

# ETSI TS 101 376-1-2 V3.1.1 (2009-07)

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*Technical Specification*

**GEO-Mobile Radio Interface Specifications (Release 3);  
Third Generation Satellite Packet Radio Service;  
Part 1: General specifications;  
Sub-part 2: Introduction to the GMR-1 family;  
GMR-1 3G 41.201**

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Reference

RTS/SES-00309-1-2

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Keywords

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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 1, sub-part 2 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":**

Sub-part 1: "Abbreviations and acronyms";

**Sub-part 2: "Introduction to the GMR-1 family";**

Sub-part 3: "General System Description";

Part 2: "Service specifications";

Part 3: "Network specifications";

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.

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 the present document.

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# 1 Scope

The present document gives a general introduction to the GEO-Mobile Radio interface (GMR) specifications in the GMR-1 family.

The present document introduces both the Release 1 and the Release 2 specifications.

The GMR-1 specifications are organized into series that correspond to the organization of the ETSI GSM technical specifications. Clause 4 of the present document defines the contents of each GMR-1 series and shows how the individual GMR-1 specifications relate to their GSM counterparts. Clause 5 of the present document defines the relationship between GMR-1 terminology and the GSM terminology.

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# 2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

## 2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI GMPRS-1 01.004 (ETSI TS 101 376-1-1): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 1: General specifications; Sub-part 1: Abbreviations and acronyms; GMPRS-1 01.004".

NOTE: This is a reference to a GMR-1 Release 2 specification. See the introduction for more details.

- [2] ETSI GMR-1 03.001 (ETSI TS 101 376-3-1): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 3: Network specifications; Sub-part 10: Functions related to Mobile Earth Station (MES) in idle mode; GMPRS-1 03.022".

NOTE: This is a reference to a GMR-1 Release 1 specification. See the introduction for more details.



## 2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] GSM 01.04 (ETSI TR 101 748): "Digital cellular telecommunications system (Phase 2+) (GSM); Abbreviations and acronyms".
- [i.2] GSM 01.60 (ETSI TR 101 186): "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); Requirements specification of GPRS"..
- [i.3] GMR-1 3G 41.201 (ETSI TS 101 376-1-2): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 1: General specifications; Sub-part 2: Introduction to the GMR-1 family".
- [i.4] GMR-1 3G 41.202 (ETSI TS 101 376-1-3): "GEO-Mobile Radio Interface Specifications; Part 1: General specifications; Sub-part 3: General System Description".
- [i.5] GMR-1 02.011 (ETSI TS 101 376-2-1): "GEO-Mobile Radio Interface Specifications; Part 2: Service specifications; Sub-part 1: Service Accessibility".
- [i.6] GMR-1 03.002 (ETSI TS 101 376-3-2): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 2: Network Architecture".
- [i.7] GMPRS-1 03.003 (ETSI TS 101 376-3-3): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 3: Network specifications; Sub-part 3: Numbering, addressing and identification".
- [i.8] GMR-1 03.008 (ETSI TS 101 376-3-4): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 4: Organization of Subscriber Data".
- [i.9] GMR-1 03.011 (ETSI TS 101 376-3-5): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 5: Technical realization of Supplementary Services".
- [i.10] GMR-1 03.012 (ETSI TS 101 376-3-6): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 6: Location Registration and Position Identification Procedures".
- [i.11] GMR-1 03.013 (ETSI TS 101 376-3-7): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 7: Discontinuous Reception (DRX)".
- [i.12] GMR-1 03.014 (ETSI TS 101 376-3-8): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 8: Support of Dual-Tone Multifrequency Signalling (DTMF)".
- [i.13] GMR-1 03.020 (ETSI TS 101 376-3-9): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 9: Security related Network Functions".
- [i.14] GMR-1 3G 43.022 (ETSI TS 101 376-3-10): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 3: Network specifications; Sub-part 10: Functions related to Mobile Earth Station (MES) in idle mode".
- [i.15] GMR-1 03.040 (ETSI TS 101 376-3-11): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 11: Technical realization of the Short Message Service (SMS) Point-to-Point (PP)".
- [i.16] GMR-1 03.041 (ETSI TS 101 376-3-12): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 12: Technical realization of the Short Message Service Cell Broadcast (SMSCB)".
- [i.17] GMR-1 03.045 (ETSI TS 101 376-3-13): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 13: Technical realization of group 3 facsimile using transparent mode of transmission".

- [i.18] GMR-1 03.050 (ETSI TS 101 376-3-14): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 14: Transmission Planning Aspects of the Speech Service in the GMR-1 system".
- [i.19] GMR-1 03.081 (ETSI TS 101 376-3-15): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 15: Line Identification supplementary service - Stage 2".
- [i.20] GMR-1 03.088 (ETSI TS 101 376-3-16): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 16: Call Barring (CB) supplementary services - Stage 2".
- [i.21] GMR-1 03.290 (ETSI TS 101 376-3-17): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 17: Unstructured Supplementary Service Data (USSD) - Stage 2".
- [i.22] GMR-1 03.296 (ETSI TS 101 376-3-18): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 18: Terminal-to-Terminal Call (TtT)".
- [i.23] GMPRS-1 03.297 (ETSI TS 101 376-3-19): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 3: Network specifications; Sub-part 19: Optimal Routing technical realization".
- [i.24] GMR-1 03.298 (ETSI TS 101 376-3-20): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 20: Technical realization of High-Penetration Alerting".
- [i.25] GMR-1 03.299 (ETSI TS 101 376-3-21): "GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 21: Position Reporting services; Stage 2 Service description".
- [i.26] GMR-1 04.001 (ETSI TS 101 376-4-1): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 1: Mobile Earth Station-Gateway Station System (MES-GSS)".
- [i.27] GMR-1 04.002 (ETSI TS 101 376-4-2): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 2: GMR-1 Satellite Network Access Reference Configuration".
- [i.28] GMR-1 04.003 (ETSI TS 101 376-4-3): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 3: Channel Structures and Access Capabilities".
- [i.29] GMR-1 04.004 (ETSI TS 101 376-4-4): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 4: Layer 1 General Requirements".
- [i.30] GMR-1 04.005 (ETSI TS 101 376-4-5): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 5: Data Link Layer General Aspects".
- [i.31] GMR-1 04.006 (ETSI TS 101 376-4-6): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 6: Mobile earth Station-Gateway Station Interface Data Link Layer Specifications".
- [i.32] GMPRS-1 04.007 (ETSI TS 101 376-4-7): "GEO-Mobile Radio Interface Specifications (Release 2) General Packet Radio Service; Part 4: Radio interface protocol specifications; Sub-part 7: Mobile Radio Interface Signalling Layer 3 General Aspects".
- [i.33] GMR-1 3G 44.008 (ETSI TS 101 376-4-8): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 4: Radio interface protocol specifications; Sub-part 8: Mobile Radio Interface Layer 3 Specifications".
- [i.34] GMR-1 04.013 (ETSI TS 101 376-4-9): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 9: Performance Requirements on the Mobile Radio Interface".
- [i.35] GMR-1 04.021 (ETSI TS 101 376-4-10): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 10: Rate Adaptation on the Access Terminal-Gateway Station Subsystem (MES-GSS) Interface".

- [i.36] GMR-1 04.022 (ETSI TS 101 376-4-11): "GEO-Mobile Radio Interface Specifications; Part 4: Radio interface protocol specifications; Sub-part 11: Radio Link Protocol (RLP) for Data Services".
- [i.37] GMR-1 05.001 (ETSI TS 101 376-5-1): "GEO-Mobile Radio Interface Specifications (Release 1); Part 5: Radio interface physical layer specifications; Sub-part 1: Physical Layer on the Radio Path: General Description".
- [i.38] GMR-1 3G 45.002 (ETSI TS 101 376-5-2): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 2: Multiplexing and Multiple Access; Stage 2 Service Description".
- [i.39] GMR-1 3G 45.003 (ETSI TS 101 376-5-3): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 3: Channel Coding".
- [i.40] GMR-1 3G 45.004 (ETSI TS 101 376-5-4): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 4: Modulation".
- [i.41] GMR-1 3G 45.005 (ETSI TS 101 376-5-5): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 5: Radio Transmission and Reception".
- [i.42] GMR-1 3G 45.008 (ETSI TS 101 376-5-6): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 6: Radio Subsystem Link Control".
- [i.43] GMR-1 3G 45.010 (ETSI TS 101 376-5-7): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 5: Radio interface physical layer specifications; Sub-part 7: Radio Subsystem Synchronization".
- [i.44] GMR-1 06.001 (ETSI TS 101 376-6-1): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 1: Speech Processing Functions".
- [i.45] GMR-1 06.010 (ETSI TS 101 376-6-2): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 2: Vocoder: Speech Transcoding".
- [i.46] GMR-1 06.011 (ETSI TS 101 376-6-3): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 3: Vocoder: Substitution and Muting of Lost Frames".
- [i.47] GMR-1 06.012 (ETSI TS 101 376-6-4): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 4: Vocoder: Comfort Noise Aspects".
- [i.48] GMR-1 06.031 (ETSI TS 101 376-6-5): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 5: Vocoder: Discontinuous Transmission (DTX)".
- [i.49] GMR-1 06.032 (ETSI TS 101 376-6-6): "GEO-Mobile Radio Interface Specifications; Part 6: Speech coding specifications; Sub-part 6: Vocoder: Voice Activity Detection (VAD)".
- [i.50] GMR-1 07.001 (ETSI TS 101 376-7-1): "GEO-Mobile Radio Interface Specifications; Part 7: Terminal adaptor specifications; Sub-part 1: General on Terminal Adaptation Functions (TAF) for Mobile Earth Stations (MES)".
- [i.51] GMR-1 07.002 (ETSI TS 101 376-7-2): "GEO-Mobile Radio Interface Specifications; Part 7: Terminal adaptor specifications; Sub-part 2: Terminal Adaptation Functions (TAF) for Services Using Asynchronous Bearer capabilities".
- [i.52] GMR-1 07.003 (ETSI TS 101 376-7-3): "GEO-Mobile Radio Interface Specifications; Part 7: Terminal adaptor specifications; Sub-part 3: Terminal Adaptation Functions (TAF) for Services Using Synchronous Bearer Capacities".
- [i.53] GMR-1 3G 43.064 (ETSI TS 101 376-3-22): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 3: Network specifications; Sub-part 22: Overall description of the GMPRS radio interface; Stage 2".

- [i.54] GMR-1 3G 44.060 (ETSI TS 101 376-4-12): "GEO-Mobile Radio Interface Specifications (Release 2); General Packet Radio Service; Part 4: Radio interface protocol specifications; Sub-part 12: Mobile Earth Station (MES) - Base Station System (BSS) interface; Radio Link Control/Medium Access Control (RLC/MAC) protocol".
- [i.55] 3GPP TR 21.905 (ETSI TR 121 905) : "3rd Generation Partnership Project; Vocabulary for 3GPP Specifications".
- [i.56] 3GPP TS 22.016 (ETSI TS 122 016): "3rd Generation Partnership Project; International Mobile Equipment Identities (IMEI)".
- [i.57] 3GPP TS 22.060 (ETSI TS 122 060): "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Service description; Stage 1".
- [i.58] 3GPP TS 23.003 (ETSI TS 123 003): "3rd Generation Partnership Project; Numbering, addressing and identification; Release 6".
- [i.59] 3GPP TS 23.060 (ETSI TS 123 060): "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Service description; Stage 2".
- [i.60] 3GPP TS 23.101 (ETSI TS 123 101): "3rd Generation Partnership Project; General UMTS Architecture".
- [i.61] 3GPP TS 23.107 (ETSI TS 123 107): "3rd Generation Partnership Project; Quality of Service (QoS) concept and architecture".
- [i.62] 3GPP TS 23.110 (ETSI TS 123 110): "3rd Generation Partnership Project; UMTS Access Stratum Services and Functions".
- [i.63] 3GPP TS 23.122 (ETSI TS 123 122):" 3rd Generation Partnership Project; Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode".
- [i.64] 3GPP TS 23.221 (ETSI TS 123 221): "3rd Generation Partnership Project; Architectural requirements".
- [i.65] 3GPP TS 43.013 (ETSI TS 143 013): "3rd Generation Partnership Project; Discontinuous Reception (DRX) in the GSM system".
- [i.66] 3GPP TS 43.022 (ETSI TS 143 022): "3rd Generation Partnership Project; Functions related to Mobile Station (MS) in idle mode and group receive mode".
- [i.67] 3GPP TS 43.064 (ETSI TS 143 064): "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2".
- [i.68] GMR-1 3G 43.051 (ETSI TS 101 376-3-23): "Satellite Earth Stations and Systems (SES); GEO-Mobile Radio Interface Specifications (Release 3); Third Generation Satellite Packet Radio Service Part 3: Network specifications; Sub-part 23: Radio Access Network; Overall description - Stage 2".
- [i.69] 3GPP TS 43.051 (ETSI TS 143 051): "3rd Generation Partnership Project; GSM/EDGE Radio Access Network (GERAN) overall description; Stage 2".
- [i.70] 3GPP TS 43.059 (ETSI TS 143 059): "3rd Generation Partnership Project; Functional stage 2 description of Location Services (LCS) in GERAN".
- [i.71] 3GPP TS 24.007 (ETSI TS 124 007): "3rd Generation Partnership Project; Mobile radio interface signalling layer 3; General Aspects".
- [i.72] 3GPP TS 24.008 (ETSI TS 124 008): "3rd Generation Partnership Project; Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".
- [i.73] 3GPP TS 24.002 (ETSI TS 124 002): "3rd Generation Partnership Project; GSM - UMTS Public Land Mobile Network (PLMN) Access Reference Configuration".
- [i.74] 3GPP TS 24.010 (ETSI TS 124 010): "3rd Generation Partnership Project; Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects".

- [i.75] 3GPP TS 24.011 (ETSI TS 124 011): "3rd Generation Partnership Project; Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [i.76] 3GPP TS 24.080 (ETSI TS 124 080): "3rd Generation Partnership Project; Mobile radio Layer 3 supplementary service specification; Formats and coding".
- [i.77] 3GPP TS 44.004 (ETSI TS 144 004): "3rd Generation Partnership Project; Layer 1; General Requirements".
- [i.78] 3GPP TS 44.005 (ETSI TS 144 005): "3rd Generation Partnership Project; Data Link (DL) Layer General Aspects".
- [i.79] 3GPP TS 44.006 (ETSI TS 144 006): "3rd Generation Partnership Project; Mobile Station - Base Stations System (MS - BSS) interface Data Link (DL) layer specification".
- [i.80] 3GPP TS 44.018 (ETSI TS 144 018): "3rd Generation Partnership Project; Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol".
- [i.81] 3GPP TS 44.060 (ETSI TS 144 060): "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control / Medium Access Control (RLC/MAC) protocol".
- [i.82] GMR-1 3G 44.118 (ETSI TS 101 376-4-13): "Satellite Earth Stations and Systems (SES); GEO-Mobile Radio Interface Specifications (Release 3); Third Generation Satellite Packet Radio Service Part 4: Radio interface protocol specifications; Sub-part 13: Radio Resource Control (RRC) protocol; Iu Mode".
- [i.83] 3GPP TS 44.118 (ETSI TS 144 118): "3rd Generation Partnership Project; Mobile radio interface layer 3 specification, Radio Resource Control (RRC) protocol; Iu mode".
- [i.84] GMR-1 3G 44.160 (ETSI TS 101 376-4-14): "Satellite Earth Stations and Systems (SES); GEO-Mobile Radio Interface Specifications (Release 3); Third Generation Satellite Packet Radio Service Part 4: Radio interface protocol specifications; Sub-part 14: Mobile Earth Station (MES) - Base Station System (BSS) interface; Radio Link Control/Medium Access Control (RLC/MAC) protocol; Iu Mode".
- [i.85] 3GPP TS 44.160 (ETSI TS 144 160): "3rd Generation Partnership Project; General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol for Iu mode".
- [i.86] 3GPP TS 25.323 (ETSI TS 125 323): "3rd Generation Partnership Project; Packet Data Convergence Protocol (PDCP) specification".
- [i.87] 3GPP TS 25.331 (ETSI TS 125 331): "3rd Generation Partnership Project; Radio Resource Control (RRC); Protocol specification".
- [i.88] 3GPP TS 25.410 (ETSI TS 125 410): "3rd Generation Partnership Project; Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface: General aspects and principles (version 8.1.0 Release 8)".
- [i.89] 3GPP TS 25.411 (ETSI TS 125 411): "3rd Generation Partnership Project; UTRAN Iu interface layer 1".
- [i.90] 3GPP TS 25.412 (ETSI TS 125 412): "3rd Generation Partnership Project; UTRAN Iu interface signalling transport".
- [i.91] 3GPP TS 25.413 (ETSI TS 125 413): "3rd Generation Partnership Project; UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling".
- [i.92] 3GPP TS 25.414 (ETSI TS 125 414): "3rd Generation Partnership Project; UTRAN Iu interface data transport and transport signalling".
- [i.93] 3GPP TS 25.415 (ETSI TS 125 415): "3rd Generation Partnership Project; UTRAN Iu interface user plane protocols".

- [i.94] 3GPP TS 31.102 (ETSI TS 131 102): "3rd Generation Partnership Project; Characteristics of the Universal Subscriber Identity Module (USIM) application".
- [i.95] 3GPP TS 33.102 (ETSI TS 133 102): "3rd Generation Partnership Project; 3G security; Security architecture".
- [i.96] GSM 02.01 (ETSI TS 100 500): "Digital cellular telecommunications system (Phase 2); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)". (GSM Phase 2).
- [i.97] GSM 02.02 (ETSI EN 300 904): "Digital cellular telecommunications system (Phase 2+) (GSM); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN). (GSM Phase 2)".
- [i.98] GSM 02.03 (ETSI TS 100 905): "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN). (GSM Phase 2)".
- [i.99] GSM 02.04 (ETSI EN 300 918): "Digital cellular telecommunications system (Phase 2+) (GSM); General on supplementary services. (GSM Phase 2)".
- [i.100] GSM 02.09 (ETSI TS 100 920): "Digital cellular telecommunications system (Phase 2+); Security aspects. (GSM Phase 2)".
- [i.101] GSM 02.09 (ETSI TS 100 920): "Digital cellular telecommunications system (Phase 2+); Security aspects. (GSM Phase 2)".
- [i.102] GSM 02.17 (ETSI TS 100 922): "Digital cellular telecommunications system (Phase 2+) (GSM); Subscriber Identity Modules (SIM); Functional characteristics. (GSM Phase 2)".
- [i.103] GSM 02.40 (ETSI TS 100 512): "Digital cellular telecommunications system (Phase 2+) (GSM); Procedure for call progress indications. (GSM Phase 2)".
- [i.104] GSM 02.41 (ETSI TS 100 513): "Digital cellular telecommunications system (Phase 2+) (GSM); Operator Determined Barring (ODB). (GSM Phase 2)".
- [i.105] GSM 02.81 (ETSI TS 100 514): "Digital cellular telecommunications system (Phase 2+) (GSM); Line identification Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.106] GSM 02.82 (ETSI TS 100 515): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.107] GSM 02.83 (ETSI TS 100 516): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Waiting (CW) and Call Holding (HOLD); Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.108] GSM 02.84 (ETSI TS 100 517): "Digital cellular telecommunications system (Phase 2+) (GSM); MultiParty (MPY) Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.109] GSM 02.85 (ETSI TS 100 518): "Digital cellular telecommunications system (Phase 2+) (GSM); Closed User Group (CUG) Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.110] GSM 02.88 (ETSI TS 100 520): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Barring (CB) Supplementary Services; Stage 1. (GSM Phase 2)".
- [i.111] GSM 02.90 (ETSI TS 100 625): "Digital cellular telecommunications system (Phase 2+) (GSM); Unstructured Supplementary Service Data (USSD); Stage 1".
- [i.112] GSM 03.04 (ETSI TS 100 524): "Digital cellular telecommunications system (Phase 2+) (GSM); Signalling requirements relating to routing of calls to mobile subscribers".
- [i.113] GSM 03.07 (ETSI TS 100 525): "Digital cellular telecommunications system (Phase 2+) (GSM); Restoration procedures".
- [i.114] GSM 03.10 (ETSI TS 100 528): "Digital cellular telecommunications system (Phase 2+) (GSM); GSM Public Land Mobile Network (PLMN) connection types".

- [i.115] GSM 03.15 (ETSI TS 100 533): "Digital cellular telecommunications system (Phase 2+) (GSM); Technical realization of Operator Determined Barring".
- [i.116] GSM 03.16 (ETSI TS 100 629): "Digital cellular telecommunications system (Phase 2+); Subscriber Data Management".
- [i.117] GSM 03.38 (ETSI TS 100 900): "Digital cellular telecommunications system (Phase 2+) (GSM); Alphabets and language-specific information".
- [i.118] GSM 03.70 (ETSI TS 100 541): "Digital cellular telecommunications system (Phase 2+) (GSM); Routing of calls to/from Public Data Networks (PDN) and the GSM Public Land Mobile Network (PLMN)".
- [i.119] GSM 03.82 (ETSI TS 100 543): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) supplementary services; Stage 2".
- [i.120] GSM 03.83 (ETSI TS 100 544): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 2".
- [i.121] GSM 03.84 (ETSI TS 100 545): "Digital cellular telecommunications system (Phase 2+) (GSM); Multi Party (MPTY) supplementary services; Stage 2".
- [i.122] GSM 03.85 (ETSI TS 100 546): "Digital cellular telecommunications system (Phase 2+) (GSM); Closed User Group (CUG) supplementary services; Stage 2".
- [i.123] GSM 04.10 (ETSI TS 100 941): "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3; Supplementary services specification; General aspects".
- [i.124] GSM 04.11 (ETSI TS 100 942): "Digital cellular telecommunications system (Phase 2+); Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface".
- [i.125] GSM 04.12 (ETSI TS 100 943): "Digital cellular telecommunications system (Phase 2+); Short Message Service Cell Broadcast (SMSCB) Support on the Mobile Radio Interface".
- [i.126] GSM 04.80 (ETSI TS 100 950): "Digital cellular telecommunications system (Phase 2+); Mobile Radio Interface Layer 3; Supplementary services specification formats and coding".
- [i.127] GSM 04.81 (ETSI EN 300 951): "Digital cellular telecommunications system (Phase 2+) (GSM); Line identification supplementary services; Stage 3".
- [i.128] GSM 04.82 (ETSI EN 300 952): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) supplementary services; Stage 3".
- [i.129] GSM 04.83 (ETSI EN 300 953): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 3".
- [i.130] GSM 04.84 (ETSI EN 300 954): "Digital cellular telecommunications system (Phase 2+) (GSM); Multi Party (MPTY) supplementary services; Stage 3".
- [i.131] GSM 04.85 (ETSI TS 100 569): "Digital cellular telecommunications system (Phase 2+) (GSM); Closed User Group (CUG) supplementary services; Stage 3".
- [i.132] GSM 04.88 (ETSI TS 100 956): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Barring (CB) supplementary services; Stage 3".
- [i.133] GSM 04.90 (ETSI EN 300 957): "Digital cellular telecommunications system (Phase 2+) (GSM); Unstructured Supplementary Service Data (USSD); Stage 3".
- [i.134] GSM 01.61 (ETSI TS 101 106): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); GPRS ciphering algorithm requirements".
- [i.135] GSM 02.60 (ETSI TS 101 113): "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); Service description; Stage 1".
- [i.136] GSM 03.01 (ETSI TS 100 521): "Digital cellular telecommunications system (Phase 2+) (GSM); Network functions".

- [i.137] GSM 03.02 (ETSI TS 100 522): "Digital cellular telecommunications system (Phase 2+) (GSM); Network architecture".
- [i.138] GSM 03.20 (ETSI TS 100 929): "Digital cellular telecommunications system (Phase 2+); Security; related network functions".
- [i.139] GSM 03.60 (ETSI TS 100 344): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS) Service description; Stage 2".
- [i.140] GSM 04.64 (ETSI TS 101 351): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) layer specification".
- [i.141] GSM 04.65 (ETSI TS 101 297): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)".
- [i.142] GSM 07.60 (ETSI TS 101 356): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS".
- [i.143] GSM 08.14 (ETSI TS 101 298): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS); Serving GPRS Support Node (SGSN) interface; Gb Interface Layer 1".
- [i.144] GSM 08.16 (ETSI TS 101 299): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS); Serving GPRS Support Node (SGSN) Interface; Network Service".
- [i.145] GSM 08.18 (ETSI TS 101 343): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS); Serving GPRS Support Node (SGSN); BSS GPRS Protocol (BSSGP)".
- [i.146] GSM 09.60 (ETSI TS 101 347): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**3GPP applies:** this feature is identical to 3GPP and hence the associated 3GPP specification applies

**GMR specific:** this GMR specification describes a new GMR feature that has no equivalent feature in GSM

**GMR-1 3G specific:** this GMR-1 3G specification describes a new GMR feature that has no equivalent feature in 3GPP.

**GSM applies:** this feature is identical to GSM and hence the associated GSM specification applies

**Replaces 3GPP:** the GMR specification is a replacement for the associated 3GPP specification

**Replaces GSM:** the GMR specification is a replacement for the associated GSM specification

NOTE: The GMR specification may make reference to the associated GSM specification.

### 3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in GMPRS-1 01.004 [1] apply.



## 4 GEO-Mobile Radio interface specifications (GMR-1)

### 4.1 Scope of the GMR-1 family of specifications

The GEO-Mobile Radio Interface Specifications (GMR-1) is a family of specifications which specify the requirements for implementing the GMR-1 radio interface for Mobile Earth Stations (MESs) communicating using Geosynchronous Earth Orbit satellites and interworking into a GSM or 3G core network. The MES may be a handheld, mobile or fixed terminal.

The GMR-1 specifications are based upon the GSM (Global System for Mobile Communications) specifications and the 3GPP (Third Generation Partnership Project) specifications. The GMR specifications define the differences (i.e. the modifications) relative to the GSM and 3GPP specifications that deal with the different system requirements such as the path losses and delays associated with satellite communications using a Geosynchronous Earth Orbit (GEO) satellite.

### 4.2 GMR-1 Release 1, Release 2 and Release 3

The GMR-1 family of specifications is organized into three releases:

**Release 1 specifications.** This release of specifications defines the GMR-1 circuit mode services, which are based on the GSM phase 2 circuit mode services. The contents of the Release 1 family of specifications are defined in annex A.

**Release 2 specifications.** This release of specifications define the GMR-1 packet mode services (GMPRS-1) which are based on the GSM phase 2+ packet mode services (GPRS). The contents of the Release 2 family of specifications are defined in annex B.

**Release 3 specifications.** This release of specifications define the GMR-1 third generation packet mode services (GMR-1 3G) which are based on the 3GPP packet mode services (GPRS). The contents of the Release 3 family of specifications are defined in annex C.

### 4.3 Contents of the GMR-1 document series

The GMR-1 family of specifications are organized in document series that correspond the GSM and 3GPP document structure as shown in table 1.

**Table 1: GMR-1 Document Series**

GMR-1 (Release 1)	GMPRS-1 (Release 2)	GMR-1 3G (Release 3)	Series Contents
01-series	01-series	41-series	General specifications
02-series	02-series	42-series	Service specifications
03-series	03-series	43-series	Network specifications
04-series	04-series	44-series	Radio interface protocol specifications
05-series	05-series	45-series	Radio interface physical layer specifications
06-series	N/A	N/A	Speech coding specifications
07-series	07-series	N/A	Terminal adaptor specifications
N/A	08-series	N/A	BS to MSC interface specifications
N/A	09-series	N/A	Network interworking specifications

Release 3 of the GMR-1 family adopts a new numbering scheme for the series that is chosen to reflect the corresponding change from referencing the original GSM document series to referencing the 3GPP GSM/EDGE document series. See clause 4.4.

NOTE: The ETSI TS numbers (part and subpart numbers) are not affected by this change.

## 4.4 Numbering of GMR-1 specifications

The GMR-1 specifications follow the GMR numbering rules as described in the Introduction clause to the present document. The GMR document numbering is based on the GSM numbering, except that the GMR documents use a 3-digit document number after the 2-digit series number.

With the exception of GMR-1 specific documents (i.e. those for which no equivalent GSM specification exists) the GMR document numbers within each series are aligned with the equivalent GSM document numbers and this means that these GMR-1 specifications can be directly associated with the corresponding GSM specification. For example, GMR-1 03.001 [2] is associated with GSM 03.01.

Release 3 of the GMR-1 family adopts a new GMR numbering scheme where the series numbers are changed as detailed in clause 4.3. This reflects a corresponding change from referencing the original GSM document series to referencing the 3GPP GSM/EDGE document series. The GMR document numbers within each series are then aligned with the equivalent 3GPP document numbers except for the GMR-1 3G specific documents. This change is designed to make it easier to link the GMR-1 Release 3 specifications with the corresponding 3GPP specifications.

## 4.5 Contents of GMR-1 family of specifications

The complete contents of the GMR-1 Release 1 specifications are given in annex A.

The complete contents of the GMR-1 Release 2 (GMPRS) specifications are given in annex B.

The complete contents of the GMR-1 Release 3 (GMR-1 3G) specifications are given in annex C.

Where appropriate the GMR-1 specifications include references to the corresponding GSM or 3GPP specifications. The relationship between the GMR-1 Release 1 and Release 2 specifications and the corresponding GSM specifications is defined in annexes A, B using the GSM terminology defined in table 2. Similarly, the relationship between the GMR-1 Release 3 specifications and the corresponding 3GPP specifications is defined in annex C using the 3G terminology defined in table 2.

**Table 2: GMR-1 specifications: relationships to GSM and 3GPP**

Terminology	Definition
GSM applies	This feature is identical to GSM and hence the associated GSM specification applies.
GMR specific GMPRS specific	This GMR specification describes a new GMR feature or GMPRS feature that has no equivalent feature in GSM.
Replaces GSM	The GMR specification is a replacement for the associated GSM specification. The GMR specification may make reference to the associated GSM specification.
3GPP applies	This feature is identical to 3GPP and hence the associated 3GPP specification applies.
GMR-1 3G specific	This GMR-1 3G specification describes a new GMR-1 3G feature that has no equivalent feature in 3GPP.
Replaces 3GPP	The GMR specification is a replacement for the associated 3GPP specification. The GMR specification may make reference to the associated 3GPP specification.

NOTE 1: The associated GSM specification (if any) is directly indicated by the document number as described in clause 4.4.

NOTE 2: In the case of "GSM applies" or "Replaces GSM" the terminology translation defined in clause 5 should be applied when reading the associated GSM specification.

NOTE 3: In the case of "3GPP applies" or "Replaces 3GPP" the terminology translation defined in clause 5 should be applied when reading the associated 3GPP specification.

## 5 Terminology cross reference

This clause provides a terminology cross-reference table that provides a cross-reference between a series of common GSM terms and the equivalent terms that are used in the GMR-1 specifications.

The terminology translations defined in table 3 should be applied when reading any of the associated GSM specifications (as defined in clause 4) or when reading any GSM specifications that are referenced directly or indirectly by a GMR-1 specification.

**Table 3: GSM to GMR-1 terminology translations**

GSM term	GMR-1 term
BSC (Base Station Controller)	GSC (Gateway Station Controller)
BSS (Base Station System)	Release 1: GSS (Gateway Station System) Release 2: BSS (same as GSM)
BTS (Base Transceiver Station)	GTS (Gateway Transceiver Station)
Cell	Spot beam
GSM	GMR-1
GSM PLMN	GMR PLMN
GSM GPRS	GMPRS
ME (Mobile Equipment)	MES-ME (Mobile Earth Station - Mobile Equipment). (See note.)
MS (Mobile Station)	MES-MS (Mobile Earth Station - Mobile Station). (See note.)
MSC (Mobile Switching Centre)	GSS-MSC (Gateway Station Subsystem - Mobile Switching Centre)
NOTE:	The terms MES-ME and MES-MS are specific terms that indicate a terminal without and with a SIM card respectively. In cases where this distinction is not required, the term "MES" may be used.

In addition to the above, the terminology translations defined in table 4 should also be applied when reading any of the associated 3GPP specifications (as defined in clause 4) or when reading any 3GPP specifications that are referenced directly or indirectly by a GMR-1 3G specification.

**Table 4: 3GPP to GMR-1 3G terminology translations**

3GPP term	GMR-1 3G term
3GPP	GMR-1 3G
BSS (Base Station System)	Satellite BSS (Satellite Base Station System)
UE (User Equipment)	MES (Mobile Earth Station)
UT (User Terminal)	MES (Mobile Earth Station)
GERAN (GSM/EDGE Radio Access Network)	Satellite GERAN
RNS (Radio Network Subsystem)	GS (Gateway Station)

## Annex A (informative): Contents of Release 1 of the GMR-1 family

### A.1 Contents of the 01-series

GMR number	ETSI number	GSM number	Short title	Comment
01.004	TS 101 376-1-1 [1]		Abbreviations and acronyms	Replaces GSM
01.201	TS 101 376-1-2 [i.3]		Introduction to the GMR-1 family	GMR specific
01.202	TS 101 376-1-3 [i.4]		General System Description	GMR specific

### A.2 Contents of the 02-series

GMR number	ETSI number	GSM number	Short title	Comment
		02.01 [i.98]	Principles of Telecommunication Services Supported by a GSM Public Land Mobile Network (PLMN)	GSM applies
		02.02 [i.99]	Bearer Services (BS) Supported by a GSM Public Land Mobile Network (PLMN)	GSM applies
		02.03 [i.100]	Teleservices Supported by a GSM Public Land Mobile Network (PLMN)	GSM applies
		02.04 [i.101]	General on Supplementary Services	GSM applies
		02.09 149	Security Aspects	GSM applies
02.011	TS 101 376-2-1 [i.5]		Service Accessibility	Replaces GSM
		02.16 [i.103]	International Mobile Station Equipment Identities (IMEI)	GSM applies
		02.17 [i.104]	Subscriber Identity Modules, Functional Characteristics	GSM applies
		02.40 [i.105]	Procedures for Call Progress Indications	GSM applies
		02.41 [i.106]	Operator Determined Barring	GSM applies
		02.81 [i.107]	Line Identification Supplementary Services - Stage 1	GSM applies
		02.82 [i.108]	Call Forwarding (CF) Supplementary Services - Stage 1	GSM applies
		02.83 [i.109]	Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 1	GSM applies
		02.84 [i.110]	MultiParty (MPY) Supplementary Services - Stage 1	GSM applies
		02.85 [i.111]	Closed User Group (CUG) Supplementary Services - Stage 1	GSM applies
		02.88 [i.112]	Call Barring (CB) Supplementary Services - Stage 1	GSM applies
		02.90 [i.113]	Stage 1 Decision of Unstructured Supplementary Service Data (USSD)	GSM applies

## A.3 Contents of the 03-series

GMR number	ETSI number	GSM number	Short title	Comment
03.001	TS 101 376-3-1 [2]		Network Functions	Replaces GSM
03.002	TS 101 376-3-2 [i.6]		Network Architecture	Replaces GSM
03.003	TS 101 376-3-3 [i.7]		Numbering, addressing and identification	Replaces GSM
		03.04 [i.114]	Signalling Requirements Relating to Routing of Calls to Mobile Subscribers	GSM applies
		03.07 [i.115]	Restoration Procedures	GSM applies
03.008	TS 101 376-3-4 [i.8]		Organization of Subscriber Data	Replaces GSM
		03.10 [i.116]	GMR network connection types	GSM applies
03.011	TS 101 376-3-5 [i.9]		Technical realization of supplementary services	Replaces GSM
03.012	TS 101 376-3-6 [i.10]		Location registration and position identification procedures	Replaces GSM
03.013	TS 101 376-3-7 [i.11]		Discontinuous Reception (DRX) in the GMR-1 system	Replaces GSM
03.014	TS 101 376-3-8 [i.12]		Support of Dual Tone Multi-Frequency signalling (DTMF) via the GMR-1 system	Replaces GSM
		03.15 [i.117]	Technical Realization of Operator Determined Barring	GSM applies
		03.16 [i.118]	Subscriber Data Management	GSM applies
03.020	TS 101 376-3-9 [i.13]		Security related network functions	Replaces GSM
03.022	TS 101 376-3-10 [i.14]		Functions Related to the Mobile Earth Station (MES) in Idle Mode	Replaces GSM
		03.38 [i.119]	Alphabets and Language Specific Information for GSM	GSM applies
03.040	TS 101 376-3-11 [i.15]		Technical realization of the Short Message Service (SMS) Point-to-Point (PP)	Replaces GSM
03.041	TS 101 376-3-12 [i.16]		Technical realization of the Short Message Service Cell Broadcast (SMSCB)	Replaces GSM
03.045	TS 101 376-3-13 [i.17]		Technical realization of group 3 facsimile using transparent mode of transmission	Replaces GSM
03.050	TS 101 376-3-14 [i.18]		Transmission planning aspects of the speech service in the GMR-1 system	Replaces GSM
		03.70 [i.120]	Routing of Calls to/from Public Data Networks (PDN)	GSM applies
03.081	TS 101 376-3-15 [i.19]		Line identification supplementary services - Stage 2	Replaces GSM
		03.82 [i.121]	Call Forwarding (CF) Supplementary Services - Stage 2	GSM applies
		03.83 [i.122]	Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2	GSM applies
		03.84 [i.123]	Multi Party (MPTY) Supplementary Services - Stage 2	GSM applies
		03.85 [i.124]	Closed user Group (CUG) Supplementary Services - Stage 2	GSM applies
03.088	TS 101 376-3-16 [i.20]		Call Barring (CB) supplementary services - Stage 2	Replaces GSM
03.090	TS 101 376-3-17 [i.21]		Unstructured Supplementary Service Data (USSD) - Stage 2	Replaces GSM
03.296	TS 101 376-3-18 [i.22]		Terminal to Terminal Calls - Stage 2	GMR specific
03.297	TS 101 376-3-19 [i.23]		Technical realization of optimal routing	GMR specific
03.298	TS 101 376-3-20 [i.24]		Technical realization of high-penetration alerting	GMR specific
03.299	TS 101 376-3-21 [i.25]		Position reporting services: Stage 2 service description	GMR specific

## A.4 Contents of the 04-series

GMR number	ETSI number	GSM number	Short title	Comment
04.001	TS 101 376-4-1 [i.26]		Mobile Station - Base Station System (MS - BSS) Interface General Aspects and Principles	Replaces GSM
04.002	TS 101 376-4-2 [i.27]		GSM Public Land Mobile Network (PLMN) Access Reference Configuration	Replaces GSM
04.003	TS 101 376-4-3 [i.28]		Mobile Station - Base Station System (MS - BSS) Interface Channel Structures and Access Capabilities	Replaces GSM
04.004	TS 101 376-4-4 [i.29]		Layer 1 - General Requirements	Replaces GSM
04.005	TS 101 376-4-5 [i.30]		Data Link (DL) Layer General Aspects	Replaces GSM
04.006	TS 101 376-4-6 [i.31]		Mobile Station - Base Stations System (MS - BSS) Interface Data Link (DL) Layer Specification	Replaces GSM
04.007	TS 101 376-4-7 [i.32]		Mobile Radio Interface Signalling Layer 3 - General Aspects	Replaces GSM
04.008	TS 101 376-4-8 [i.33]		Mobile Radio Interface - Layer 3 Specification	Replaces GSM
		04.10 [i.125]	Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects	GSM applies
		04.11 [i.126]	Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface	GSM applies
		04.12 [i.127]	Short Message Service Cell Broadcast (SMS-CB) Support on the Mobile Radio Interface	GSM applies
04.013	TS 101 376-4-9 [i.34]		Performance Requirements on Mobile Radio Interface	Replaces GSM
04.021	TS 101 376-4-10 [i.35]		Rate Adaptation on the Mobile Station - Base Station System (MS-BSS) Interface	Replaces GSM
04.022	TS 101 376-4-11 [i.36]		Radio Link Protocol (RLP) for Data and Telematic Services on the (MS-BSS) Interface and the Base Station System - Mobile-services Switching Centre (BSS-MSC) Interface	Replaces GSM
		04.80 [i.128]	Mobile Radio Interface Layer 3 - Supplementary Services Specification Formats and Coding	GSM applies
		04.81 [i.129]	Line Identification Supplementary Services - Stage 3	GSM applies
		04.82 [i.130]	Call Forwarding (CF) Supplementary Services - Stage 3	GSM applies
		04.83 [i.131]	Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 3	GSM applies
		04.84 [i.132]	Multi Party (MPTY) Supplementary Services - Stage 3	GSM applies
		04.85 [i.133]	Closed User Group (CUG) Supplementary Services - Stage 3	GSM applies
		04.88 [i.134]	Call Barring (CB) Supplementary Services - Stage 3	GSM applies
		04.90 [i.135]	Unstructured Supplementary Service Data (USSD)	GSM applies

## A.5 Contents of the 05-series

GMR number	ETSI number	GSM number	Short title	Comment
05.001	TS 101 376-5-1 [i.37]		Physical Layer on the Radio Path (General Description)	Replaces GSM
05.002	TS 101 376-5-2 [i.38]		Multiplexing and Multiple Access on the Radio Path	Replaces GSM
05.003	TS 101 376-5-3 [i.39]		Channel Coding	Replaces GSM
05.004	TS 101 376-5-4 [i.40]		Modulation	Replaces GSM
05.005	TS 101 376-5-5 [i.41]		Radio Transmission and Reception	Replaces GSM
05.008	TS 101 376-5-6 [i.42]		Radio Subsystem Link Control	Replaces GSM
05.010	TS 101 376-5-7 [i.43]		Radio Subsystem Synchronization	Replaces GSM

## A.6 Contents of the 06-series

GMR number	ETSI number	GSM number	Short title	Comment
06.001	TS 101 376-6-1 [i.44]		Speech Processing Functions	Replaces GSM
06.010	TS 101 376-6-2 [i.45]		Vocoder: Speech Transcoding	Replaces GSM
06.011	TS 101 376-6-3 [i.46]		Vocoder: Substitution and Muting of Lost Frames	Replaces GSM
06.012	TS 101 376-6-4 [i.47]		Vocoder: Comfort Noise Aspects	Replaces GSM
06.031	TS 101 376-6-5 [i.48]		Vocoder: Discontinuous Transmission (DTX)	Replaces GSM
06.032	TS 101 376-6-6 [i.49]		Vocoder: Voice Activity Detection (VAD)	Replaces GSM

## A.7 Contents of the 07-series

GMR number	ETSI number	GSM number	Short title	Comment
07.001	TS 101 376-7-1 [i.50]		General on Terminal Adaptation Functions (TAF) for Mobile Earth Stations (MES)	Replaces GSM
07.002	TS 101 376-7-2 [i.51]		Terminal Adaptation Functions (TAF) for Services Using Asynchronous Bearer Capabilities	Replaces GSM
07.003	TS 101 376-7-3 [i.52]		Terminal Adaptation Functions (TAF) for Services Using Synchronous Bearer Capabilities	Replaces GSM

## Annex B (informative): Contents of Release 2 of the GMR-1 family (GMPRS-1)

### B.1 Contents of the 01-series

GMR number	ETSI number	GSM number	Short title	Comment
01.004	TS 101 376-1-1 [1]	01.04 [i.1]	Abbreviations and acronyms	GSM applies + GMPRS specific (see note)
01.201	TS 101 376-1-2 [i.3]		Introduction to the GMR-1 family	GMPRS specific
		01.60 [i.2]	GPRS Requirements	GSM applies
		01.61 [i.136]	GPRS Ciphering Algorithm Requirements	GSM applies

NOTE: GMPRS-1 specific abbreviations are contained in GMPRS-1 01.004 (Release 2 specification).

### B.2 Contents of the 02-series

GMR number	ETSI number	GSM number	Short title	Comment
		02.09 [i.102]	Security Aspects	GSM applies
		02.16 [i.103]	International Mobile Station Equipment Identities (IMEI)	GSM applies
		02.17 [i.104]	Subscriber Identity Modules, Functional Characteristics	GSM applies
		02.60 [i.137]	General Packet Radio Service Stage 1 Description	GSM applies

### B.3 Contents of the 03-series

GMR number	ETSI number	GSM number	Short title	Comment
		03.01 [i.138]	Network functions	GSM applies
		03.02 [i.139]	Network architecture	GSM applies
03.003	TS 101 376-3-3 [i.7]		Numbering, addressing and identification	Replaces GSM
		03.20 [i.140]	Security related network functions	GSM applies
03.022	TS 101 376-3-10 [i.14]		Functions Related to the Mobile Earth Station (MES) in Idle Mode	Replaces GSM
		03.60 [i.141]	General Packet Radio Service (GPRS) Service description; Stage 2	GSM applies
03.064	TS 101 376-3-22 [i.53]		General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2	Replaces GSM
03.297	TS 101 376-3-19 [i.23]		Optimal Routing technical realization	GMR specific



## B.4 Contents of the 04-series

GMR number	ETSI number	GSM number	Short title	Comment
04.007	TS 101 376-4-7 [i.32]		Mobile Radio Interface Signalling Layer 3 - General Aspects	Replaces GSM
04.008	TS 101 376-4-8 [i.33]		Mobile Radio Interface - Layer 3 Specification	Replaces GSM
04.060	TS 101 376-4-12 [i.54]		General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol	Replaces GSM
		04.64 [i.142]	General Packet Radio Service (GPRS); Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) layer specification	GSM applies
		04.65 [i.143]	General Packet Radio Service (GPRS); Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDP)	GSM applies

## B.5 Contents of the 05-series

GMR number	ETSI number	GSM number	Short title	Comment
05.002	TS 101 376-5-2 [i.38]		Multiplexing and Multiple Access on the Radio Path	Replaces GSM
05.003	TS 101 376-5-3 [i.39]		Channel Coding	Replaces GSM
05.004	TS 101 376-5-4 [i.40]		Modulation	Replaces GSM
05.005	TS 101 376-5-5 [i.41]		Radio Transmission and Reception	Replaces GSM
05.008	TS 101 376-5-6 [i.42]		Radio Subsystem Link Control	Replaces GSM
05.010	TS 101 376-5-7 [i.43]		Radio Subsystem Synchronization	Replaces GSM

## B.6 Contents of the 07-series

GMR number	ETSI number	GSM number	Short title	Comment
		07.60 [i.144]	General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS	GSM applies

## B.7 Contents of the 08-series

GMR number	ETSI number	GSM number	Short title	Comment
		08.14 [i.145]	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) interface; Gb Interface Layer 1	GSM applies
		08.16 [i.146]	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) Interface; Network Service	GSM applies
		08.18 [i.145]	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol	GSM applies

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## B.8 Contents of the 09-series

<b>GMR number</b>	<b>ETSI number</b>	<b>GSM number</b>	<b>Short title</b>	<b>Comment</b>
		09.60 [i.146]	General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface	GSM applies

## Annex C (informative): Contents of Release 3 of the GMR-1 family (GMR-1 3G)

### C.1 Contents of the 41-series

NOTE: The GMR-1 3G 41-series includes references to 3GPP 21-series and 3GPP 41-series.

GMR number	ETSI number	3GPP number	Short title	Comment
GMPRS-1 01.004 (see note 1)	TS 101 376-1-1 [1]	3GPP TR 21.905 [i.55]	Abbreviations and acronyms	GMR-1 3G specific and 3GPP applies (see note 2)
GMR-1 3G 41.201	TS 101 376-1-2 [i.3]		Introduction to the GMR-1 family	GMR-1 3G specific
GMR-1 3G 41.202	TS 101 376-1-3 [i.4]		General System Description	GMR-1 3G specific
NOTE 1: This is a reference to a GMR-1 Release 2 specification.				
NOTE 2: GMPRS-1 01.004 contains the GMR-1 specific abbreviations, and 3GPP TR 21.905 [i.55] contains 3GPP vocabulary.				

### C.2 Contents of the 42-series

NOTE: The GMR-1 3G 42-series includes references to 3GPP 22-series and 3GPP 42-series.

GMR number	ETSI number	3GPP number	Short title	Comment
		3GPP TS 22.016 [i.56]	International Mobile Station Equipment Identities (IMEI)	3GPP applies
		3GPP TS 22.060 [i.57]	General Packet Radio Service Stage 1 Description	3GPP applies

## C.3 Contents of the 43-series

NOTE: The GMR-1 3G 43-series includes references to 3GPP 23-series and 3GPP 43-series.

GMR number	ETSI number	3GPP number	Short title	Comment
GMPRS-1 03.003 (see note 1)		3GPP TS 23.003 [i.58] (Rel 6)	Numbering, addressing and identification	Replaces 3GPP and 3GPP applies (see note 2)
		3GPP TS 23.060 [i.59]	General Packet Radio Service (GPRS) Service description; Stage 2	3GPP applies
		3GPP TS 23.003 [i.58]	Numbering, Addressing and Identification	3GPP applies
		3GPP TS 23.060 [i.59]	General Packet Radio Service (GPRS); Service Description; Stage 2	3GPP applies
		3GPP TS 23.101 [i.60]	General Universal Mobile Telecommunications System (UMTS) architecture	3GPP applies
		3GPP TS 23.107 [i.61]	Quality of Service (QoS) concept and architecture	3GPP applies
		3GPP TS 23.110 [i.62]	Universal Mobile Telecommunications System (UMTS) access stratum; Services and functions	3GPP applies
		3GPP TS 23.122 [i.63]	Non-Access_Stratum (NAS) functions related to Mobile Station (MS) in idle mode	3GPP applies
		3GPP TS 23.221 [i.64]	Architectural requirements	3GPP applies
		3GPP TS 43.013 [i.65]	Discontinuous Reception (DRX) in the GSM system	3GPP applies
GMR-1 3G 43.022	TS 101 376-3-10 [i.14]	3GPP TS 43.022 [i.66]	Functions Related to the Mobile Earth Station (MES) in Idle Mode	Replaces 3GPP
GMR-1 3G 43.064	TS 101 376-3-22 [i.53]	3GPP TS 43.064 [i.67]	General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2	Replaces 3GPP
GMR-1 3G 43.051	TS 101 376-3-23 [i.68]	3GPP TS 43.051 [i.71]	Radio Access Network; Overall description - Stage 2	Replaces 3GPP
		3GPP TS 43.059 [i.72]	Radio Access Network; Functional stage 2 description of Location Services (LCS) in GERAN	3GPP applies
NOTE 1: This is a reference to a GMR-1 Release 2 specification.				
NOTE 2: This indicates a combination of GMPRS-1 03.003 and 3GPP TS 23.003 [i.58] (Rel 6) as follows:				
a) All clauses plus annex A of GMPRS-1 03.003 apply except for clause 12.				
b) Clause 8 of 3GPP TS 23.003 [i.58] replaces clause 12 of GMPRS-1 03.003.				
c) Clauses 12 and 13 and annexes B to E of 3GPP TS 23.003 [i.58] apply. All other clauses of 3GPP TS 23.003 [i.58] (specifically clauses 1 to 7, clauses 9 to 11 and clauses 14 to 17) and annexes A and F do not apply.				

## C.4 Contents of the 44-series

NOTE: The GMR-1 3G 44-series includes references to 3GPP 24-series and 3GPP 44-series.

GMR number	ETSI number	3GPP number	Short title	Comment
GMPRS-1 04.007 (see note 1)		3GPP TS 24.007 [i.73]	Mobile radio interface signalling layer 3; General aspects	Replaces 3GPP
		3GPP TS 24.008 [i.74]	Mobile radio interface Layer 3 specification; Core network protocols; Stage 3	3GPP applies
		3GPP TS 24.002 [i.75]	GSM - UMTS Public Land Mobile Network (PLMN) Access Reference Configuration	3GPP applies
		3GPP TS 24.007 [i.73]	Mobile radio interface signalling layer 3; General aspects	3GPP applies
		3GPP TS 24.008 [i.74]	Mobile radio interface Layer 3 specification; Core network protocols; Stage 3	3GPP applies
		3GPP TS 24.010 [i.76]	Mobile radio interface layer 3 Supplementary services specification; General aspects	3GPP applies
		3GPP TS 24.011 [i.77]	Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface	3GPP applies
		3GPP TS 24.080 [i.78]	Mobile radio interface layer 3 supplementary services specification; Formats and coding	3GPP applies
GMR-1 04.004 (see note 2)	TS 101 376-4-4 [i.29]	3GPP TS 44.004 [i.79]	Layer 1; General requirements	Replaces 3GPP
GMR-1 04.005 (see note 2)	TS 101 376-4-5 [i.30]	3GPP TS 44.005 [i.80]	Data Link (DL) layer; General aspects	Replaces 3GPP
GMR-1 04.006 (see note 2)	TS 101 376-4-6 [i.31]	3GPP TS 44.006 [i.81]	Mobile Station - Base Station System (MS - BSS) interface; Data Link (DL) layer specification	Replaces 3GPP
GMR-1 3G 44.008	TS 101 376-4-8 [i.33]	3GPP TS 44.018 [i.82]	Mobile Radio Interface - Layer 3 Specification	Replaces 3GPP
GMR-1 3G 44.060	TS 101 376-4-12 [i.54]	3GPP TS 44.060 [i.83]	General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol	Replaces 3GPP
GMR-1 3G 44.118	TS 101 376-4-13 [i.84]	3GPP TS 44.118 [i.85]	Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol; Iu Mode	Replaces 3GPP
GMR-1 3G 44.160	TS 101 376-4-14 [i.86]	3GPP TS 44.160 [i.87]	Mobile Earth Station (MES) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol; Iu mode	Replaces 3GPP
NOTE 1: This is a reference to a GMR-1 Release 2 specification.				
NOTE 2: This is a reference to a GMR-1 Release 1 specification.				

## C.5 Contents of the 45-series

NOTE: The GMR-1 3G 45-series includes references to 3GPP 25-series.

GMR number	ETSI number	3GPP number	Short title	Comment
		3GPP TS 25.323 [i.88]	Packet Data Convergence Protocol (PDCP) Specification	3GPP applies
		3GPP TS 25.331 [i.89]	Radio Resource Control (RRC); Protocol Specification	3GPP applies
		3GPP TS 25.410 [i.90]	UTRAN Iu Interface: General Aspects and Principles	3GPP applies
		3GPP TS 25.411 [i.91]	UTRAN Iu interface Layer 1	3GPP applies
		3GPP TS 25.412 [i.92]	UTRAN Iu interface signalling transport	3GPP applies
		3GPP TS 25.413 [i.93]	UTRAN Iu interface RANAP signalling	3GPP applies
		3GPP TS 25.414 [i.94]	UTRAN Iu interface data transport and transport signalling	3GPP applies
		3GPP TS 25.415 [i.95]	UTRAN Iu interface user plane protocols	3GPP applies
GMR-1 3G 45.002	TS 101 376-5-2 [i.38]		Multiplexing and Multiple Access on the Radio Path	GMR-1 3G specific
GMR-1 3G 45.003	TS 101 376-5-3 [i.39]		Channel Coding	GMR-1 3G specific
GMR-1 3G 45.004	TS 101 376-5-4 [i.40]		Modulation	GMR-1 3G specific
GMR-1 3G 45.005	TS 101 376-5-5 [i.41]		Radio Transmission and Reception	GMR-1 3G specific
GMR-1 3G 45.008	TS 101 376-5-6 [i.42]		Radio Subsystem Link Control	GMR-1 3G specific
GMR-1 3G 45.010	TS 101 376-5-7 [i.43]		Radio Subsystem Synchronization	GMR-1 3G specific

## C.6 Other relevant 3GPP specifications

### C.6.1 3GPP 30-series specifications

3GPP number	Short title
3GPP TS 31.102 [i.96]	Characteristics of the USIM application
3GPP TS 33.102 [i.97]	3G Security; Security architecture

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## History

<b>Document history</b>		
V3.1.1	July 2009	Publication