

# ETSI TS 101 377-3-15 V1.1.1 (2001-03)

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*Technical Specification*

**GEO-Mobile Radio Interface Specifications;  
Part 3: Network specifications;  
Sub-part 15: Multiparty Supplementary Services;  
GMR-2 03.084**

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**Reference**

DTS/SES-002-03084

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**Keywords**

GMR, GSM, GSO, interface, MES, mobile,  
MPTY, MSS, radio, satellite, S-PCN,  
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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

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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

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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 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

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# Foreword

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

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.

The present document is part 3, sub-part 15 of a multi-part deliverable covering the GEO-Mobile Radio Interface Specifications, as identified below:

Part 1: "General specifications";

Part 2: "Service specifications";

**Part 3: "Network specifications";**

Sub-part 1: "Network Functions; GMR-2 03.001";

Sub-part 2: "Network Architecture; GMR-2 03.002";

Sub-part 3: "Numbering, Addressing and Identification; GMR-2 03.003";

Sub-part 4: "Restoration Procedures; GMR-2 03.007";

Sub-part 5: "Organization of Subscriber Data; GMR-2 03.008";

Sub-part 6: "Handover Procedures; GMR-2 03.009";

Sub-part 7: "Technical Realization of Short Message Service (SMES) Point-to-Point; GMR-2 03.040";

Sub-part 8: "Location Registration Procedures; GMR-2 03.012";

Sub-part 9: "Discontinuous Reception (DRX) in the GMR-2 System; GMR-2 03.013";

Sub-part 10: "Security Related Network Functions; GMR-2 03.020";

Sub-part 11: "Functions Related to Mobile Earth Station (MES) in idle Mode; GMR-2 03.022";

Sub-part 12: "Technical Realization of Facsimile Group 3 Transparent; GMR-2 03.045";

Sub-part 13: "Transmission Planning Aspects of the Speech Service in the Public Satellite Mobile Network (PSMN) system; GMR-2 03.050";

Sub-part 14: "Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2; GMR-2 03.083";

**Sub-part 15: "Multiparty Supplementary Services; GMR-2 03.084";**

Sub-part 16: "Technical Realization of Operator Determined Barring; GMR-2 03.015";

Sub-part 17: "Call Barring (CB) Supplementary Services - Stage 2; GMR-2 03.088";

Part 4: "Radio interface protocol specifications";

Part 5: "Radio interface physical layer specifications";

Part 6: "Speech coding specifications";

Part 7: "Terminal adaptor specifications".

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## 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

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# 1 Scope

The present document should be read in conjunction with GSM 03.84 [3], which specifies the stage 2 description of the multi party supplementary services.

The original text in GSM 03.84 [3] is fully applicable to the GMR-2 system except for the modified text shown in clause 4 of the present document.

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# 2 References

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

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

- [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".
- [2] GMR-2 03.083 (ETSI TS 101 377-3-14): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 14: Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2".
- [3] GSM 03.084 (ETSI ETS 300 545): "Digital cellular telecommunications system; Multi party supplementary services - Stage 2" (V4.4.1).

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# 3 Abbreviations

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



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## 4 General

The GMR-2 system shall provide limited support of Multi Party (MPTY) supplementary services when more than one MES is involved in this process. When an MES has established a single-hop MES-to-MES connection with another MES, the network will not support MPTY supplementary services. Hence, GSM 03.84 [3] is fully applicable with the addition of the following text in GSM 03.84 [3], clause 1.1 that clarifies the above restriction.

### 4.1 Functions and information flows

Refer to GSM 03.84 [3], clause 1.1.

The following Mobile Additional Function has been identified for Multi Party service:

#### MAF026

- Multi Party service related authorizations examination.
- The ability of a PLMN component to determine the authorizations relating to Multi Party service. See GSM 03.84 [3], figure 4.1.1.
- Location: VLR.

The overall SDL-diagram of Multi Party service is shown in GSM 03.84 [3], figure 4.1.2.

This overall SDL-diagram represents the network as a whole. The overall SDL-diagram shows the status of the service as perceived by the served mobile subscriber, as well as the status as perceived by any of the other parties. Beside this, the overall SDL-diagram shows the actions to be taken by the network and the information provided by the network to the users.

Within the authorization examinations diagram, the messages shown to and from the left are to and from the VLR.

Within the overall SDL diagram, messages to and from the served mobile subscriber are indicated to and from the left, whereas messages to and from remote parties are indicated to and from the right.

The information flow for Multi Party service is shown in GSM 03.84, figure 4.1.3 [3].

In the information flow it is assumed that the served subscriber is a mobile subscriber and that the other parties are all fixed ISDN subscribers. For the purposes of the information flow diagrams it is assumed that there are only two remote parties. Where there are more than two remote parties, signals to any party connected to the MPTY bridge shall apply to all other parties connected to the MPTY bridge, except where a single remote party is to be selected for a private communication.

As a consequence of this assumption, after the MPTY is split (to establish a private communication) it only contains one remote party. However, the end state for disconnection of or by that remaining remote party is shown as A-B ACTIVE / MPTY HELD. This is to indicate that the disconnection by a single remote party will not necessarily cause the MPTY call to be released. This will only happen when that remote party is the only remaining party in the MPTY call.

Party A is the subscriber controlling the MPTY call (served mobile subscriber). Party B is the first remote party called. Party C is the second remote party called.

Party B cannot be a GMR-2 user who can possibly establish a single hop connection with party A. However party C can be a GMR-2 user since the network establishes a double hop connection with party A.

Remote parties are disconnected by the generic disconnect/release procedure. Any scenario requiring disconnection of remote parties shown in the SDL diagrams but not explicitly shown in the flow diagrams shall follow the procedure shown in the flow diagrams for similar scenarios.

Functions to be performed by the fixed ISDN (for example hold authorizations examination) are not shown in the information flow; only the functions to be performed by the PLMN are shown.

It is assumed that the Multi Party bridge is located in the MSC.

In the SDL-diagrams a two dimensional state in conjunction with call hold is used: (active, hold request):

- the first dimension is a normal basic call state "active";
- the second dimension is "hold request" (abbreviated hold req) meaning that a request has been made for the hold function.

To avoid having two calls on hold at the same time the reception of the retrieve request is supervised by timer T as defined in GMR-2 03.083 [2].

Note that while the Multi Party is on hold, the remote parties can continue to communicate with each other.

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## History

<b>Document history</b>		
V1.1.1	March 2001	Publication