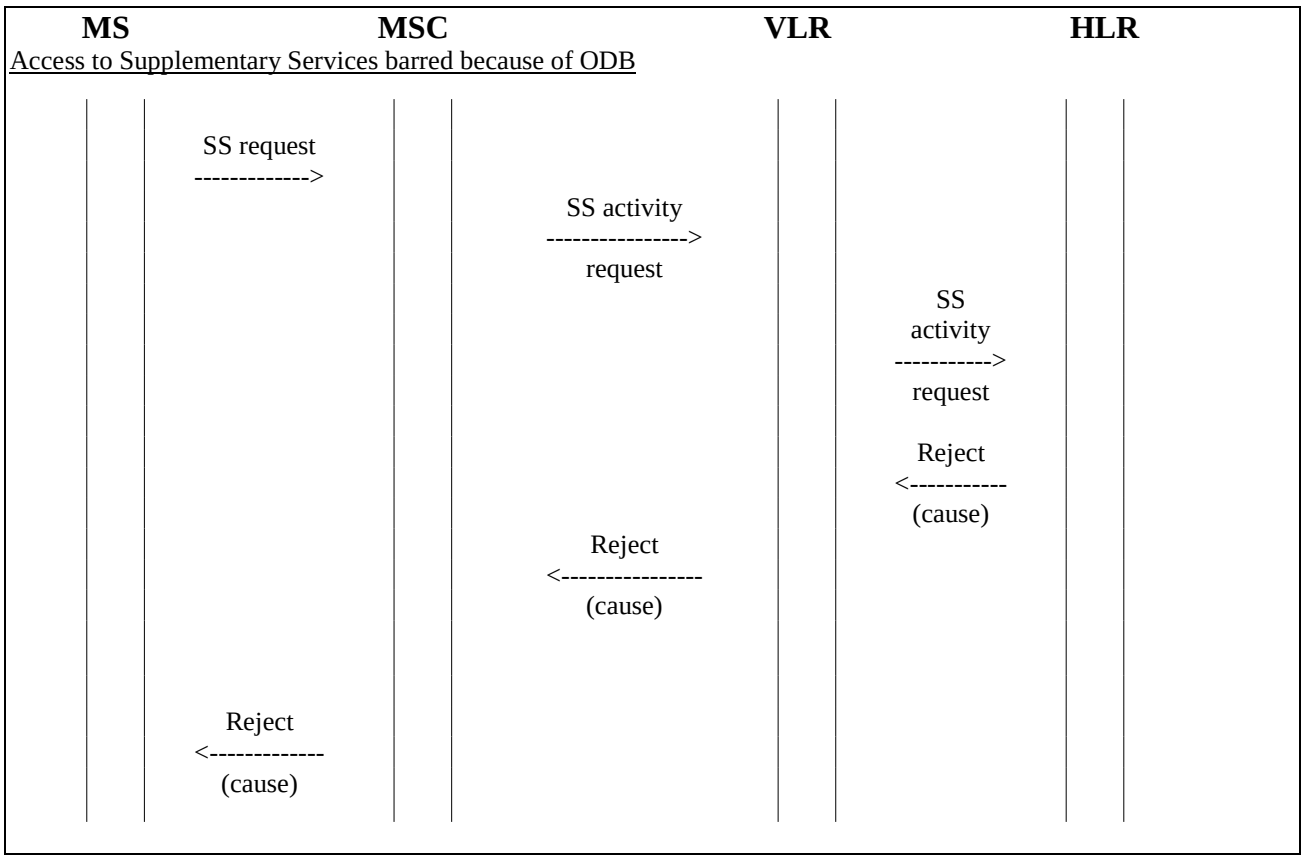

Figure 2.4.2/1: Operator Determined Barring of Access to Supplementary Services in the HLR

NOTE 1: Although the HLR handles interrogation of some supplementary services, Operator Determined Barring of interrogation of all supplementary services is invoked in the VLR. This reduces the amount of analysis which the VLR must perform on supplementary service requests before deciding whether to relay a supplementary service request to the HLR or reject it because of Operator Determined Barring of access to supplementary services. Operator Determined Barring of control of PLMN specific supplementary services is invoked in the VLR for the same reason.

NOTE 2: Although the VLR handles some processing of unstructured SS data, and therefore has to check for Operator Determined Barring of access to supplementary services, a check is also specified in the HLR to guard against the case where the VLR does not support Operator Determined Barring of access to supplementary services.

Barring of access to the following supplementary service operations is invoked in the VLR:

- interrogation;
- invocation;
- control of PLMN specific supplementary services;
- processing unstructured SS data.

An indicative message flow diagram for the handling in the VLR of Operator Determined Barring of access to supplementary services is given in figure 2.4.2/2.

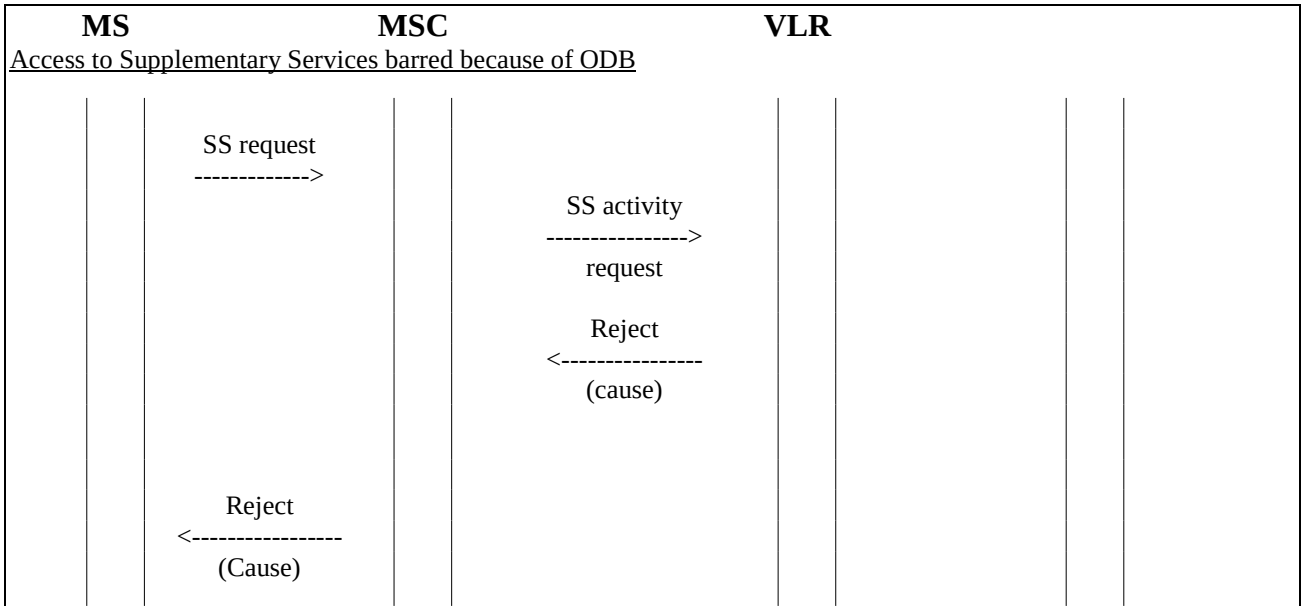

Figure 2.4.2/2: Operator Determined Barring of Access to Supplementary Services in the VLR

2.4.3 Operator Determined Barring of access to supplementary service not supported in VLR

If the VLR does not support Operator Determined Barring of access to supplementary services the HLR shall take the following actions:

The VLR supports only phase 1:

If the HLR receives a request which should normally be barred by the VLR the HLR shall reject the request with the appropriate phase 1 error (illegal SS operation or system failure).

The VLR supports phase 2 but does not support this Operator Determined Barring category:

If the HLR receives a request which should normally be barred by the VLR the HLR shall reject the request instead of the VLR.

Note that requests handled locally by the VLR (e.g. interrogation) will not be barred.

2.5 Barring of MS initiated PDP context activation

Barring of MS initiated PDP context activation shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3G TS 22.041 [2].

2.5.1 Application or Change of Barring in the HLR

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly, and transfer the updated subscription information to the SGSN using one or more Insert Subscriber Data operations, as shown in figure 2.5.1/1.

If the VPLMN does not support Operator Determined Barring of Packet Oriented Services, the SGSN shall indicate this in the acknowledgement of the Insert Subscriber Data message. The HLR shall then, as an operator option, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

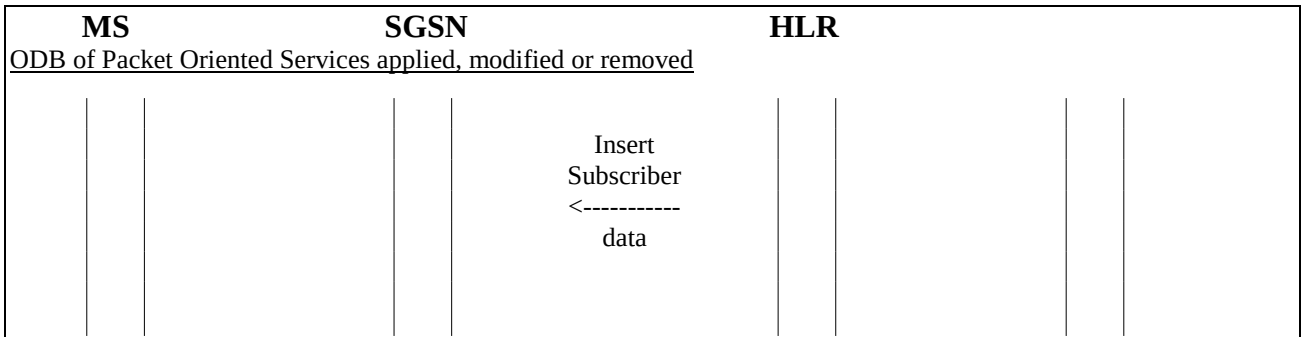

Figure 2.5.1/1: Transfer of updated subscription information to SGSN

2.5.2 Invocation of Barring

Barring of MS initiated PDP context activation is invoked in the SGSN. If the SGSN receives a request for an MS initiated PDP context activation which is prohibited by Operator Determined Barring, the SGSN will return a negative response to the request with an appropriate error indication via the BSS/RNS to the mobile station over the radio path.

NOTE: Barring of MS initiated PDP context activation for Packet Oriented Services is not applicable for Local IP Access (LIPA).

Barring of MS initiated PDP context activation is performed in the SGSN while the SGSN selects the APN and GGSN. The APN operator identifier, a part of selected APN is referred to make a judgement whether to be barred or not. The detail mechanism of the ODB judgement is specified in the 3G TS 23.060 [4].

Indicative message flow diagram for the handling of Operator Determined Barring of MS initiated PDP context activation is given in figures 2.5.2/1.

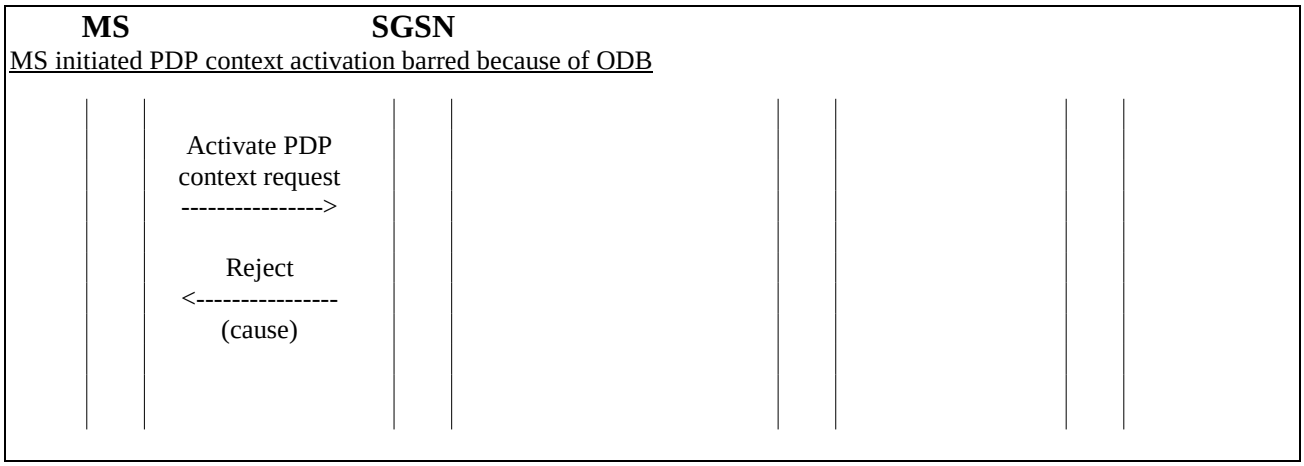

Figure 2.5.2/1: Operator Determined Barring of MS initiated PDP context activation in the SGSN

2.5A Barring of EPS Bearer context establishment

Barring of EPS Bearer context establishment shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3GPP TS 22.041 [2].

2.5A.1 Application or Change of Barring in the HSS

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HSS, the HSS shall update the subscription information accordingly, and transfer the updated subscription information to the MME using one or more Insert Subscriber Data operations, as shown in figure 2.5A.1/1.

If the VPLMN does not support Operator Determined Barring of Packet Oriented Services, the MME shall indicate this in the acknowledgement of the Insert Subscriber Data message. The HSS shall then, as an operator option, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

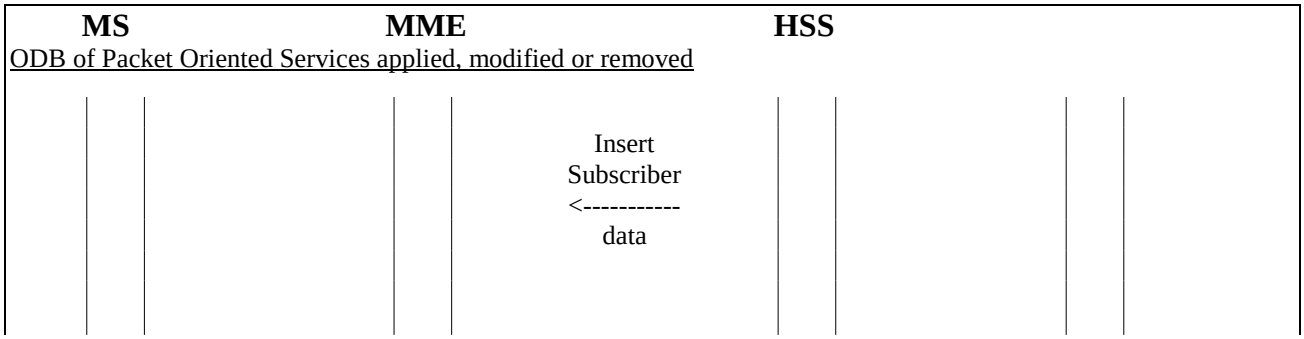

Figure 2.5A.1/1: Transfer of updated subscription information to MME

2.5A.2 Invocation of Barring

Barring of EPS Bearer context establishment is invoked in the MME. If the MME receives from an UE connected over E-UTRAN an attach or PDN connectivity request which is prohibited by Operator Determined Barring, the MME shall return a negative response to the request with an appropriate error indication to the UE over the E-UTRAN radio path.

NOTE: Barring of EPS Bearer context establishment for Packet Oriented Services is not applicable for Local IP Access (LIPA).

For subscribers completely barred from the Packet Oriented Services, the MME shall reject attach requests.

Barring of EPS Bearer context establishsment for other barring categories for the Packet Oriented Services requires the MME to selects the APN and PDN-GW before it can determine whether a request for EPS Bearer context establishment shall be barred or not:

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN", MME shall check whether or not the subscriber is located in the HPLMN. If it is not and the PDN-GW being accessed is located in HPLMN, then the MME shall reject the attach or PDN connectivity request,

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the roamed to VPLMN", MME shall check whether or not the subscriber is located in the HPLMN. If it is not and the PDN-GW being accessed is located in VPLMN, then the MME shall reject the attach or PDN connectivity request.

Indicative message flow diagram for the handling of Operator Determined Barring of EPS Bearer context establishment is given in figures 2.5A.2/1.

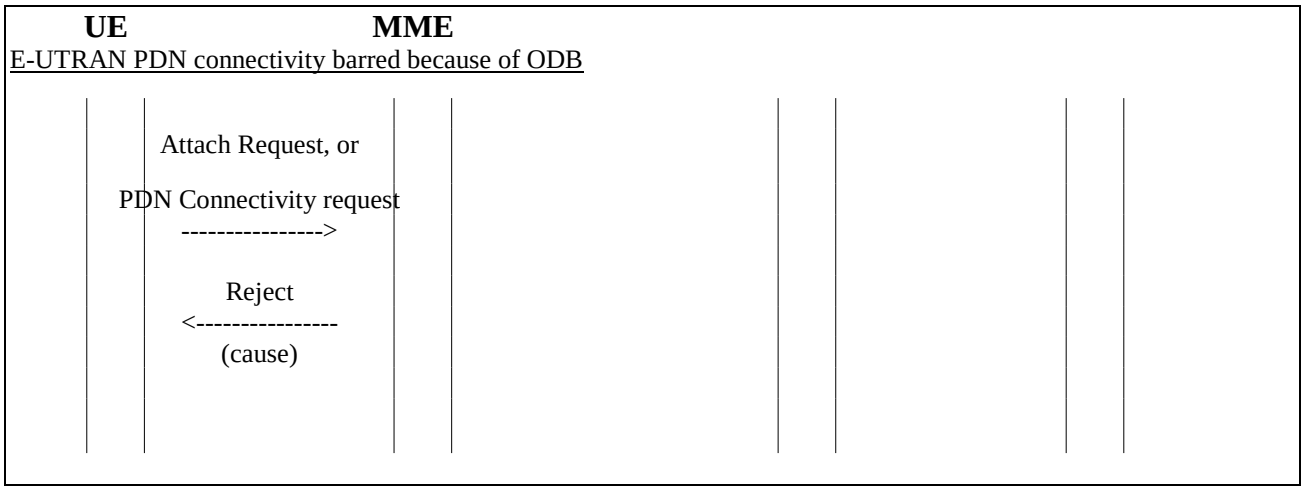

Figure 2.5A.2/1: Operator Determined Barring of EPS Bearer Context Establishment in the MME

2.5B Barring of PDU Session establishment

Barring of PDU Session establishment shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3GPP TS 22.041 [2].

2.5B.1 Application or Change of Barring in the UDM

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the UDM, the UDM shall update the subscription information accordingly, and transfer the updated subscription information to the AMF/SMF using Nudm_SDM Notification operation, as shown in figure 2.5B.1/1.

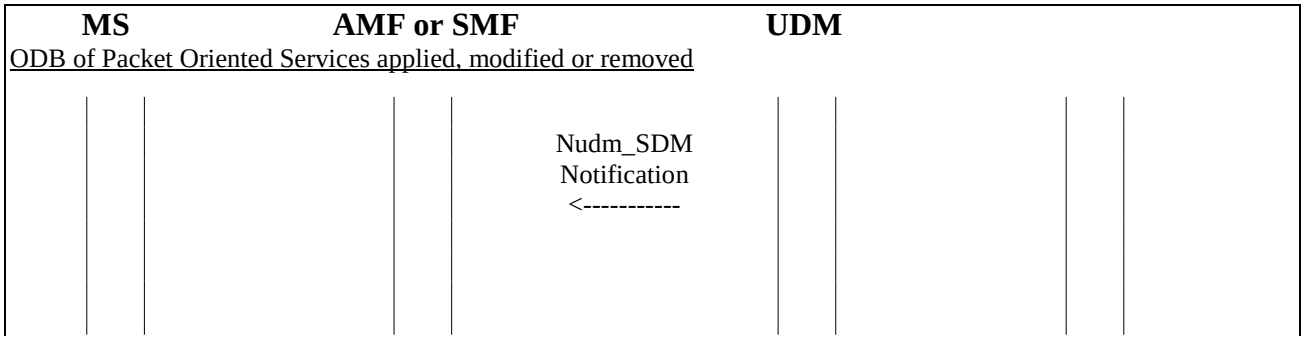

Figure 2.5B.1/1: Transfer of updated subscription information to AMF/SMF

2.5B.2 Invocation of Barring

Barring of PDU Session establishment is invoked in the SMF. If the SMF receives from an UE connected over 5GS a PDU Session connectivity request which is prohibited by Operator Determined Barring, the SMF shall return a negative response to the request with an appropriate error indication to the UE over the 5G radio path.

NOTE: Barring of PDU Session establishment for Packet Oriented Services is not applicable for Local Access Data Network (LADN).

For subscribers completely barred from the Packet Oriented Services, the AMF may reject the registration requests.

Barring of PDU Session establishment for other barring categories for the Packet Oriented Services, the SMF determines whether a request for PDU Session establishment shall be barred or not based on the subscription data from UDM as below:

- For "bar subscribers completely from the Packet Oriented Services", the SMF shall reject the PDU connectivity request.
- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN", if the subscriber is not located in the HPLMN and the SMF being accessed is located in HPLMN, then the SMF shall reject the PDU connectivity request,
- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the roamed to VPLMN", if the subscriber is not located in the HPLMN and the SMF being accessed is located in VPLMN, then the SMF shall reject the PDU connectivity request.

The AMF may also determine a request for PDU Session establishment shall be barred or not based on above scenarios and indicate the SMF to reject the request.

Indicative message flow diagram for the handling of Operator Determined Barring of PDU Session establishment is given in figures 2.5B.2/1.

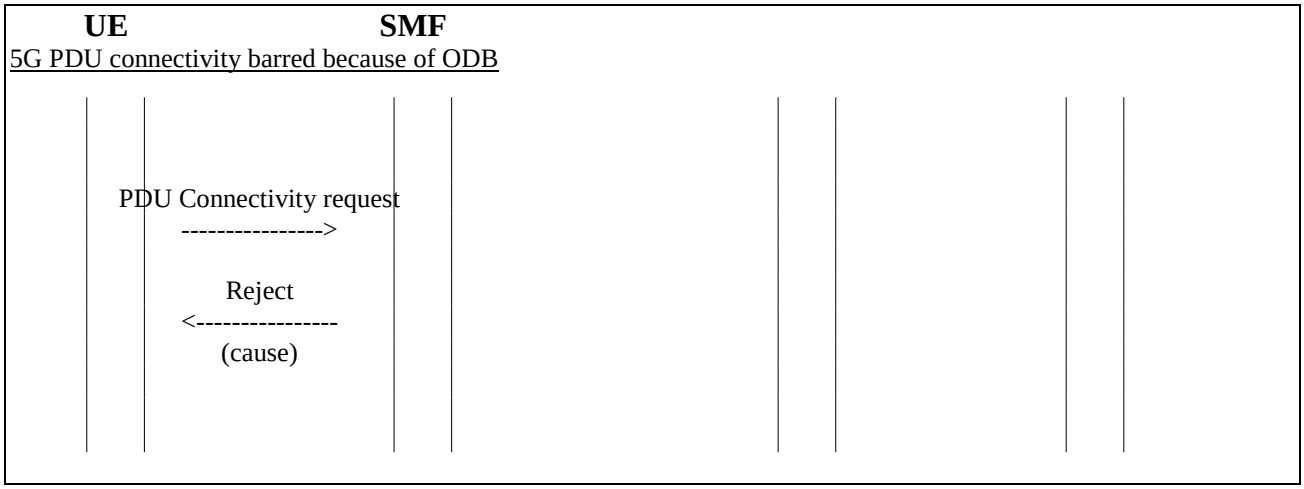

Figure 2.5B.2/1: Operator Determined Barring of PDU Session Establishment in the SMF

2.6 Barring of Network initiated PDP context activation

Barring of Network initiated PDP context activation shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3G TS 22.041 [2].

2.6.1 Application or Change of Barring in the HLR

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly. It is not necessary to transfer the updated subscription information to the SGSN.

2.6.2 Invocation of Barring

Barring of Network initiated PDP context activation is invoked in the HLR. If the HLR receives a request for routing information for a PDP context activation directed to a mobile station which is subject to barring of Packet Oriented Services, the HLR will return a negative response to the request for routing information, with an appropriate error indication. The GGSN may relay this error indication to the PDP PDU incoming network using the appropriate interworking.

An indicative message flow diagram for the handling of Operator Determined Barring of Network initiated PDP context activation is given in figure 2.6.2/1.

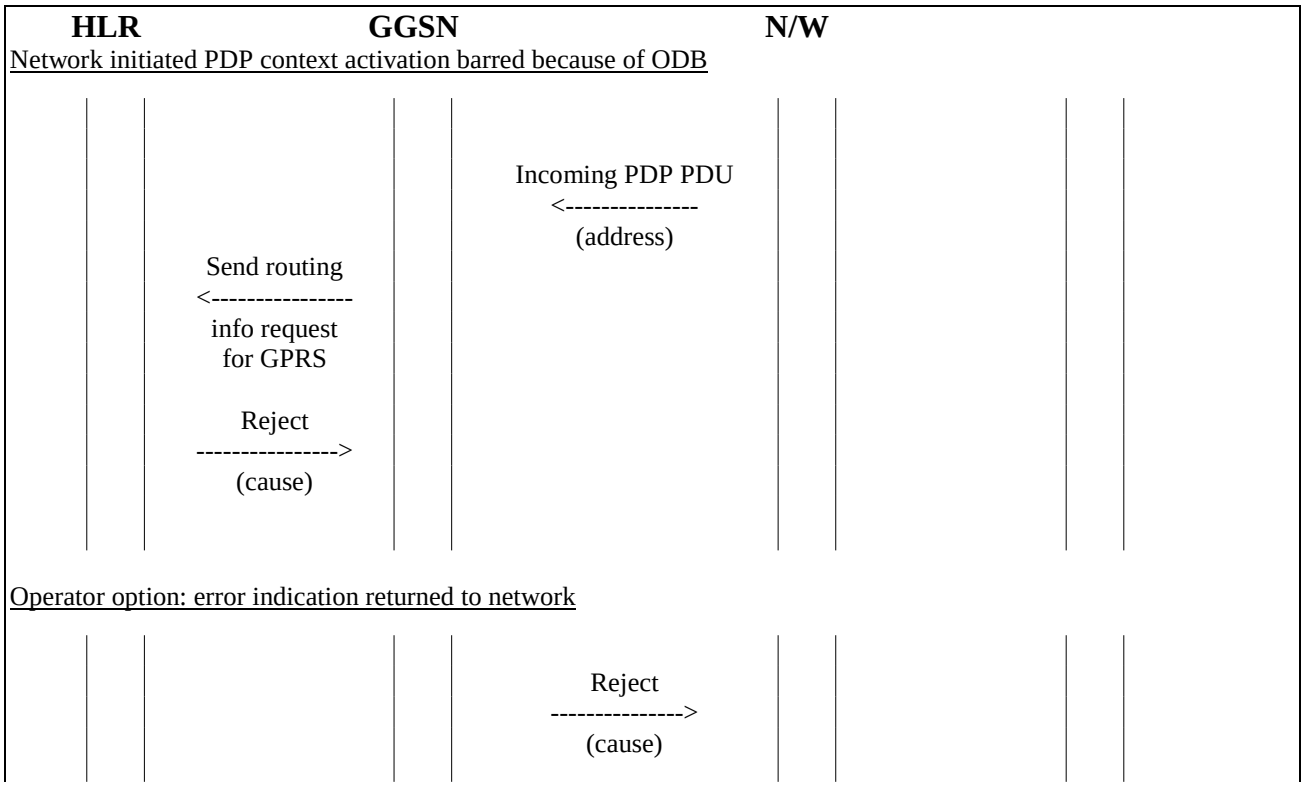

Figure 2.6.2/1: Operator Determined Barring of Network initiated PDP context activation

2.6A Barring of existing PDP contexts

Barring of existing PDP contexts shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3G TS 22.041 [2].

2.6A.1 Application or Change of Barring in the HLR

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HLR, the HLR will update the subscription information accordingly, and transfer the updated subscription information to the SGSN using one or more Insert Subscriber Data operations, as shown in figure 2.6A.1/1.

If the VPLMN does not support Operator Determined Barring of Packet Oriented Services, the SGSN shall indicate this in the acknowledgement of the Insert Subscriber Data message. The HLR shall then, as an operator option, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

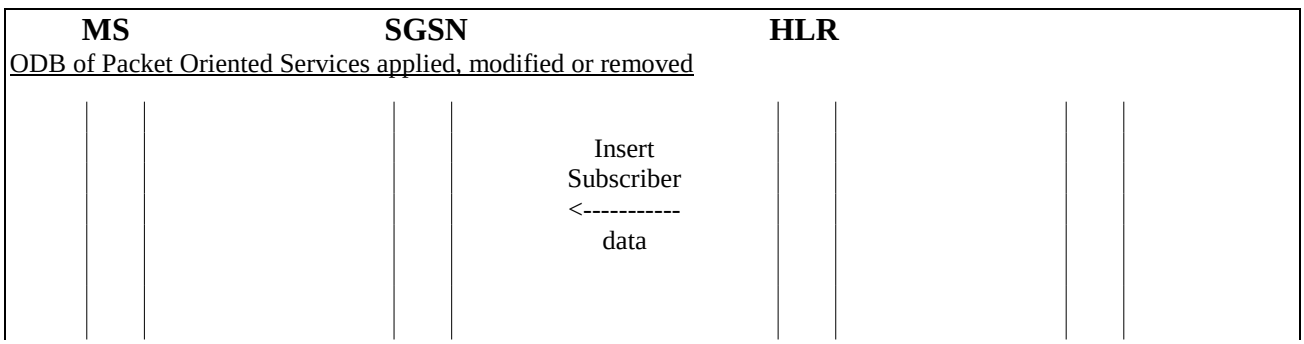

Figure 2.6A.1/1: Transfer of updated subscription information to SGSN

2.6A.2 Invocation of Barring

Barring of existing PDP contexts is invoked in the SGSN. If the SGSN receives Insert Subsciber Data message due to barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HLR, the SGSN shall take the following action depending on barring category when one or more PDP contexts exist in SGSN.

- For "bar subscribers completely from the Packet Oriented Services", SGSN shall deactivate all existing PDP contexts.
- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN", SGSN shall check whether or not the subscriber is located in the HPLMN. If it is not and the GGSN being accessed is located in HPLMN, then all associated PDP contexts with this path shall be deactivated..
- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the roamed to VPLMN", SGSN shall check whether or not the subscriber is located in the HPLMN. If it is not and the GGSN being accessed is located in VPLMN, then all associated PDP contexts with this path shall be deactivated.

NOTE: Barring of existing PDP contexts for Packet Oriented Services is not applicable for Local IP Access (LIPA).

2.6B Barring of existing EPS Bearer contexts

Barring of existing EPS Bearer contexts shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3GPP TS 22.041 [2].

2.6B.1 Application or Change of Barring in the HSS

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HSS, the HSS shall update the subscription information accordingly, and transfer the updated subscription information to the MME using one or more Insert Subscriber Data operations, as shown in figure 2.6B.1/1.

If the VPLMN does not support Operator Determined Barring of Packet Oriented Services, the MME shall indicate this in the acknowledgement of the Insert Subscriber Data message. The HSS shall then, as an operator option, apply barring of roaming as described in clause 2.3 or take any other action decided by the operator of the HPLMN.

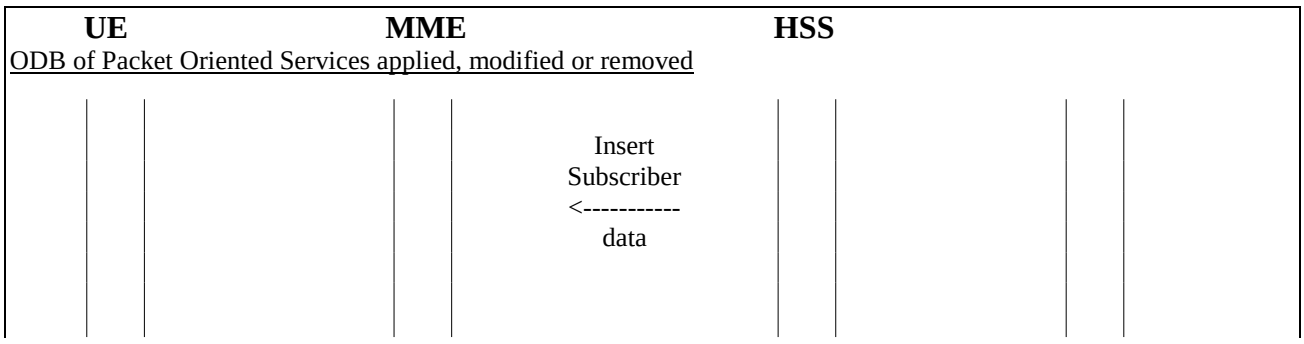

Figure 2.6B.1/1: Transfer of updated subscription information to MME

2.6B.2 Invocation of Barring

Barring of existing EPS Bearer contexts is invoked in the MME. If the MME receives Insert Subscriber Data message due to barring of Packet Oriented Services being applied to a subscription (or existing barring of Packet Oriented Services is modified) by administrative action in the HSS, the MME shall take the following action depending on barring category when one or more EPS Bearer contexts exist in MME.

- For "bar subscribers completely from the Packet Oriented Services", MME shall deactivate all existing EPS Bearer contexts.

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN", MME shall check whether or not the subscriber is located in the HPLMN. If it is not and the PDN-GW being accessed is located in HPLMN, then all associated EPS Bearer contexts with this path shall be deactivated.

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the roamed to VPLMN", MME shall check whether or not the subscriber is located in the HPLMN. If it is not and the PDN-GW being accessed is located in VPLMN, then all associated EPS Bearer contexts with this path shall be deactivated.

NOTE: Barring of existing EPS Bearer contexts for Packet Oriented Services is not applicable for Local IP Access (LIPA).

2.6C Barring of existing PDU Sessions

Barring of existing PDU Sessions shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3GPP TS 22.041 [2].

2.6C.1 Application or Change of Barring in the UDM

If barring of Packet Oriented Services is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the UDM, the UDM shall update the subscription information accordingly, and transfer the updated subscription information to the AMF using Nudm_SDM Notification operation, as shown in figure 2.6C.1/1.

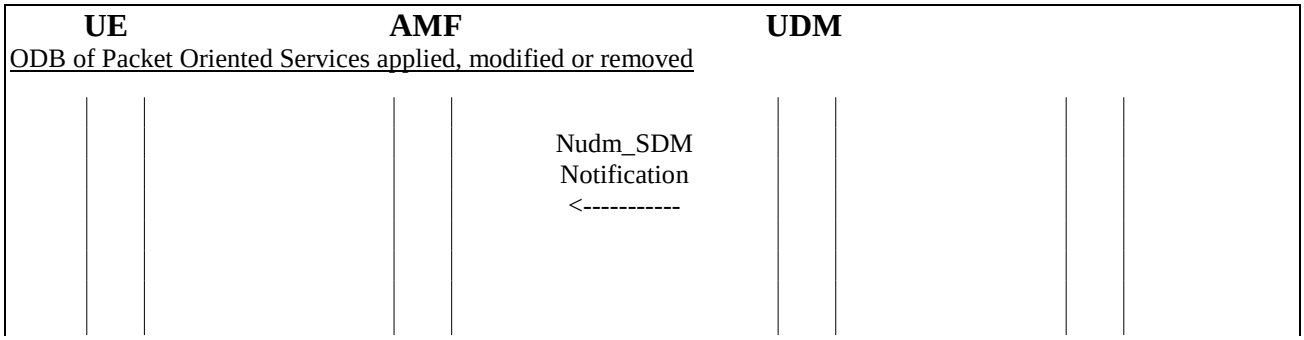

Figure 2.6C.1/1: Transfer of updated subscription information to AMF

2.6C.2 Invocation of Barring

Barring of existing PDU Sessions is invoked in the AMF. If the AMF receives Nudm_SDM Notification message due to barring of Packet Oriented Services being applied to a subscription (or existing barring of Packet Oriented Services is modified) by administrative action in the UDM, or if the new AMF received the barring of Packet Oriented Services from the UDM during a mobility registration procedure, the AMF shall take the following action depending on barring category when one or more PDU Sessions exist in AMF.

- For "bar subscribers completely from the Packet Oriented Services", AMF shall request SMF to release all existing PDU Sessions.

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN", AMF shall check whether or not the subscriber is located in the HPLMN. If it is not and the SMF being accessed is located in HPLMN, then all associated PDU Sessions with this path shall be released by the SMF on request of the AMF.

- For "bar a subscriber from requesting Packet Oriented Services from access points that are within the roamed to VPLMN", AMF shall check whether or not the subscriber is located in the HPLMN. If it is not and the SMF being accessed is located in VPLMN, then all associated PDU sessions with this path shall be released by the SMF on request of the AMF.

NOTE: Barring of existing EPS Bearer contexts for Packet Oriented Services is not applicable for Local Access Data Network (LADN).

2.7 Interactions of Operator Determined Barring with Supplementary Services

The following interactions of Operator Determined Barring with supplementary services have been identified:

2.7.1 Call Forwarding

The interactions between Operator Determined Barring and Call Forwarding are specified in 3GPP TS 22.041 [2].

The interaction where Operator Determined Barring is applied when there is an existing Call Forwarding programme which is in contravention of the Operator Determined Barring programme is shown in the message flow diagram in figure 2.7.1/1. The HLR modifies the subscription information for the mobile subscriber to show that the contravening call forwarding programme is quiescent, and forwards the modified subscription information to the VLR. No indication is forwarded to the mobile station or the user.

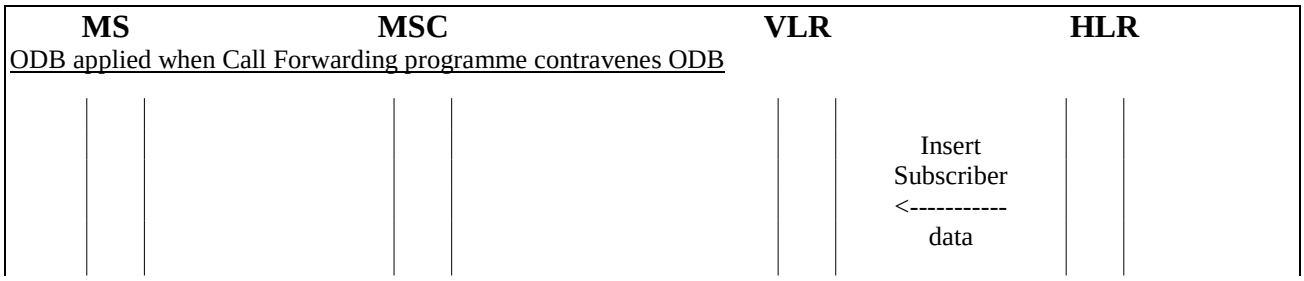

Figure 2.7.1/1: Effect of Operator Determined Barring on Call Forwarding programme

The interaction where the user attempts to activate or register a call forwarding programme which is in contravention of an operator determined barring category is shown in the message flow diagram in figure 2.7.1/2.

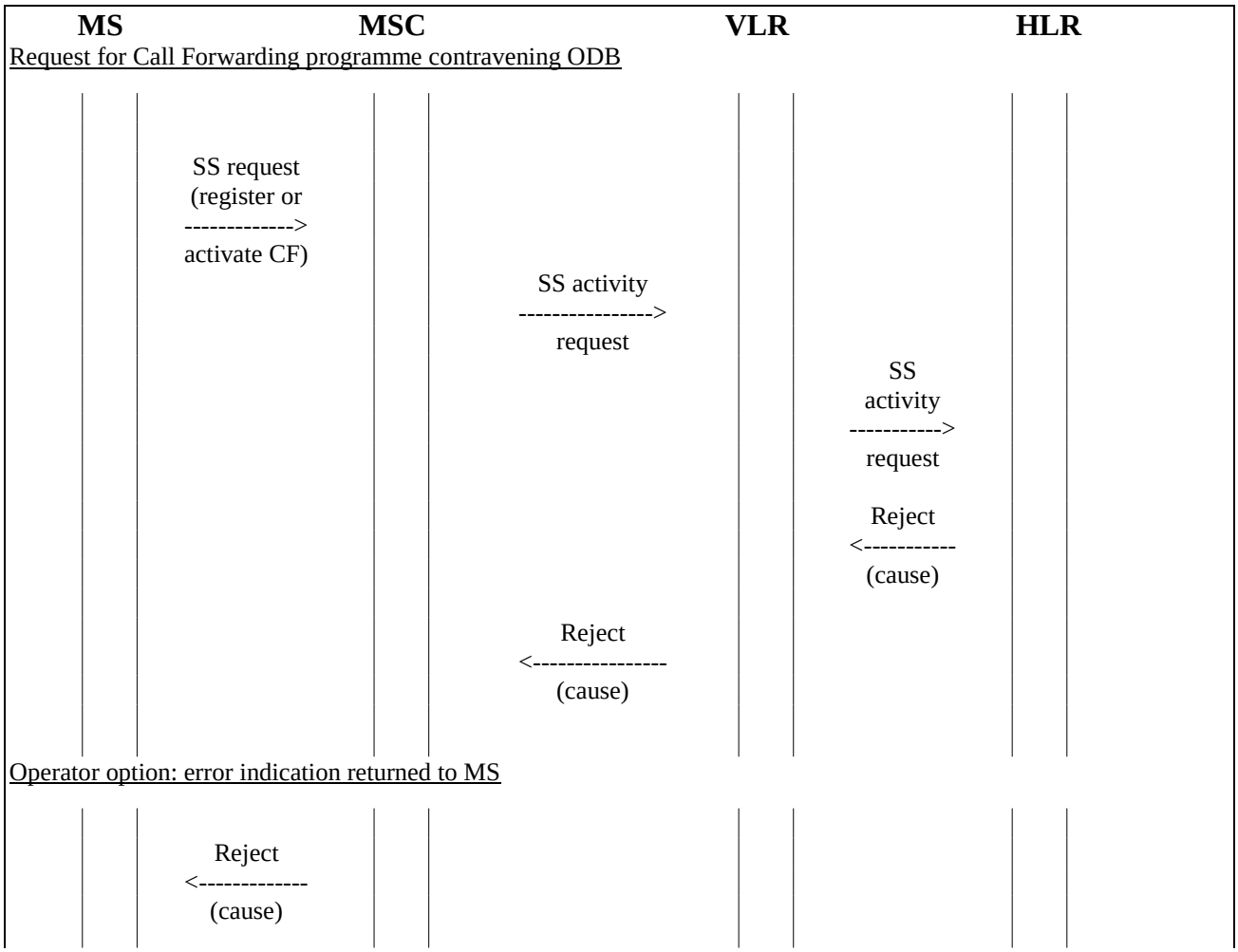

Figure 2.7.1/2: Interaction between Operator Determined Barring and Call Forwarding

2.7.2 Closed User Group

The interaction between Operator Determined Barring and Closed User Group is specified in 3GPP TS 22.041 [2]. In order to meet the service requirement, the checks of a call request in the HLR (for incoming calls) or VLR (for outgoing calls) against the Operator Determined Barring programme shall be carried out before the checks for Closed User Group.

2.7.3 Call Barring

The interaction between Operator Determined Barring and the Call Barring supplementary service is specified in 3GPP TS 22.041 [2]. In order to meet the service requirement, the checks of a call request in the HLR (for incoming calls) or VLR (for outgoing calls) against the Operator Determined Barring programme shall be carried out before the checks for the Call Barring supplementary service.

2.8 Barring of services in I-WLAN

NOTE: The WLAN Network Selection and WLAN/3GPP Radio Interworking features supersede the I-WLAN feature from Rel-12 onwards, therefore all I-WLAN related requirements specified in the present Clause are no longer maintained.

Barring of interworked services in I-WLAN upon the activation of W-APN shall be performed based on the Operator Determined Barring for Packet Oriented Services as defined in 3GPP TS 29.234 [5].

2.8.1 Change of Barring in the HSS

If barring of Packet Oriented Services for I-WLAN is applied to a subscription (or existing barring of Packet Oriented Services is modified or removed) by administrative action in the HSS, the HSS shall update the subscription information accordingly. It is necessary to transfer the updated User Profile Data and subscription information to the 3GPP AAA Server if the subscriber is currently using interworked WLAN services. After downloading the update User Profile Data the 3GPP AAA Server shall initiate re-authorization of the W-APN if there is an existing connection established. The HSS initiated User Profile Data update indication followed by the 3GPP AAA Server download of the updated User Profile Data and re-authorization request is shown in the message flow diagram in Figure 2.8.1/1.

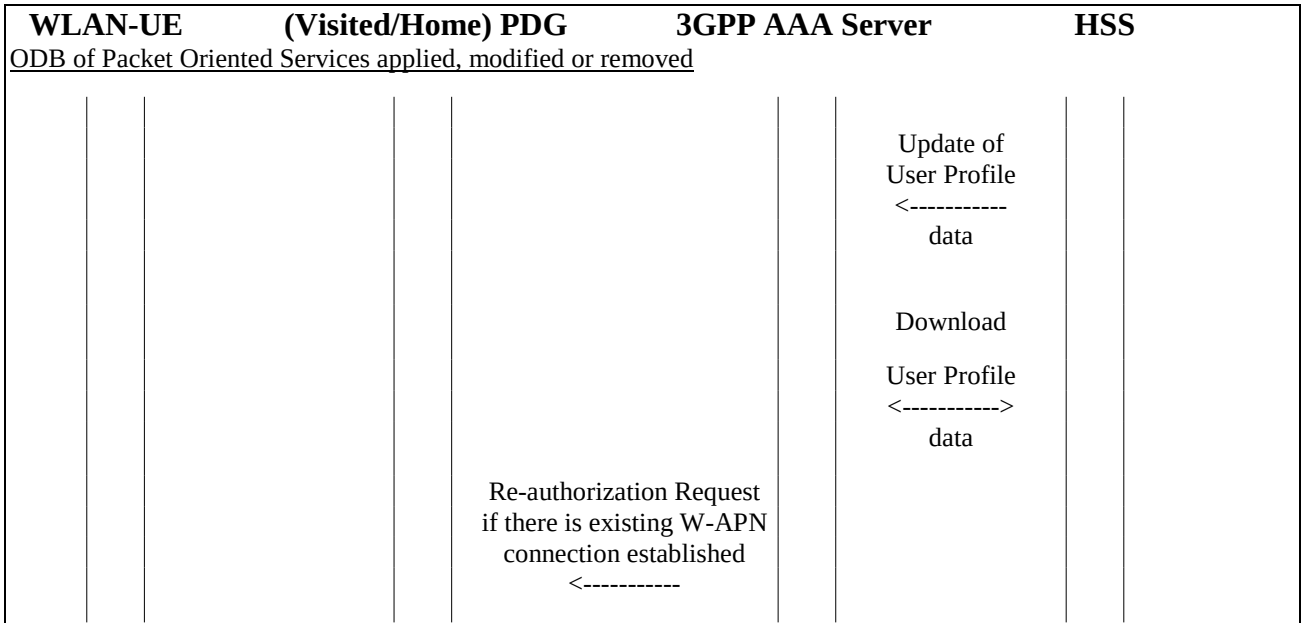

Figure 2.8.1/1: Transfer of updated User profile Data to 3GPP AAA Server

2.8.2 Barring of interworked packet services in I-WLAN

The interactions between Operator Determined Barring and W-APN activation/authorization are specified in 3GPP TS 29.234 [5].

Barring of interworked WLAN packet services is invoked in the 3GPP AAA Server. If the 3GPP AAA Server receives a request for a W-APN activation/authorization which is prohibited by Operator Determined Barring, the 3GPP AAA Server shall return a negative response to the request with an appropriate error code.

Indicative message flow diagram for the handling of Operator Determined Barring of interworked WLAN packet services is given in figure 2.8.2/1.

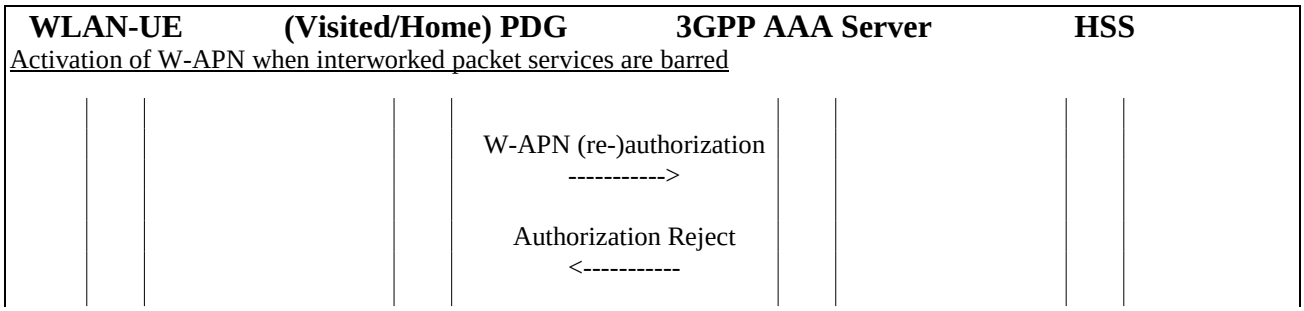

Figure 2.8.2/1: Authorization attempt of a interworked packet services when the WLAN-UE is connecting via a PDG located either in Visited or Home PLMN

2.8.3 Barring of W-APN Activation in I-WLAN

The interactions between Operator Determined Barring and W-APN activation/authorization are specified in 3GPP TS 29.234 [5].

Barring of specific W-APN is invoked in the 3GPP AAA Server. If the 3GPP AAA Server receives a request for a W-APN activation/authorization which is prohibited by Operator Determined Barring, the 3GPP AAA Server shall return a negative response to the request with an appropriate error code.

Indicative message flow diagram for the handling of Operator Determined Barring of a specific W-APN is given in figure 2.8.3/1.

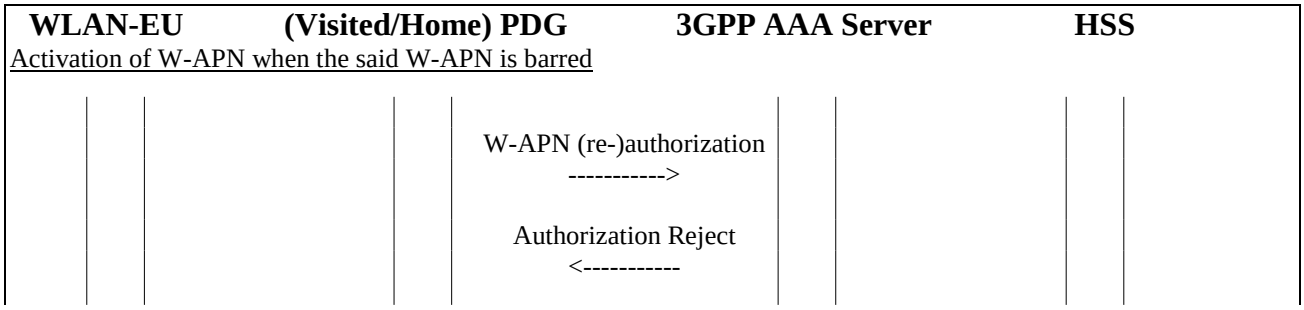

Figure 2.8.3/1: Authorization attempt of a W-APN when the WLAN-UE is connecting via a PDG located either in Visited or Home PLMN

2.8.4 Barring of public Internet access in I-WLAN

The interactions between Operator Determined Barring and W-APN activation/authorization are specified in 3GPP TS 29.234 [5].

Barring of specific public Internet access through a specific W-APN is invoked in the 3GPP AAA Server. If the 3GPP AAA Server receives a request for a W-APN activation/authorization where public Internet access is prohibited by Operator Determined Barring, the 3GPP AAA Server shall return a positive response to the request with appropriate routing policies that allow the PDG filter IP traffic to or from public Internet.

Indicative message flow diagram for the handling of Operator Determined Barring of a specific W-APN is given in figure 2.8.4/1.

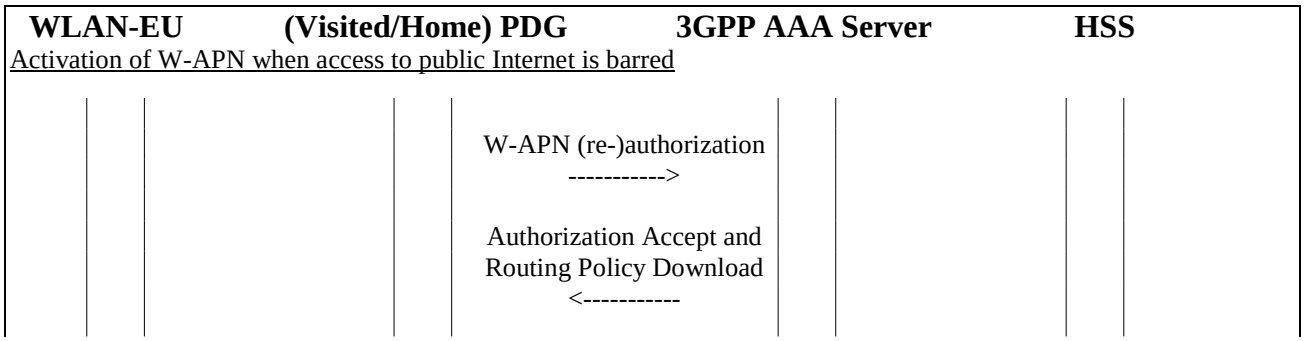

Figure 2.8.4/1: Authorization of a W-APN when public Internet access is barred

2.9 Barring of Access to All Except Some Specific DNNs/APNs

2.9.1 General

Barring of access to all except some specific DNNs/APNs shall be performed based on the Operator Determined Barring for Packet Oriented Services defined in 3GPP TS 22.041 [2].

2.9.2 Application or Change of Barring in the UDM/HSS/HLR

When barring of access to all except some specific DNNs/APNs is invoked in the UDM/HSS/HLR, the UDM/HSS/HLR shall update the subscription profile to contain only the specific non barred DNNs/APNs as the subscribed DNNs/APNs and indicate the updated subscription information to the AMF, SMF, MME or the SGSN.

If the existing default DNN/APN is barred, one of the specific non barred DNN/APNs shall be the new default DNN/APN.

The UDM/HSS/HLR shall disable any other barring of Packet Oriented Services when this function is used.

When barring of access to all except some specific DNNs/APNs is removed in the UDM/HSS/HLR, the UDM/HSS/HLR shall update the subscription profile to restore the originally subscribed DNNs/APNs, including the original default DNN/APN and indicate the updated subscription information to the AMF, SMF, the MME or the SGSN.

2.9.3 Invocation of Barring

When the AMF, the SMF, the MME or the SGSN updates the subscription, and if the subscriber has existing PDN connectivity for DNNs/APNs not in the received list of subscribed DNN/APN, the SMF, MME or the SGSN deactivates the PDU/PDN connectivity for these DNNs/APNs as specified in 3GPP TS 23.502 [7], 3GPP TS 23.401 [6] and 3GPP TS 23.060 [4].

To bar a subscriber from access to all except some specific DNNs/APNs, when the AMF, the MME or the SGSN receives PDU/PDN Connectivity Request message from the UE or the MS, the AMF, the MME or the SGSN shall check whether or not the requested DNN/APN is included in the list of subscribed DNNs/APNs for the subscriber. If included, then the AMF, the MME or the SGSN continues the Attach or UE-requested PDU/PDN connectivity or MS-requested PDP Context Activation procedures as specified in 3GPP TS 23.502 [7], 3GPP TS 23.401 [6] and 3GPP TS 23.060 [4]. If not included, then the AMF, the MME or the SGSN rejects the Attach or UE-requested PDU/PDN connectivity or MS-requested PDP Context Activation requests as specified in 3GPP TS 23.502 [7], 3GPP TS 23.401 [6] and 3GPP TS 23.060 [4].

3 Information stored in location registers

3.1 Information stored in the HLR/HSS

The HLR must store subscription information for each mobile subscriber to define which of the following categories of barring is to be applied, independently of each other:

Barring of outgoing calls (including mobile originated short messages) - one of:

- Barring of all outgoing calls;
- Barring of all outgoing international calls;
- Barring of all outgoing international calls except those directed to the home PLMN country;
- Barring of all outgoing calls when roaming outside the home PLMN country;
- Barring of all outgoing inter-zonal calls;
- Barring of all outgoing inter-zonal calls except those directed to the home PLMN country;
- Barring of all outgoing international calls except those directed to the home PLMN country AND barring of all outgoing inter-zonal calls.

Barring of incoming calls (including mobile terminated short messages) - one of:

- Barring of all incoming calls;
- Barring of all incoming calls when roaming outside the home PLMN country;

- Barring of all incoming calls when roaming outside the zone of the home PLMN country.

Barring of roaming - one of:

- Barring of roaming outside the home PLMN;
- Barring of roaming outside the home PLMN country.

Barring of outgoing premium rate calls - one or both of:

- Barring of outgoing premium rate (information) calls;
- Barring of outgoing premium rate (entertainment) calls.

Barring specific to the home PLMN - when the mobile station is registered in its home PLMN, any one or more of:

- Operator Specific Barring (Type 1);
- Operator Specific Barring (Type 2);
- Operator Specific Barring (Type 3);
- Operator Specific Barring (Type 4).

Barring of Supplementary Services Management.

Barring of registration of call forwarding - one of:

- Barring of registration of any forwarded-to number;
- Barring of registration of any international forwarded-to number;
- Barring of registration of any international forwarded-to number except a number within the HPLMN country;
- Barring of registration of any inter-zonal forwarded-to number;
- Barring of registration of any inter-zonal forwarded-to number except a number within the HPLMN country.

Barring of invocation of call transfer:

one of:

- Barring of invocation of any call transfer;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber at international rates, i.e. the call is either an outgoing international call or an incoming call when the served subscriber roams outside the HPLMN country;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber at inter-zonal rates, i.e. the call is either an outgoing inter-zonal call or an incoming call when the served subscriber roams to a VPLMN in a different zone from the HPLMN;

and independently:

- Barring of invocation of call transfer where both calls are calls charged to the served subscriber;

and independently:

- Barring of invocation of call transfer when there is an existing transferred call for the served subscriber in the same MSC/VLR.

Barring of Packet Oriented Services - one of:

- Barring of all Packet Oriented Services;

- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN;
- Barring of access to all except some specific APNs.

3.1A Information stored in the UDM/UDR

Barring of roaming - one of:

- Barring of roaming outside the home PLMN;
- Barring of roaming outside the home PLMN country.
- Barring of Packet Oriented Services - one of:
- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN;

- Barring of access to all except some specific DNNs.

3.2 Information stored in the VLR

The VLR must store subscription information for each mobile subscriber to define which of the following categories of barring is to be applied, independently of each other:

Barring of outgoing calls (including mobile originated short messages) - one of:

- Barring of all outgoing calls;
- Barring of all outgoing international calls;
- Barring of all outgoing international calls except those directed to the home PLMN country;
- Barring of all outgoing inter-zonal calls;
- Barring of all outgoing inter-zonal calls except those directed to the home PLMN country;
- Barring of all outgoing international calls except those directed to the home PLMN country AND barring of all outgoing inter-zonal calls.

Barring of outgoing premium rate calls - one or both of:

- Barring of outgoing premium rate (information) calls;
- Barring of outgoing premium rate (entertainment) calls.

Barring specific to the home PLMN - when the mobile station is registered in its home PLMN, any one or more of:

- Operator Specific Barring (Type 1);
- Operator Specific Barring (Type 2);
- Operator Specific Barring (Type 3);
- Operator Specific Barring (Type 4).

Barring of Supplementary Services Management.

Barring of invocation of call transfer:

one of:

- Barring of invocation of any call transfer;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber at international rates, i.e. the call is either an outgoing international call or an incoming call when the served subscriber roams outside the HPLMN country;
- Barring of invocation of call transfer where at least one of the two calls is a call charged to the served subscriber at inter-zonal rates, i.e. the call is either an outgoing inter-zonal call or an incoming call when the served subscriber roams to a VPLMN in a different zone from the HPLMN.

and independently:

- Barring of invocation of call transfer where both calls are calls charged to the served subscriber;

and independently:

- Barring of invocation of call transfer when there is an existing transferred call for the served subscriber in the same MSC/VLR.

3.3 Information stored in the SGSN

The SGSN shall store subscription information for each mobile subscriber to define which of the following categories of barring is to be applied, independently of each other:

Barring of mobile originated short messages - one of:

- Barring of all outgoing calls;
- Barring of all outgoing international calls;
- Barring of all outgoing international calls except those directed to the home PLMN country;
- Barring of all outgoing inter-zonal calls;
- Barring of all outgoing inter-zonal calls except those directed to the home PLMN country;
- Barring of all outgoing international calls except those directed to the home PLMN country AND barring of all outgoing inter-zonal calls.

Barring specific to the home PLMN of mobile originated short messages - when the mobile station is registered in its home PLMN, any one or more of:

- Operator Specific Barring (Type 1);
- Operator Specific Barring (Type 2);
- Operator Specific Barring (Type 3);
- Operator Specific Barring (Type 4).

Barring of Packet Oriented Services - one of:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

3.3A Information stored in the MME

The MME shall store subscription information for each mobile subscriber to define which of the following categories of barring is to be applied, independently of each other:

Barring of mobile originated short messages - one of:

- Barring of all outgoing calls;
- Barring of all outgoing international calls;
- Barring of all outgoing international calls except those directed to the home PLMN country;
- Barring of all outgoing inter-zonal calls;
- Barring of all outgoing inter-zonal calls except those directed to the home PLMN country;
- Barring of all outgoing international calls except those directed to the home PLMN country AND barring of all outgoing inter-zonal calls.

Barring specific to the home PLMN of mobile originated short messages - when the mobile station is registered in its home PLMN, any one or more of:

- Operator Specific Barring (Type 1);
- Operator Specific Barring (Type 2);
- Operator Specific Barring (Type 3);

- Operator Specific Barring (Type 4).

Barring of Packet Oriented Services - one of:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

3.4 Transfer of Subscription Information from HLR to VLR

The following subscription information for Operator Determined Barring must be transferred from the HLR to the VLR when a mobile station registers in a VLR:

- Barring of outgoing calls;
- Barring of outgoing premium rate calls;
- Barring of supplementary services management;
- Barring of invocation of call transfer.

In addition, when a mobile station registers in a VLR in its home PLMN the subscription information for Operator Determined Barring specific to the home PLMN must be transferred from the HLR to the VLR.

3.5 Transfer of Subscription Information from HLR to SGSN

The following subscription information for Operator Determined Barring shall be transferred from the HLR to the SGSN when a mobile station registers in a SGSN:

- Barring of outgoing calls (which leads to barring of mobile originated short messages).

The following subscription information for Operator Determined Barring for Packet Oriented Services shall be transferred from the HLR to the SGSN when a mobile station registers in a SGSN:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

In addition, when a mobile station registers in a SGSN in its home PLMN the subscription information for Operator Determined Barring specific to the home PLMN shall be transferred from the HLR to the SGSN.

3.5A Transfer of Subscription Information from HSS to MME

The following subscription information for Operator Determined Barring shall be transferred from the HLR to the MME when a mobile station registers in a MME:

- Barring of outgoing calls (which leads to barring of mobile originated short messages).

The following subscription information for Operator Determined Barring for Packet Oriented Services shall be transferred from the HSS to the MME when a mobile station registers in a MME:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

In addition, when a mobile station registers in an MME in its home PLMN the subscription information for Operator Determined Barring specific to the home PLMN shall be transferred from the HLR to the MME.

3.6 I-WLAN Information stored in the HSS

The HSS shall store subscription information for each I-WLAN subscriber to define which of the following categories of barring is to be applied, independently of each other. These barring categories are applied to WLAN 3GPP IP Access:

- Barring of Interworking WLAN completely from the interworked service capabilities.
- Barring of a subscriber from requesting interworking through Packet Data Gateways that are within the HPLMN whilst the subscriber is WLAN connected via a VPLMN.
- Barring a subscriber from requesting packet-oriented services from Packet Data Gateways that are within the roamed to VPLMN.
- Barring of a subscriber from requesting direct Internet access from Packet Data Gateways that are within the I-WLAN.

3.7 Transfer of User Profile Data from HSS to 3GPP AAA Server

The following User Profile Data for Operator Determined Barring must be transferred from the HSS to the 3GPP AAA Server when a WLAN-UE authenticates to 3GPP AAA Server and the I-WLAN service:

- Barring of Interworking WLAN completely from the interworked service capabilities
- Barring of a subscriber from requesting interworking through Packet Data Gateways that are within the HPLMN whilst the subscriber is WLAN connected via a VPLMN
- Barring a subscriber from requesting packet-oriented services from Packet Data Gateways that are within the roamed to VPLMN
- Barring of a subscriber from requesting direct Internet access from Packet Data Gateways that are within the I-WLAN

3.8 Information stored in the AMF/SMF

Barring of Packet Oriented Services - one of:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

3.9 Transfer of Subscription Information from UDM to AMF/SMF

The following subscription information for Operator Determined Barring for Packet Oriented Services shall be transferred from the UDM to the AMF/SMF:

- Barring of all Packet Oriented Services;
- Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN;
- Barring of Packet Oriented Services from access points that are within the roamed to VPLMN.

In addition, when a mobile station registers in an AMF in its home PLMN the subscription information for Operator Determined Barring specific to the home PLMN shall be transferred from the UDM to the AMF/SMF.

Annex A (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
Apr 1999						Transferred to 3GPP CN1	
CN#03						Approved at CN#03	3.0.0
CN#04			001			Corrections to text to introduce barring of SMS calls for GPRS	3.1.0
CN#11						Version updated from R99 to Rel-4 after CN#11	4.0.0
CN#11			002			Add PDP context activation barring scenario, etc	4.0.0
CN#15						References updated	4.0.1
CN#16						Release 5 after CN#16	5.0.0
CN#24			007r2	2		ODB handling for existing PDP contexts	6.0.0
CT#35			0008	1		Realization of Operator Determined Barring	7.0.0
CT#40			0009	1		ODB for 3GPP access in EPS	8.0.0
CT#42						Copyright Notification updated	8.0.1
CT#42			0011	1		Operator Determined Barring for EPS	8.1.0
CT#46			-			Update to Rel-9 version (MCC)	9.0.0
CT#50			0012	2		LIPA for ODB case	10.0.0
CT#57						Update to Rel-11 version (MCC)	11.0.0
CT#58			0014	3		Addition of APN to the condition of the ODB judgment	11.1.0
CT#59			0015	1		Updating Default APN by HSS when Barring of access to all except some specific APNs applied	11.2.0
CT#59			0016	1		Barring of Access to All Except Some Specific APNs	11.2.0
CT#59			0017			ODB Not Applied to Emergency Bearer Services	11.2.0
CT#60			0018	1		SMS in MME	11.3.0
2014-09			-			Update to Rel-12 version (MCC)	12.0.0
CT#68			0019	1		Correction to the I-WLAN reference	12.1.0
2015-12			-			Update to Rel-13 version (MCC)	13.0.0
2017-03			-			Update to Rel-14 version (MCC)	14.0.0
2018-06			-			Update to Rel-15 version (MCC)	15.0.0
2018-12	CT#82	CP-183092	0020r3	3	F	Introduction of Barring of Roaming in 5GC	15.1.0
2020-03	CT#87e	CP-200045	0021	1	F	Invocation of ODB	16.0.0
2021-03	CT#91e	CP-210053	0022	1	F	ODB handling in SMF	16.1.0
2022-03	-	-	-	-	-	Update to Rel-17 version (MCC)	17.0.0
2023-12	CT#102	CP-233073	0025	-	A	Clean Up	17.1.0
2023-12	CT#102	CP-233071	0023	1	F	Essential Correction for Barring of PDU Session in 5GS	17.1.0
2023-12	CT#102	CP-233044	0026	-	F	ODB clarification	18.0.0
2024-06	CT#104	CP-241050	0027	3	F	AMF Determined PDU Session Establishment Rejection Due to ODB	18.1.0

History

Document history		
V18.0.0	May 2024	Publication
V18.1.0	July 2024	Publication