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Technical Specification

**GEO-Mobile Radio Interface Specifications (Release 3);
Third Generation Satellite Packet Radio Service;
Part 3: Network specifications;
Sub-part 10: Functions related to
Mobile Earth Station (MES) in idle mode;
GMR-1 3G 43.022**

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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 3.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 10 of a multi-part deliverable covering the GEO-Mobile Radio Interface Specifications (Release 3); Third Generation Satellite Packet Radio Service, as identified below:

Part 1: "General specifications";

Part 2: "Service specifications";

Part 3: "Network specifications":

Sub-part 1: "Network Functions";

Sub-part 2: "Network Architecture";

Sub-part 3: "Numbering, addressing and identification";

Sub-part 4: "Organization of Subscriber Data";

Sub-part 5: "Technical realization of Supplementary Services";

Sub-part 6: "Location Registration and Position Identification Procedures";

Sub-part 7: "Discontinuous Reception (DRX)";

Sub-part 8: "Support of Dual-Tone Multifrequency Signalling (DTMF)";

Sub-part 9: "Security related Network Functions";

Sub-part 10: "Functions related to Mobile Earth Station (MES) in idle mode";

Sub-part 11: "Technical realization of the Short Message Service (SMS) Point-to-Point (PP)";

Sub-part 12: "Technical realization of the Short Message Service Cell Broadcast (SMSCB)";

- Sub-part 13: "Technical realization of group 3 facsimile using transparent mode of transmission";
- Sub-part 14: "Transmission Planning Aspects of the Speech Service in the GMR-1 system";
- Sub-part 15: "Line Identification supplementary service - Stage 2";
- Sub-part 16: "Call Barring (CB) supplementary services - Stage 2";
- Sub-part 17: "Unstructured Supplementary Service Data (USSD) - Stage 2";
- Sub-part 18: "Terminal-to-Terminal Call (TtT)";
- Sub-part 19: "Optimal Routing technical realization";
- Sub-part 20: "Technical realization of High-Penetration Alerting";
- Sub-part 21: "Position Reporting services; Stage 2 Service description";
- Sub-part 22: "Overall description of the GMPRS radio interface; Stage 2";
- Sub-part 23: "Radio Access Network; Overall description - Stage 2";
- Part 4: "Radio interface protocol specifications";
- Part 5: "Radio interface physical layer specifications";
- Part 6: "Speech coding specifications";
- Part 7: "Terminal adaptor specifications".

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.

The present document is part of the GMR Release 3 specifications. Release 3 specifications are identified in the title and can also be identified by the version number:

- Release 1 specifications have a GMR 1 prefix in the title and a version number starting with "1" (V1.x.x).
- Release 2 specifications have a GMPRS 1 prefix in the title and a version number starting with "2" (V2.x.x).
- Release 3 specifications have a GMR-1 3G prefix in the title and a version number starting with "3" (V3.x.x).

The GMR release 1 specifications introduce the GEO Mobile Radio interface specifications for circuit mode Mobile Satellite Services (MSS) utilizing geostationary satellite(s). GMR release 1 is derived from the terrestrial digital cellular standard GSM (phase 2) and it supports access to GSM core networks.

The GMR release 2 specifications add packet mode services to GMR release 1. The GMR release 2 specifications introduce the GEO Mobile Packet Radio Service (GMPRS). GMPRS is derived from the terrestrial digital cellular standard GPRS (included in GSM Phase 2+) and it supports access to GSM/GPRS core networks.

The GMR release 3 specifications evolve packet mode services of GMR release 2 to 3rd generation UMTS compatible services. The GMR release 3 specifications introduce the GEO-Mobile Radio Third Generation (GMR-1 3G) service. Where applicable, GMR-1 3G is derived from the terrestrial digital cellular standard 3GPP and it supports access to 3GPP core networks.

Due to the differences between terrestrial and satellite channels, some modifications to the GSM or 3GPP standard are necessary. Some GSM and 3GPP specifications are directly applicable, whereas others are applicable with modifications. Similarly, some GSM and 3GPP specifications do not apply, while some GMR specifications have no corresponding GSM or 3GPP specification.

Since GMR is derived from GSM and 3GPP, the organization of the GMR specifications closely follows that of GSM or 3GPP as appropriate. The GMR numbers have been designed to correspond to the GSM and 3GPP numbering system. All GMR specifications are allocated a unique GMR number. This GMR number has a different prefix for Release 2 and Release 3 specifications as follows:

- Release 1: GMR n xx.zyy
- Release 2: GMPRS n xx.zyy
- Release 3: GMR-1 3G xx.zyy

where:

- xx.0yy (z = 0) is used for GMR specifications that have a corresponding GSM or 3GPP specification. In this case, the numbers xx and yy correspond to the GSM or 3GPP numbering scheme.
- xx.2yy (z = 2) is used for GMR specifications that do not correspond to a GSM or 3GPP specification. In this case, only the number xx corresponds to the GSM or 3GPP 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 and 3GPP specifications as follows:

- If a GMR specification exists it takes precedence over the corresponding GSM or 3GPP specification (if any). This precedence rule applies to any references in the corresponding GSM or 3GPP specifications.

NOTE: Any references to GSM or 3GPP 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 or 3GPP specification.

- If a GMR specification does not exist, the corresponding GSM or 3GPP specification may or may not apply. The applicability of the GSM and 3GPP specifications is defined in GMR-1 3G 41.201 [2].

The clause numbering and the table numbering and figure numbering in the present document are aligned to the corresponding numbering of GMPRS-1 03.022 [15] as far as possible.