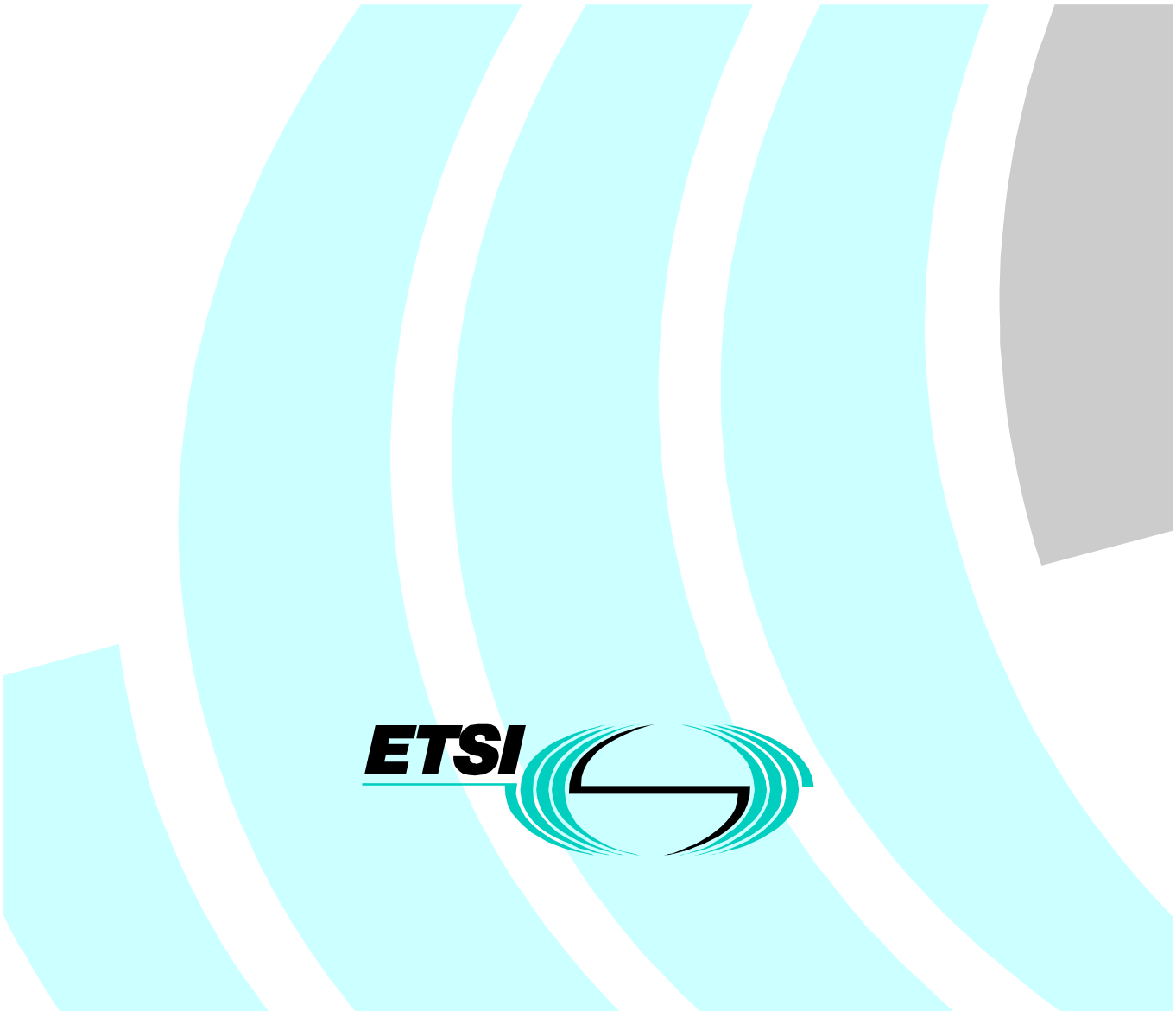
ETSI TS 101 377-2-4 V1.1.1 (2001-03)

Technical Specification

GEO-Mobile Radio Interface Specifications;
Part 2: Services specifications;
Sub-part 4: Call Waiting (CW) and Call Hold (HOLD)
Supplementary Services - Stage 1;
GMR-2 02.083



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Contents

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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

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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
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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
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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 ThroughputCellular 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.
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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 4 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: "Multiparty (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".

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

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 should be read in conjunction with GSM 02.83 [3]. Only the differences as they apply to the GMR-2 satellite system are included in the present document.

The present document describes the supplementary services belonging to the group CALL COMPLETION SUPPLEMENTARY SERVICES. The general aspects, including definitions and recommended provision, of the description of the GMR-2 supplementary services are given in specification GMR-2 02.004 [2]. The group of CALL COMPLETION SUPPLEMENTARY SERVICES is divided into the following two supplementary services:

- Call Waiting (see clause 4.2);
- Call Hold (see clause 4.3).

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 02.83 (ETSI ETS 300 516 Edition 2): "Digital cellular telecommunication system (Phase 2); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1 (GSM 02.83 version 4.6.7)".

[4] GMR-2 03.083 (TS 101 377-03-14): "GEO-Mobile Radio Interface Specifications; Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2; GMR-2 03.083".

3 Abbreviations

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

4 Call Completion Spplementary Services

4.1 General

The GMR-2 system shall provide limited support of Call Waiting (CW) and Call Hold (HOLD) supplementary services when more than one MES is involved in this process. When an MES is engaged in a single-hop MES-to-MES connection with another MES, the network will not support CW and HOLD supplementary services to any of these users. The following clauses should be read in conjunction with GSM 02.83 [3] (Supplementary Services - Stage 1). Refer also to GMR-2 03.083 [4] entitled Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 2.

4.2 Call Waiting (CW)

4.2.1 Description of Call Waiting

Refer to GSM 02.83 [3] clause 1.2.1.

This service operates when the traffic channel (Bm or Lm) at the controlling subscriber B is not available and B is engaged in ac active or held call.

When a third party (calling subscriber C) attempts to connect to that termination the controlling subscriber B is given an appropriate indication of the waiting call. A notification that the call is waiting will be sent back towards the calling subscriber C.

The maximum number of waiting calls at one time per mobile access is one. This means that no further calls are offered to the subscriber while a call is waiting.

NOTE: As a network option this maximum number of waiting calls may be greater than one. This is considered as a possible future enhancement.

If subscriber A and subscriber B are both GMR mobile subscribers, then Call Waiting is not permitted.

4.2.2 Invocation

Refer to GSM 02.83 [3] clause 1.3.7.

This service is invoked by the network on arrival of an incoming call if the service is active and the controlling subscriber B's traffic channel is not available, B is engaged in an active or held call and there is no other call currently waiting and A and B are not both GMR mobile subscribers.

4.2.3 Incoming call from subscriber C when subscribers A and B are GMR Mobile subscribers

If both subscribers A and B are in a mobile to mobile call, then subscriber C shall be given a busy indication, unless e.g. Call Forwarding applies.

4.3 Call Hold (HOLD)

4.3.1 Description of Call Hold

Refer to GSM 02.83 [3] clause 2.2.1.

When the call hold service is invoked, communication is interrupted on the traffic channel and the traffic channel is released from the existing call. The traffic channel is reserved for the served mobile subscriber invoking the call hold service. The served mobile subscriber can only have one call on hold at a time.

One traffic channel should be reserved for the served mobile subscriber as long as the subscriber has one call on hold and is currently not connected to any other call i.e. the network should not reserve more than one traffic channel for a mobile station.

If the served mobile subscriber has a call on hold and is not connected to an active call, she can:

1) retrieve the held call;

2) set up another call;

3) disconnect the held call.

If the served mobile subscriber has a call on hold and is not connected to an active call she can not receive a call, except when using the Call Waiting Supplementary Service. For additional information see GSM 02.83 [3] clause 2.6.83.1 (Interaction with Call Waiting Supplementary Service).

If the served mobile subscriber is connected to an active call and has another call on hold, she can:

1) alternate from one call to the other;

2) disconnect the active call;

3) disconnect the held call;

4) disconnect both calls.

If the served mobile subscriber is connected to an active call and has another call on hold, she can not receive a call. For additional information see GSM 02.83 [3] clause 2.6.83.1 (Interaction with Call Waiting Supplementary Service).

NOTE: A GMR mobile subscriber may not hold a call from another GMR mobile subscriber.

Annex A (informative): Bibliography

- 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)".
- GSM 02.40 (ETSI ETS 300 512 Edition 2): "Digital cellular telecommunication system (Phase 2); Procedures for call progress indications (GSM 02.40 version 4.5.0)".
- GSM 02.81 (ETSI ETS 300 514 Edition 3): "Digital cellular telecommunication system (Phase 2); Line identification supplementary services - Stage 1 (GSM 02.81 version 4.6.1)".
- GMR-2 02.084 (ETSI TS 101 377-2-5): "GEO-Mobile Radio interface specifications; MultiParty (MPTY) supplementary services - Stage 1 (GMR-2 02.084)".

History

Document history		
V1.1.1	March 2001	Publication