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Technical Specification

**GEO-Mobile Radio Interface Specifications;
Part 2: Service specifications;
Sub-part 8: Call Barring Supplementary Services;
GMR-2 02.088**



Reference

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supplementary service**ETSI**650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Contents

Intellectual Property Rights	5
Foreword.....	7
Introduction.....	8
1 Scope.....	9
2 References.....	9
3 Definitions and abbreviations.....	10
3.1 Definitions.....	10
3.2 Abbreviations.....	10
4 Barring of outgoing calls.....	10
4.1 Definition.....	10
4.2 General description.....	10
4.2.1 Description.....	10
4.2.2 Applicability to telecommunication services.....	10
4.2.3 Terminology.....	10
4.3 Normal procedures with successful outcome.....	10
4.3.1 Provision.....	10
4.3.2 Withdrawal.....	11
4.3.3 Registration.....	11
4.3.4 Erasure.....	11
4.3.5 Activation.....	11
4.3.6 Deactivation.....	12
4.3.7 Invocation.....	12
4.3.8 Normal operation with successful outcome.....	12
4.3.9 Interrogation.....	12
4.4 Exceptional procedures or unsuccessful outcome.....	12
4.4.1 Registration.....	12
4.4.2 Activation.....	13
4.4.3 Deactivation.....	13
4.5 Alternate procedures.....	13
4.6 Interactions with other supplementary services.....	13
4.6.1 Call forwarding unconditional.....	13
4.6.2 Call forwarding on mobile subscriber busy.....	13
4.6.3 Call forwarding on no reply.....	13
4.6.4 Call forwarding on mobile subscriber not reachable.....	13
4.6.5 Call waiting.....	14
4.6.6 Call hold.....	14
4.6.7 MultiParty service.....	14
4.6.8 Closed user group.....	14
4.7 Interworking considerations.....	14
5 Barring of incoming calls.....	14
5.1 Definition.....	14
5.2 General description.....	14
5.2.1 Description.....	14
5.2.2 Applicability to telecommunication services.....	14
5.2.3 Terminology.....	14
5.3 Normal procedures with successful outcome.....	15
5.3.1 Provision.....	15
5.3.2 Withdrawal.....	15
5.3.3 Registration.....	15
5.3.4 Erasure.....	15
5.3.5 Activation.....	15
5.3.6 Deactivation.....	16
5.3.7 Invocation.....	16

5.3.8	Normal operation with successful outcome	16
5.3.9	Interrogation	16
5.4	Exceptional procedures or unsuccessful outcome	17
5.4.1	Registration	17
5.4.2	Activation	17
5.4.3	Deactivation.....	17
5.5	Alternate procedures.....	17
5.6	Interactions with other supplementary services.....	17
5.6.1	Call forwarding unconditional	17
5.6.2	Call forwarding on mobile subscriber busy	17
5.6.3	Call forwarding on no reply.....	18
5.6.4	Call forwarding on mobile subscriber not reachable	18
5.6.5	Call hold.....	18
5.6.6	MultiParty service.....	18
5.6.7	Closed user group	18
5.7	Interworking considerations.....	18
History	19

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IPRs:

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 377 V1.1.1	Digital Voice Systems Inc		US	US 5,715,365	US
TS 101 377 V1.1.1	Digital Voice Systems Inc		US	US 5,754,974	US
TS 101 377 V1.1.1	Digital Voice Systems Inc		US	US 5,226,084	US
TS 101 377 V1.1.1	Digital Voice Systems Inc		US	US 5,701,390	US
TS 101 377 V1.1.1	Digital Voice Systems Inc		US	US 5,826,222	US

IPR Owner: Digital Voice Systems Inc
One Van de Graaff Drive Burlington,
MA 01803
USA

Contact: John C. Hardwick
Tel.: +1 781-270-1030
Fax: +1 781-270-0166

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 377 V1.1.1	Ericsson Mobile Communication	Improvements in, or in relation to, equalisers	GB	GB 2 215 567	GB
TS 101 377 V1.1.1	Ericsson Mobile Communication	Power Booster	GB	GB 2 251 768	GB
TS 101 377 V1.1.1	Ericsson Mobile Communication	Receiver Gain	GB	GB 2 233 846	GB
TS 101 377 V1.1.1	Ericsson Mobile Communication	Transmitter Power Control for Radio Telephone System	GB	GB 2 233 517	GB

IPR Owner: Ericsson Mobile Communications (UK) Limited
The Keytech Centre, Ashwood Way
Basingstoke
Hampshire RG23 8BG
United Kingdom

Contact: John Watson
Tel.: +44 1256 864821

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 377 V1.1.1	Hughes Network Systems		US	Pending	US

IPR Owner: Hughes Network Systems
11717 Exploration Lane
Germantown, Maryland 20876
USA

Contact: John T. Whelan
Tel: +1 301-428-7172
Fax: +1 301-428-2802

Project	Company	Title	Country of Origin	Patent n°	Countries Applicable
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	2.4-to-3 KBPS Rate Adaptation Apparatus for Use in Narrowband Data and Facsimile Communication Systems	US	US 6,108,348	US
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Cellular Spacecraft TDMA Communications System with Call Interrupt Coding System for Maximizing Traffic Throughput Cellular Spacecraft TDMA Communications System with Call Interrupt Coding System for Maximizing Traffic Throughput	US	US 5,717,686	US
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Enhanced Access Burst for Random Access Channels in TDMA Mobile Satellite System	US	US 5,875,182	
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System	US	US 5,974,314	US
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System	US	US 5,974,315	US
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System with Mutual Offset High-argin Forward Control Signals	US	US 6,072,985	US
TS 101 377 V1.1.1	Lockheed Martin Global Telecommunic. Inc	Spacecraft Cellular Communication System with Spot Beam Pairing for Reduced Updates	US	US 6,118,998	US

IPR Owner: Lockheed Martin Global Telecommunications, Inc.
900 Forge Road
Norristown, PA. 19403
USA

Contact: R.F. Franciose
Tel.: +1 610.354.2535
Fax: +1 610.354.7244

Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document is part 2, sub-part 8 of a multi-part deliverable covering Geo-Mobile Radio Interface Specification, as identified below:

Part 1: "General specifications";

Part 2: "Service specifications":

Sub-part 1: "Teleservices supported by a GMR-2 Public Satellite Mobile Network (PSMN); GMR-2 02.003";

Sub-part 2: "General on Supplementary Services; GMR-2 02.004";

Sub-part 3: "Security Aspects; GMR-2 02.009";

Sub-part 4: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 1; GMR-2 02.083";

Sub-part 5: "Multipart (MPTY) Supplementary Services; GMR-2 02.084";

Sub-part 6: "Service Accessibility; GMR-2 02.001";

Sub-part 7: "Operator Determined Barring (ODB); GMR-2 02.041";

Sub-part 8: "Call Barring Supplementary Services; GMR-2 02.088";

Sub-part 9: "Bearer Services (BS) supported by a GMR-2 Public Satellite Mobile Network (PSMN); GMR-2 02.002".

Part 3: "Network specifications";

Part 4: "Radio interface protocol specifications";

Part 5: "Radio interface physical layer specifications";

Part 6: "Speech coding specifications".

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Version 1.m.n

where:

- the third digit (n) is incremented when editorial only changes have been incorporated in the specification;
- the second digit (m) is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

Introduction

GMR stands for GEO (Geostationary Earth Orbit) Mobile Radio interface, which is used for mobile satellite services (MSS) utilizing geostationary satellite(s). GMR is derived from the terrestrial digital cellular standard GSM and supports access to GSM core networks.

Due to the differences between terrestrial and satellite channels, some modifications to the GSM standard are necessary. Some GSM specifications are directly applicable, whereas others are applicable with modifications. Similarly, some GSM specifications do not apply, while some GMR specifications have no corresponding GSM specification.

Since GMR is derived from GSM, the organization of the GMR specifications closely follows that of GSM. The GMR numbers have been designed to correspond to the GSM numbering system. All GMR specifications are allocated a unique GMR number as follows:

GMR-n xx.zyy

where :

- xx.0yy ($z = 0$) is used for GMR specifications that have a corresponding GSM specification. In this case, the numbers xx and yy correspond to the GSM numbering scheme.
- xx.2yy ($z = 2$) is used for GMR specifications that do not correspond to a GSM specification. In this case, only the number xx corresponds to the GSM numbering scheme and the number yy is allocated by GMR.
- n denotes the first ($n = 1$) or second ($n = 2$) family of GMR specifications.

A GMR system is defined by the combination of a family of GMR specifications and GSM specifications as follows:

- If a GMR specification exists it takes precedence over the corresponding GSM specification (if any). This precedence rule applies to any references in the corresponding GSM specifications.

NOTE: Any references to GSM specifications within the GMR specifications are not subject to this precedence rule. For example, a GMR specification may contain specific references to the corresponding GSM specification.

- If a GMR specification does not exist the corresponding GSM specification may or may not apply. The applicability of the GSM specifications is defined in GMR-n 01.201.

1 Scope

The present document describes the supplementary services belonging to the group CALL RESTRICTION SUPPLEMENTARY SERVICES.

The general aspects - including definitions and recommended provision - of the description of the GMR-2 supplementary services are given in GMR-2 02.004 [2].

The Call Restriction supplementary services allow the possibility for a mobile subscriber to have barring of certain categories of outgoing or incoming calls at her access.

The group of Call Restriction Services includes two supplementary services:

- barring of outgoing calls;
- barring of incoming calls.

By use of subscription options, the mobile subscriber can at provision time select a set of one or more barring programs to determine the categories of calls to be barred. The following categories are defined:

- all outgoing calls;
- all incoming calls;

NOTE: Each category (barring program) is handled as a single supplementary service.

The barring services can be offered to a mobile subscriber with a password option allowing the activation and deactivation by the subscriber. One password per mobile subscriber is supported by the network for all barring services. For the definition of the password, the description of its use and its management, see GMR-2 02.004 [2].

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] GMR-2 01.004 (ETSI TS 101 377-1-1): "GEO-Mobile Radio Interface Specifications; Part 1: General specifications; Sub-part 1: Abbreviations and acronyms; GMR-2 01.004".
- [2] GMR-2 02.004 (ETSI TS 101 377-2-2): "GEO-Mobile Radio Interface Specifications; Part 2: Services specifications; Sub-part 2: General on supplementary services; GMR-2 02.004".
- [3] GSM 02.30 (ETSI ETS 300 511 Edition 2): "Digital cellular telecommunication system (Phase 2); Man-Machine Interface (MMI) of the Mobile Station (MS) (GSM 02.30 version 4.13.0)".
- [4] GSM 02.82 (ETSI ETS 300 515 Edition 2): "Digital cellular telecommunication system (Phase 2); Call Forwarding (CF) supplementary services - Stage 1 (GSM 02.82 version 4.5.2)".
- [5] GMR-2 02.084 (ETSI TS 101 377-2-5): "GEO-Mobile Radio interface specifications; MultiParty (MPY) supplementary services - Stage 1;GMR-2 02.084".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in GMR-2 01.004 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in GMR-2 01.004 [1] apply.

4 Barring of outgoing calls

4.1 Definition

This service makes it possible for a mobile subscriber to have barring of certain categories of outgoing calls according to a barring program which is selected from a set of one or more barring programs. The barring program is chosen at the time of provision and is valid for all outgoing calls, or just those associated with a specific basic service group.

The ability of the served mobile subscriber to receive calls and to set-up emergency calls remains unaffected.

4.2 General description

4.2.1 Description

The mobile subscriber may determine by subscription whether or not outgoing calls shall be barred.

The following barring program is defined:

- barring of all outgoing calls.

With this barring program there are no outgoing set-up possibilities, except emergency calls.

4.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in GMR-2 02.004 [2].

4.2.3 Terminology

A barring program defines the subscribed barring condition and will determine the categories of calls to be barred.

4.3 Normal procedures with successful outcome

4.3.1 Provision

The supplementary service will be provided after pre-arrangement with the service provider. At provision, the served mobile subscriber should select subscription options.

The service can be offered with two subscription options.

The first subscription option is the definition of the barring condition by a set of one or more barring programs. This subscription option applies to all basic services subscribed. Only one value can be selected for the barring condition.

The second subscription option relates to the control of the call barring supplementary service(s). The subscriber may choose to have the control of the service(s) by use of a password, or may leave the control to the service provider. The value of this subscription option is valid collectively for all basic services and all call barring supplementary services to which the subscriber subscribes.

Subscription options are summarized below:

Subscription option	Value
Barring condition	barring program 1
Control of barring services	by subscriber using password by the service provider

NOTE: A service provider needs not offer the option "control of barring services" to his subscribers. However, the support of the password facility is mandatory in the network for visiting subscribers.

4.3.2 Withdrawal

The service will be withdrawn at the subscriber's request or for administrative reasons.

4.3.3 Registration

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", the service provider has to register a password at provision time. Furthermore the served mobile subscriber can change the password at any time by an appropriate control procedure which is described in GMR-2 02.004 [2].

4.3.4 Erasure

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", a password can be erased as described in GMR-2 02.004 [2].

4.3.5 Activation

Activation takes place with an appropriate control procedure by the subscriber or by the service provider. The activation of barring of outgoing calls does not affect any current communication. Only one barring program may be activated at a time for one basic service group. The activation of a barring program will deactivate an already active one.

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", the supplementary service is activated if the subscriber provides the following information to the network:

- password;
- information as to whether all calls or calls of a specific basic service group should be barred;

NOTE: If no Basic Service code is inserted by the user this is interpreted as the group "All Basic Services".

- selected barring program.

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by service provider", the supplementary service cannot be activated by the subscriber. The activation has to be performed by the service provider.

The activation status attached to different basic service groups can be modified separately.

4.3.6 Deactivation

Deactivation takes place by means of an appropriate control procedure by the subscriber, or by the service provider, or finally by activation of a new barring program for the same basic service group.

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", the supplementary service is deactivated if the subscriber provides the following information to the network:

- password;
- information as to whether barring of all calls or calls of a specific basic service group should be deactivated;

NOTE: If no Basic Service code is inserted by the user this is interpreted as the group "All Basic Services".

- selected barring program (i.e. the code for one specific Outgoing Barring program given in GSM 02.30 [3]) or selected barring supplementary service (i.e. the code for Outgoing Barring Service or the code for All Barring Services given in GSM 02.30 [3]).

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by service provider", the supplementary service cannot be deactivated by the subscriber. The deactivation has to be performed by the service provider.

4.3.7 Invocation

The supplementary service is automatically invoked by the network upon a request for an outgoing call for a basic service not allowed by an active barring program for the corresponding basic service group. In the case of Short Message, only the Service Centre Address is relevant for the Call Barring service.

4.3.8 Normal operation with successful outcome

When barring of outgoing calls is active for a basic service group, each outgoing call set-up to a number not allowed by the barring program related to that basic service group will be refused by the network. In this case the served mobile subscriber will receive an indication that the call is not permitted and has been barred.

When barring of outgoing calls is active, the ability of the served mobile subscriber to receive calls is not affected.

When barring of outgoing calls is active, the ability of the served mobile subscriber to set-up emergency calls is not affected.

4.3.9 Interrogation

The subscriber shall by an appropriate control procedure be given the possibility to get a list of all basic service groups for which the given barring program is active (irrespective of whether it is operative or quiescent).

4.4 Exceptional procedures or unsuccessful outcome

4.4.1 Registration

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by service provider", an attempt to register a password will be denied and the served mobile subscriber should receive a notification.

When the served mobile subscriber at provision time has selected the subscription option "control of barring services by the subscriber using password", the handling of incorrect password entry is described in GMR-2 02.004 [2].

4.4.2 Activation

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by the service provider", an attempt to activate the barring services will be denied and the served mobile subscriber should receive a notification.

When the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using a password", the handling of incorrect password entry is described in GMR-2 02.004 [2].

The barring of outgoing calls activation request must specify the basic service group and the selected barring program. If the subscriber does not completely specify for which basic service group (individual basic service group or all basic service groups) barring of outgoing calls is to be activated and the selected barring program, the network will reject the activation request with appropriate cause.

NOTE 1: If no basic service group code is inserted by the user this is interpreted as the group "All Basic Services".

NOTE 2: The group "all basic services" in the context of barring of outgoing calls means all except emergency calls.

4.4.3 Deactivation

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by the service provider", an attempt to deactivate will be denied and the served mobile subscriber should receive a notification.

If the served mobile subscriber, at provision time, has selected the subscription option "control of the barring services by the subscriber using password", the handling of incorrect password entry is described in GMR-2 02.004 [2].

The barring of outgoing calls deactivation request must specify the basic service group and the selected barring program (i.e. the code for one specific Outgoing Barring program given in GSM 02.30 [3]) or the selected barring supplementary service (i.e. the code for Outgoing Barring Service or the code for All Barring Services given in GSM 02.30 [3]). If the subscriber does not completely specify for which basic service group (individual basic service group or all basic service groups) barring of outgoing calls is to be deactivated and the selected barring program or supplementary service, the network will reject the deactivation request with appropriate cause.

NOTE: If no basic service group code is inserted by the user this is interpreted as the group "All Basic Services".

4.5 Alternate procedures

None identified.

4.6 Interactions with other supplementary services

4.6.1 Call forwarding unconditional

See GSM 02.82 [4].

4.6.2 Call forwarding on mobile subscriber busy

See GSM 02.82 [4].

4.6.3 Call forwarding on no reply

See GSM 02.82 [4].

4.6.4 Call forwarding on mobile subscriber not reachable

See GSM 02.82 [4].

4.6.5 Call waiting

The activation of barring of outgoing calls at the calling mobile subscriber's side does not affect any currently waiting calls originated by the calling mobile subscriber.

4.6.6 Call hold

If barring of outgoing calls is activated after a call hold is invoked on an outgoing call, the held call can be retrieved. Any new outgoing call to a number not allowed by the barring program is barred.

4.6.7 MultiParty service

See GMR-2 02.084 [5].

4.6.8 Closed user group

Barring of outgoing calls takes precedence over the CUG restrictions. The activation of barring of outgoing calls during an outgoing call does not affect any current CUG call.

4.7 Interworking considerations

None identified.

5 Barring of incoming calls

5.1 Definition

This service makes it possible for a mobile subscriber to have barring of certain categories of incoming calls according to a barring program which is selected from a set of one or more barring programs chosen at provision time and is valid for all incoming calls, or just those associated with a specific basic service group.

The ability of the served mobile subscriber to set-up outgoing calls remains unaffected.

5.2 General description

5.2.1 Description

The mobile subscriber may determine by subscription whether or not incoming calls shall be barred.

The following barring program is defined:

- barring of all incoming calls.

With this barring program there will be no set-up of incoming calls to the served subscriber.

5.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in GMR-2 02.004 [2].

5.2.3 Terminology

A barring program defines the subscribed barring condition and will determine the categories of calls to be barred.

5.3 Normal procedures with successful outcome

5.3.1 Provision

The supplementary service will be provided after pre-arrangement with the service provider. At provision, subscription options should be selected by the served mobile subscriber.

The service can be offered with two subscription options.

The first subscription option is the definition of the barring condition by a set of one or more barring programs. This subscription option applies to all basic services subscribed to. Only one value can be selected for the barring condition.

The second subscription option relates to the control of the call barring supplementary service(s). The subscriber may choose to have the control of the service(s) by use of a password, or may leave the control to the service provider. The value of this subscription option is valid collectively for all basic services and all call barring supplementary services to which the subscriber subscribes.

Subscription options are summarized below:

Subscription option	Value
Barring condition	barring program 1
Control of barring services	by subscriber using password by the service provider

NOTE: A service provider needs not offer the option "control of barring services" to his subscribers. However, the support of the password facility is mandatory in the network for visiting subscribers.

5.3.2 Withdrawal

The service will be withdrawn at the subscriber's request or for administrative reasons.

5.3.3 Registration

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", the service provider has to register a password at provision time. Furthermore, the served mobile subscriber can change the password at any time by an appropriate control procedure which is described in GMR-2 02.004 [2].

5.3.4 Erasure

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", a password can be erased as described in GMR-2 02.004 [2].

5.3.5 Activation

Activation takes place with an appropriate control procedure by the subscriber or by the service provider. The activation of barring of incoming calls does not affect any current communication. Only one barring program may be activated at a time for one basic service group. The activation of the barring program will deactivate an already active one.

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by subscriber using password", the supplementary service is activated if the subscriber provides the following information to the network:

- password;
- information as to whether all calls or calls of a specific basic service group should be barred;

NOTE: If no Basic Service code is inserted by the user this is interpreted as the group "All Basic Services".

- selected barring program.

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by service provider", the supplementary service cannot be activated by the subscriber. The activation has to be performed by the service provider.

The activation status attached to different basic service groups can be modified separately.

5.3.6 Deactivation

Deactivation takes place by means of an appropriate control procedure by the subscriber, or by the service provider, or finally by activation of a new barring program for the same basic service group.

If the served mobile subscriber at provision time has selected the subscription option "control of barring services by subscriber using password", the supplementary service is deactivated if the subscriber provides the following information to the network:

- password;
- information as to whether barring of all calls or calls of a specific basic service group should be deactivated;

NOTE: If no Basic Service code is inserted by the user this is interpreted as the group "All Basic Services".

- selected barring program (i.e. the code for one specific Incoming Barring program given in GSM 02.30 [3]) or selected barring supplementary service (i.e. the code for Incoming Barring Service or the code for All Barring Services given in GSM 02.30 [3]).

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by service provider", the supplementary service cannot be deactivated by the subscriber. The deactivation has to be performed by the service provider.

5.3.7 Invocation

The supplementary service is automatically invoked by the network upon a request for an incoming call for a basic service not allowed by an active and operative barring program for the corresponding basic service group.

5.3.8 Normal operation with successful outcome

When barring of incoming calls is active for a basic service group, each incoming call set-up not allowed by the barring program related to that basic service group will be refused by the network. In this case the calling mobile subscriber will receive an indication that the call is not permitted and has been barred.

When barring of incoming calls is active, the ability of the served mobile subscriber to originate calls is not affected.

5.3.9 Interrogation

The subscriber shall by an appropriate control procedure be given the possibility to get a list of all basic service groups for which the given barring program is active (irrespective of whether it is operative or quiescent).

5.4 Exceptional procedures or unsuccessful outcome

5.4.1 Registration

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by service provider", an attempt to register a password will be denied and the served mobile subscriber should receive a notification.

When the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by subscriber using password", the handling of incorrect password entry is as described in GMR-2 02.004 [2].

5.4.2 Activation

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by the service provider", an attempt to activate the barring services will be denied and the served mobile subscriber should receive a notification.

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by the subscriber using password", the handling of incorrect password entry is as described in GMR-2 02.004 [2].

The barring of incoming calls activation request must specify the basic service group and the selected barring program. If the subscriber does not completely specify for which basic service (individual basic service group or all basic service groups) barring of incoming calls is to be activated and the selected barring program, the network will reject the activation request with appropriate cause.

NOTE: If no Basic Service group code is inserted by the user this is interpreted as the group "All Basic Services".

5.4.3 Deactivation

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by the service provider", an attempt to deactivate will be denied and the served mobile subscriber should receive a notification.

If the served mobile subscriber, at provision time, has selected the subscription option "control of barring services by the subscriber using password", the handling of incorrect password entry is as described in GMR-2 02.004 [2].

The barring of incoming calls deactivation request must specify the basic service group and the selected barring program (i.e. the code for one specific Incoming Barring program given in GSM 02.30 [3]) or the selected barring supplementary service (i.e. the code for Incoming Barring Service or the code for All Barring Services given in GSM 02.30 [3]). If the subscriber does not completely specify for which basic service group (individual basic service group or all basic service groups) barring of incoming calls is to be deactivated and the selected barring program or supplementary service, the network will reject the deactivation request with appropriate cause.

NOTE: If no Basic Service group code is inserted by the user this is interpreted as the group "All Basic Services".

5.5 Alternate procedures

None identified.

5.6 Interactions with other supplementary services

5.6.1 Call forwarding unconditional

See GSM 02.82 [4].

5.6.2 Call forwarding on mobile subscriber busy

See GSM 02.82 [4].

5.6.3 Call forwarding on no reply

See GSM 02.82 [4].

5.6.4 Call forwarding on mobile subscriber not reachable

See GSM 02.82 [4].

5.6.5 Call hold

If barring of incoming calls is activated after a call hold is invoked on an incoming call, the held call can be retrieved. Any new incoming call not allowed by the barring program is barred.

5.6.6 MultiParty service

See GMR-2 02.084 [5].

5.6.7 Closed user group

Barring of incoming calls takes precedence over the CUG restrictions. The activation of barring of incoming calls during an incoming call does not affect any current CUG call.

5.7 Interworking considerations

None identified.

History

Document history		
V1.1.1	March 2001	Publication