

# ETSI TS 101 855 V8.5.0 (2002-03)

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*Technical Specification*

**Digital cellular telecommunications system (Phase 2+);  
GSM Release 1999 Specifications  
(3GPP TS 01.01 version 8.5.0 Release 1999)**

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**GSM**®  
GLOBAL SYSTEM FOR  
MOBILE COMMUNICATIONS

**3GPP**

**ETSI** 

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Reference

RTS/TSGS-000101Q8R5

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Keywords

GSM

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## Foreword

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The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under [www.etsi.org/key](http://www.etsi.org/key).

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# Contents

Intellectual Property Rights .....	2
Foreword.....	2
Foreword.....	4
1 Scope .....	5
2 References .....	5
3 Abbreviations .....	5
4 General .....	5
4.1 Specification and report numbering .....	5
4.2 Specification series .....	6
4.2.1 01 and 21-series .....	6
4.2.2 02 and 22-series .....	6
4.2.3 03 and 23-series .....	6
4.2.4 04 and 24-series .....	6
4.2.5 05 series .....	6
4.2.6 06 series .....	6
4.2.7 07 and 27-series .....	6
4.2.8 08 and 28-series .....	6
4.2.9 09 and 29-series .....	7
4.2.10 11 series .....	7
4.2.11 12 series .....	7
4.2.12 13 series .....	7
5 Content of GSM Release 1999 .....	7
5.1 GSM only Work Areas .....	7
5.2 Common GSM/3G Work Areas .....	8
5.2.1 Work areas related to the services .....	8
5.2.2 Work areas related to the system architecture.....	8
5.2.3 Work areas related to the security.....	8
5.2.4 Work areas related to the codec .....	9
5.2.5 Work areas related to the network management .....	9
5.2.6 Work areas related to the core network specification .....	9
5.2.7 Work areas related to the testing of the MS .....	10
5.2.8 Work areas related to the data.....	10
5.2.9 Work areas related to the User Card .....	10
5.2.10 Work areas related to the access network .....	10
5.2.11 Work areas handled by other groups.....	11
5.3 Release 99 work areas impacting other systems.....	11
6 Specifications and Reports .....	11
6.1 (void).....	16
6.2 (void).....	16
<b>Annex A (informative): Document change history .....</b>	<b>17</b>
History .....	18

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# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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# 1 Scope

The present document identifies the GSM system specifications for GSM Release 1999.

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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, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] GSM 01.04: "Abbreviations and acronyms".
- [2] 3GPP TS 51.010-1 (version 4, Release 4): "Mobile Station (MS) conformance specification; Part 1: Conformance specification".
- [3] 3GPP TS 51.010-2 (version 4, Release 4): "Mobile station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [4] 3GPP TS 51.010-3 (version 4, Release 4): " Mobile station (MS) conformance specification; Part 3: Layer3 (L3) Abstract Test Suite (ATS)".
- [5] 3GPP TS 51.010-4 (version 4, Release 4): "Mobile Station (MS) Conformance Specification; Part 4: SIM Application Toolkit conformance specification".

Note: The above specification was not available at the time of issue of the present document.

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## 3 Abbreviations

For the purposes of the present document, the terms and definitions given in GSM 01.04 apply.

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## 4 General

GSM Release 1999 consists of GSM-only specifications and the GSM Core Network specifications developed for both GSM Release 1999 and Release 1999 of the 3<sup>rd</sup> Generation mobile system.

GSM Release 1999 also includes many enhanced features developed within the 3<sup>rd</sup> Generation Partnership Project.

The present document identifies the GSM system set of specifications required to implement GSM Release 1999.

### 4.1 Specification and report numbering

Specifications for GSM Release-1999-only can be identified by the "**ab.de**" numbering scheme.

Specifications for both GSM Release 1999 and Release 1999 of the 3<sup>rd</sup> Generation mobile system are identified by the "**ab.cde**" numbering scheme.

NOTE: A "c" digit equal to zero indicates a GSM heritage of a specification.

## 4.2 Specification series

In general the Specification series are identified as follows:

### 4.2.1 01 and 21-series

#### **Requirements specifications**

These specifications are often transient and contain requirements towards other specifications. They may become obsolete when technical solutions have been fully specified; they could then, e.g., be replaced by reports describing the performance of the system, they could be deleted without replacement or be kept for historical reasons but turned into background material. When found necessary and appropriate, the transient or permanent nature of a requirement specification may be expressed in its scope.

### 4.2.2 02 and 22-series

#### **Service aspects**

Specifications in this series specify services, service features, building blocks or platforms for services (a service feature or service building block may provide certain generic functionality for the composition of a service, including the control by the user; a platform may comprise one or more network elements, e.g. UIM, mobile terminal, auxiliary system to the core network etc.); stage 1 specifications that are felt appropriate belong into this series; reports defining services which can be realized by generic building blocks etc. also belong into this series.

### 4.2.3 03 and 23-series

#### **Technical realization**

This series mainly contains stage 2 specifications (or specifications of a similar nature describing interworking over several interfaces, the behaviour in non-exceptional cases, etc.).

### 4.2.4 04 and 24-series

#### **Signalling protocols (UE-CN)**

This series contains the detailed and bit exact stage 3 specifications of protocols between MS/UE and the core network.

### 4.2.5 05 series

#### **GSM Radio aspects**

### 4.2.6 06 series

#### **Codecs**

This series defines speech codecs and other codecs for GSM.

### 4.2.7 07 and 27-series

#### **Data**

This series defines the functions necessary to support data applications at the user equipment side.

### 4.2.8 08 and 28-series

#### **Signalling protocols (RSS - network part )**

This series contains the detailed and bit exact stage 3 specifications of protocols relevant for interfaces internal to the Radio Access Network and between this and the Core Network.

## 4.2.9 09 and 29-series

### Signalling protocols (NSS)

This series contains the detailed and bit exact stage 3 specifications of protocols within the Core Network.

## 4.2.10 11 series

### SIM and conformance test

This series specifies the Subscriber Identity Module (SIM) and the interfaces between SIM and other entities, and the conformance test specifications for GSM.

## 4.2.11 12 series

### Operation and maintenance

This series defines the application of TMN for GSM and other functions for operation, administration and maintenance of a GSM network.

## 4.2.12 13 series

### Access requirements

This series contains Access requirement specifications for GSM.

# 5 Content of GSM Release 1999

## 5.1 GSM only Work Areas

WI Title	Prime resp STC	Rel
BSS co-ordination of Radio Resource allocation for class A GPRS services - GSM Radio Access	SMG02	99
Enhanced Data rates for GSM Evolution (EDGE) - BSS	SMG02	99
General Packet Radio Service Phase 2 (GPRS) - radio part	SMG02	99
GSM on 400 MHz Frequency Band	SMG02	99
BSS co-ordination of Core Network Resource allocation for class A GPRS services -GSM-UMTS Core Network	SMG12	99



## 5.2 Common GSM/3G Work Areas

### 5.2.1 Work areas related to the services

WI Title	Prime responsible STC	Rel
Advanced Addressing	SMG01	99
Automatic Establishment of Roaming Relations	SMG01	99
CAMEL Phase 3	SMG01	99
Follow Me	SMG01	99
GSM Mobile Number Portability EURO MNP	SMG01	98
Service Continuity and Provision of VHE via GSM/UMTS	SMG01	99
UMTS Charging & Billing	SMG01	99
UMTS Numbering, Addressing and Identities	SMG01	99
Virtual Home Environment	SMG01	99
Unstructured Supplementary Service Data (USSD) enhancements	SMG01 and TSG-N	99
MS and Network-Resident Execution Environments (MS/N-RExE)	SMG01	99

### 5.2.2 Work areas related to the system architecture

WI Title	Prime responsible STC	Rel
Enhanced QoS Support in GPRS	S2	99
IP-in-IP tunneling in GPRS backbone for UMTS, phase 1	S2	99
UMTS Open Service Architecture	S2	99
Architecture of the GSM-UMTS Platform	S2/SMG12	99
Architecture overview of the GSM-UMTS System	S2/SMG12	99
End to End UMTS QoS Management	S2/SMG12	99
Multimedia in UMTS	S2/SMG12	99
Provision of text telephony service in GSM and UMTS	S2/SMG12	99
Study on Combined GSM and Mobile IP Mobility Handling in UMTS IP CN	S2/SMG12	99
Support for real time services in the Packet domain for GSM/GPRS/UMTS R99	S2/SMG12	99
UMTS Core based on ATM Transport	S2/SMG12	99
Location Services (LCS) for R99	S2	99
Support of non-realtime Multimedia Messaging Service	SMG04 / S2	99

### 5.2.3 Work areas related to the security

WI Title	Prime responsible STC	Rel
Fraud Information Gathering System applied to GPRS	SMG10	99
Immediate Service Termination (IST) : CAMEL free solution	SMG10	99
SS7 Security	SMG10	99

## 5.2.4 Work areas related to the codec

WI Title	Prime responsible STC	Rel
3G audio-visual terminal characteristics	S4	99
Codec for Low Bitrate Multimedia Telephony Service	S4	99
Mandatory Speech Codec for Narrowband Telephony Service	S4	99
Codec(s) for Wideband Telephony Services	S4	99
AMR – Wideband	S4	99
AMR - Adaptive Multi-Rate codec (GSM 10.70)	S4?	98
QoS for Speech and Multimedia Codec	S4	99
Tandem free operation in 3G systems and between 2G and 3G systems	S4	98

## 5.2.5 Work areas related to the network management

WI Title	Prime responsible STC	Rel
3G charging management	S5	99
3G system configuration management	S5	99
3G system fault management	S5	99
3G system performance management	S5	99
Charging and Billing for GPRS – Advice of Charge	SMG06	99
Charging and Billing for GPRS – Hot Billing	SMG06	99
Charging and Billing for GPRS – Pre-Paid	SMG06	99

## 5.2.6 Work areas related to the core network specification

### Concerning N1 (layer MM/CM/SM) (SMG3A at SMG)

WI Title	Prime responsible STC	Rel
Pre-paging	N1	99
Turbo-Charger: Feasibility Study	N1	99
Unstructured Supplementary Service Data (USSD) enhancements	S1 / SMG01 and TSG-N	99
General Packet Radio Service Phase 2 (GPRS) - network part	SMG03	99
Tandem Free Operation of speech codecs in Mobile-to-Mobile Calls (MMCs) in band (including AMR)	SMG02 and SMG 11	98
Tandem Free Operation of speech codecs in Mobile-to-Mobile Calls (MMCs) : out-band	SMG03	99
Access to ISPs and Intranets in GPRS Phase 2 – Separation of GPRS Bearer Establishment and ISP Service Environment Setup	SMG03 / N	98 or 99

### Concerning N2 (Camel) (SMG3C at SMG)

None

**Concerning N3 (Interworking with external networks) (SMG3D at SMG)**

WI Title	Prime responsible STC	Rel
Enhanced Data rates for GSM Evolution (EDGE) - NSS	N3 / SMG03	99

**5.2.7 Work areas related to the testing of the MS**

WI Title	Prime responsible STC	Rel
MS Protocol/RF/EMC conformance specification	SMG7	99

**5.2.8 Work areas related to the data**

WI Title	Prime responsible STC	Rel
SMS Advanced Cell Broadcast	T2	99
SMS Cell Broadcast	T2	99
Messaging (Multimedia Messaging Service); Stage 2/3	T2	99
Messaging (Short Message Service (SMS); Stage 2/3	T2	99
Terminal interfaces (Alternatives to AT commands)	T2	99
Terminal interfaces (AT commands for 3GPP)	T2	99
Access to ISPs and Intranets in GPRS Phase 2 – Wireless/Remote Access to LANs	SMG03	99
Connecting an octet stream to a port on an Internet host	SMG03	98
GPRS Mobile IP Interworking	SMG03	99
Mobile Station Execution Environment (MExE)	SMG03	98 - 99
Modem and ISDN interworking for GPRS	SMG03	98
Study on provision of facsimile services in GSM and UMTS	SMG03	99
Unstructured octet stream GPRS PDP Type	SMG03	98
Access to ISPs and Intranets in GPRS Phase 2 – Separation of GPRS Bearer Establishment and ISP Service Environment Setup	SMG03 / N	98 or 99
Support of non-realtime Multimedia Messaging Service	SMG03 / S2	99
GPRS - Point-To-Multipoint Services	SMG03	99

**5.2.9 Work areas related to the User Card**

WI Title	Prime responsible STC	Rel
Specification of administrative commands and functions for IC cards	T	99
WAP WAE User Agent / SIM toolkit interworking	T	99
GSM-API for SIM-Toolkit	SMG09	98
Specification of a bearer independent protocol for SAT applications to exchange data over the GSM network	SMG09	99
SIM toolkit test specification	SMG09	99
Generic Logical and Physical specification for IC card and terminal interface	SMG09	99
Specification of administrative commands and functions for IC cards	SMG09	99

**5.2.10 Work areas related to the access network****Concerning the testing of the BSS (RAN4 at 3GPP, SMG2C at SMG)**

None

**Concerning all the other groups**

None

## 5.2.11 Work areas handled by other groups

WI Title	Prime responsible STC	Rel
Location Services (LCS)	T1P1	98
EDGE Compact	SMG02	99
support for EGPRS in ANSI-136 networks	SMG02	99

## 5.3 Release 99 work areas impacting other systems

None

# 6 Specifications and Reports

Specifications in the range 01.xx to 12.xx are 'pure' GSM specs - that is, those only required to build systems which are based on 3GPP specifications and which use a GSM/EDGE Radio Access Network (GERAN). Specifications in the range 21.xxx to 35.xxx are common to systems which are based on 3GPP specifications, and which use either a GSM/EDGE radio access network or a UTRA Radio Access Network (UTRAN) (or both).

Number	Title	WG prime
01.01	GSM Release 1999 Specifications	SP
01.04	Abbreviations and acronyms	GP
01.31	Fraud Information Gathering System (FIGS); Service requirements; Stage 0	S3
01.33	Lawful Interception requirements for GSM	S3
01.61	General Packet Radio Service (GPRS); GPRS ciphering algorithm requirements	S3
02.09	Security aspects	S3
02.17	Subscriber Identity Module (SIM); Functional characteristics	T3
02.19	Subscriber Identity Module Application Programming Interface (SIM API); Stage 1	T3
02.31	Fraud Information Gathering System (FIGS); Service description; Stage 1	S3
02.32	Immediate Service Termination (IST); Service description; Stage 1	S3
02.33	Lawful Interception (LI); Stage 1	S3
02.43	Support of Localised Service Area (SoLSA); Service description; Stage 1	S1
02.48	Security mechanisms for the SIM Application Toolkit; Stage 1	T3
02.53	Tandem Free Operation (TFO); Service description; Stage 1	S4
02.56	GSM Cordless Telephony System (CTS), Phase 1; Service description; Stage 1	S1
02.68	Voice Group Call Service (VGCS); Stage 1	S1
02.69	Voice Broadcast Service (VBS); Stage 1	S1
02.76	Noise Suppression for the AMR	S4
02.94	Follow Me Service description; Stage 1	S1
02.95	Support of Private Numbering Plan (SPNP); Service description; Stage 1	S1
03.05	Technical performance objectives	NP
03.10	GSM Public Land Mobile Network (PLMN) Connection Types	N3
03.13	Discontinuous Reception (DRX) in the GSM System	G1
03.19	GSM API for SIM toolkit stage 2	T3
03.20	Security-related Network Functions	S3
03.22	Functions related to Mobile Station (MS) in idle mode and group receive mode	G1
03.26	Multiband operation of GSM/DCS 1800 by a single operator	G1
03.30	Radio Network Planning Aspects	GP
03.31	Fraud Information Gathering System (FIGS); Service description; Stage 2	S3
03.33	Lawful Interception; Stage 2	S3
03.35	Immediate Service Termination (IST); Stage 2	S3
03.45	Technical Realization of Facsimile Group 3 Service - transparent	N3
03.46	Technical Realization of Facsimile Group 3 Service - non transparent	N3
03.48	Security mechanisms for SIM application toolkit; Stage 2	T3
03.50	Transmission Planning Aspects of the Speech Service in the GSM Public Land Mobile Network (PLMN) System	S4
03.52	Lower layers of the GSM Cordless Telephony System (CTS) radio interface; Stage 2	G1
03.53	Tandem Free Operation (TFO); Service description; Stage 2	S4
03.55	Dual Transfer Mode (DTM); Stage 2	G1

Number	Title	WG prime
03.58	Characterisation, test methods and quality assessment for handsfree Mobile Stations (MSs)	S4
03.64	General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2	G1
03.68	Voice Group Call Service (VGCS); Stage 2	N1
03.69	Voice Broadcast service (VBS); Stage 2	N1
03.71	Location Services (LCS); Functional description; Stage 2	S2
04.01	Mobile Station - Base Station System (MS - BSS) Interface General Aspects and Principles	N1
04.03	Mobile Station - Base Station System (MS - BSS) Interface Channel Structures and Access Capabilities	G2
04.04	Layer 1 - General Requirements	G2
04.05	Data Link (DL) Layer General Aspects	G2
04.06	Mobile Station - Base Stations System (MS - BSS) Interface Data Link (DL) Layer Specification	G2
04.08	Mobile radio interface layer 3 specification	N1
04.12	Short Message Service Cell Broadcast (SMSCB) Support on the Mobile Radio Interface	G2
04.13	Performance Requirements on Mobile Radio Interface	N1
04.14	Individual equipment type requirements and interworking; Special conformance testing functions	G2
04.18	Mobile radio interface layer 3 specification; Radio Resource Control Protocol	G2
04.21	Rate Adaption on the Mobile Station - Base Station System (MS-BSS) Interface	N3
04.31	Location Services (LCS); Mobile Station (MS) - Serving Mobile Location Centre (SMLC) Radio Resource LCS Protocol (RRLP)	G2
04.35	Location Services (LCS); Broadcast network assistance for Enhanced Observed Time Difference (E-OTD) and Global Positioning System (GPS) positioning methods	G2
04.56	GSM Cordless Telephony System (CTS), (Phase 1) CTS Radio Interface Layer 3 Specification	N1
04.57	GSM Cordless Telephony System (CTS), (Phase 1) CTS CTS supervising system Layer 3 Specification	N1
04.60	General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol	G2
04.64	General Packet Radio Service (GPRS); Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) layer specification	N1
04.65	General Packet Radio Service (GPRS); Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)	N1
04.68	Group Call Control (GCC) Protocol	N1
04.69	Broadcast Call Control (BCC) protocol	N1
04.71	Location Services (LCS); Mobile radio interface layer 3 specification	G2
05.01	Physical Layer on the Radio Path (General Description)	G1
05.02	Multiplexing and Multiple Access on the Radio Path	G1
05.03	Channel coding	G1
05.04	Modulation	G1
05.05	Radio Transmission and Reception	G1
05.08	Radio Subsystem Link Control	G1
05.09	Link adaptation	G1
05.10	Radio subsystem synchronization	G1
05.22	Radio link management in hierarchical networks	G1
05.50	Background for RF Requirements	G1
05.56	CTS-FP Radio Sub-system	G1
06.01	Full Rate Speech Processing Functions	S4
06.02	Half Rate Speech Processing Functions	S4
06.06	Half Rate Speech: ANSI-C Code for GSM Half Rate Speech Codec	S4
06.07	Half Rate Speech: Test Sequence for GSM Half Rate Speech Codec	S4
06.08	Half Rate Speech; Performance Characterization of the GSM Half Rate speech codec	S4
06.10	Full Rate Speech Transcoding	S4
06.11	Substitution and Muting of Lost Frames for Full Rate Speech Channels	S4
06.12	Comfort Noise Aspects for Full Rate Speech Traffic Channels	S4
06.20	Half Rate Speech Transcoding	S4
06.21	Half rate speech; Substitution and muting of lost frames for half rate speech traffic channels	S4
06.22	Comfort Noise Aspects for Half Rate Speech Traffic Channels	S4
06.31	Discontinuous Transmission (DTX) for Full Rate Speech Traffic Channels	S4
06.32	Voice Activity Detection (VAD)	S4
06.41	Discontinuous Transmission (DTX) for Half Rate Speech Traffic Channels	S4
06.42	Voice Activity Detection (VAD) for Half Rate Speech Traffic Channels	S4
06.51	GSM Enhanced full rate speech processing functions: General description	S4
06.53	ANSI-C code for the GSM Enhanced full rate speech codec	S4
06.54	Test sequences for the GSM Enhanced Full Rate (EFR)	S4

Number	Title	WG prime
06.55	Performance characterisation of the GSM EFR Speech Codec	S4
06.60	Enhanced full rate speech transcoding	S4
06.61	Substitution and muting of lost frames for enhanced full rate speech traffic channels	S4
06.62	Comfort noise aspects for Enhanced Full Rate (EFR) speech traffic channels	S4
06.76	Adaptive Multi-Rate (AMR) speech codec; Study phase report	S4
06.77	Minimum Performance Requirements for Noise Suppressor Application to the AMR Speech Encoder	S4
06.78	Results of the AMR noise suppression selection phase	S4
06.81	Discontinuous Transmission (DTX) for enhanced full rate speech traffic channels	S4
06.82	Voice Activity Detection (VAD) for enhanced full rate speech traffic channels	S4
06.85	Subjective tests on the interoperability of the HR/FR/EFR speech codecs; single, tandem and tandem free operation	S4
08.01	General Aspects on the BSS-MSC Interface	G2
08.02	Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface - Interface Principles	G2
08.04	Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface Layer 1 Specification	G2
08.06	Signalling Transport Mechanism Specification for the Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface	G2
08.08	Mobile-services Switching Centre - Base Station system (MSC-BSS) Interface Layer 3 Specification	G2
08.14	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) interface; Gb Interface Layer 1	G2
08.16	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) Interface; Network Service	G2
08.18	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol	G2
08.20	Rate Adaptation on the Base Station System - Mobile Service Switching Centre (BSS-MSC) Interface	N3
08.31	Location Services LCS: Serving Mobile Location Centre - Serving Mobile Location Centre (SMLC - SMLC); SMLCPP specification	G2
08.51	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface General Aspects	G2
08.52	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface - Interface Principles	G2
08.54	BSC-BTS Layer 1; Structure of Physical Circuits	G2
08.56	BSC-BTS Layer 2; Specification	G2
08.58	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface Layer 3 Specification	G2
08.60	In-band control of remote transcoders and rate adaptors for Enhanced Full Rate (EFR) and full rate traffic channels	G1
08.61	In-band control of remote transcoders and rate adaptors for half rate traffic channels	G1
08.62	Inband Tandem Free Operation (TFO) of Speech Codecs; Service Description; Stage 3	S4
08.71	Location Services (LCS); Serving Mobile Location Centre - Base Station System (SMLC-BSS) interface; Layer 3 specification	G2
09.01	General Network Interworking Scenarios	N4
09.08	Application of the Base Station System Application Part (BSSAP) on the E-Interface	N1
09.31	Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)	G2
10.56	Project scheduling and open issues: GSM Cordless Telephony System CTS, Phase 1	S2
10.59	Project scheduling and open issues for EDGE	G1
11.10-1	Mobile station (MS) conformance specification; Part1: Conformance specification	G5
11.11	Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) Interface	T3
11.14	Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface	T3
11.21	Base Station System (BSS) equipment specification; Radio aspects	G3
11.26	GSM Repeater Equipment Specification	G3
12.03	Security Management	S5
12.04	Performance data measurements	S5
12.71	Location Services (LCS); Location services management	S5
21.978	Feasibility Technical Report – CAMEL Control of VoIP Services	N2
22.001	Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)	S1
22.002	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)	S1
22.003	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)	S1
22.004	General on Supplementary Services	S1
22.011	Service accessibility	S1
22.016	International Mobile Equipment Identities (IMEI)	S1
22.022	Personalisation of Mobile Equipment (ME); Mobile functionality specification	S3
22.024	Description of Charge Advice Information (CAI)	S1
22.030	Man-Machine Interface (MMI) of the User Equipment (UE)	S1
22.034	High Speed Circuit Switched Data (HSCSD); Stage 1	S1

Number	Title	WG prime
22.038	USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1	S1
22.041	Operator Determined Call Barring	S1
22.042	Network Identity and Time Zone (NITZ) service description; Stage 1	S1
22.057	Mobile Execution Environment (MExE) service description; Stage 1	S1
22.060	General Packet Radio Service (GPRS); Service description; Stage 1	S1
22.066	Support of Mobile Number Portability (MNP); Stage 1	S1
22.067	enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 1	S1
22.071	Location Services (LCS); Stage 1	S1
22.072	Call Deflection (CD); Stage 1	S1
22.078	Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1	S1
22.079	Support of optimal routing; Stage 1	S1
22.081	Line Identification supplementary services; Stage 1	S1
22.082	Call Forwarding (CF) Supplementary Services; Stage 1	S1
22.083	Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1	S1
22.084	MultiParty (MPTY) supplementary service; Stage 1	S1
22.085	Closed User Group (CUG) supplementary services; Stage 1	S1
22.086	Advice of Charge (AoC) supplementary services; Stage 1	S1
22.087	User-to-user signalling (UUS); Stage 1	S1
22.088	Call Barring (CB) supplementary services; Stage 1	S1
22.090	Unstructured Supplementary Service Data (USSD); Stage 1	S1
22.091	Explicit Call Transfer (ECT) supplementary service; Stage 1	S1
22.093	Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1	S1
22.094	Follow Me service description - Stage 1	S1
22.096	Name identification supplementary services; Stage 1	S1
22.097	Multiple Subscriber Profile (MSP) Phase 1; Service description - Stage 1	S1
22.115	Service Aspects Charging and billing	S1
22.121	Service aspects; The Virtual Home Environment; Stage 1	S1
22.129	Handover requirements between UTRAN and GERAN or other radio systems	S1
22.945	Study of provision of fax service in GSM and UMTS	T2
23.002	Network Architecture	S2
23.003	Numbering, Addressing and Identification	N4
23.007	Restoration procedures	N4
23.008	Organisation of subscriber data	N4
23.009	Handover procedures	N1
23.011	Technical realization of Supplementary Services	N4
23.012	Location management procedures	N4
23.014	Support of Dual Tone Multi Frequency (DTMF) signalling	N1
23.015	Technical realisation of Operator Determined Barring (ODB)	N4
23.016	Subscriber data management; Stage 2	N4
23.018	Basic Call Handling; Technical realization	N4
23.032	Universal Geographical Area Description (GAD)	S2
23.034	High Speed Circuit Switched Data (HSCSD); Stage 2	N1
23.038	Alphabets and language-specific information	T2
23.039	Interface Protocols for the Connection of Short Message Service Centers (SMSCs) to Short Message Entities (SMEs)	T2
23.040	Technical realization of Short Message Service (SMS)	T2
23.041	Technical realization of Cell Broadcast Service (CBS)	T2
23.042	Compression algorithm for SMS	T2
23.057	Mobile Execution Environment (MExE); Functional description; Stage 2	T2
23.060	General Packet Radio Service (GPRS) Service description; Stage 2	S2
23.066	Support of GSM Mobile Number Portability (MNP) stage 2	N4
23.067	Enhanced Multi-Level Precedence and Preemption Service (EMLPP); Stage 2	N4
23.072	Call Deflection Supplementary Service; Stage 2	N4
23.073	Support of Localised Service Area (SoLSA); Stage 2	N4
23.078	Customised Applications for Mobile network Enhanced Logic (CAMEL); Stage 2	N2
23.079	Support of Optimal Routing (SOR); Technical realization; Stage 2	N4
23.081	Line Identification supplementary services; Stage 2	N4
23.082	Call Forwarding (CF) Supplementary Services; Stage 2	N4
23.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service; Stage 2	N4
23.084	MultiParty (MPTY) Supplementary Service; Stage 2	N4
23.085	Closed User Group (CUG) Supplementary Service; Stage 2	N4
23.086	Advice of Charge (AoC) Supplementary Service; Stage 2	N4

Number	Title	WG prime
23.087	User-to-User Signalling (UUS) supplementary service; Stage 2	N4
23.088	Call Barring (CB) Supplementary Service; Stage 2	N4
23.090	Unstructured Supplementary Service Data (USSD); Stage 2	N4
23.091	Explicit Call Transfer (ECT) Supplementary Service; Stage 2	N4
23.093	Technical realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2	N4
23.094	Follow Me Stage 2	N4
23.096	Name Identification Supplementary Service; Stage 2	N4
23.097	Multiple Subscriber Profile (MSP) Phase 1; Stage 2	N4
23.108	Mobile radio interface layer 3 specification core network protocols; Stage 2 (structured procedures)	N1
23.110	UMTS Access Stratum Services and Functions	S2
23.116	Super-Charger technical realization; Stage 2	N4
23.119	Gateway Location Register (GLR); Stage2	N4
23.121	Architecture Requirements for release 99	S2
23.140	Multimedia Messaging Service (MMS); Functional description; Stage 2	T2
23.908	Technical report on Pre-Paging	N4
23.909	Technical report on the Gateway Location Register	N4
23.911	Technical report on Out-of-band transcoder control	N4
23.912	Technical report on Super-Charger	N4
23.923	Combined GSM and Mobile IP mobility handling in UMTS IP CN	S2
23.925	UMTS Core network based ATM transport	S2
24.002	GSM-UMTS Public Land Mobile Network (PLMN) Access Reference Configuration	N1
24.007	Mobile radio interface signalling layer 3; General Aspects	N1
24.008	Mobile radio interface Layer 3 specification; Core network protocols; Stage 3	N1
24.010	Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects	N4
24.011	Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface	N1
24.022	Radio Link Protocol (RLP) for circuit switched bearer and teleservices	N3
24.030	Location Services (LCS); Supplementary service operations; Stage 3	N4
24.067	Enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 3	N4
24.072	Call Deflection Supplementary Service; Stage 3	N4
24.080	Mobile radio Layer 3 supplementary service specification; Formats and coding	N4
24.081	Line Identification Supplementary Service; Stage 3	N4
24.082	Call Forwarding supplementary service; Stage 3	N4
24.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service; Stage 3	N4
24.084	MultiParty (MPTY) Supplementary Service; Stage 3	N4
24.085	Closed User Group (CUG) Supplementary Service; Stage 3	N4
24.086	Advice of Charge (AoC) Supplementary Service; Stage 3	N4
24.087	User-to-User Signalling (UUS); Stage 3	N4
24.088	Call Barring (CB) Supplementary Service; Stage 3	N4
24.090	Unstructured Supplementary Service Data (USSD); Stage 3	N4
24.091	Explicit Call Transfer (ECT) Supplementary Service; Stage 3	N4
24.093	Call Completion to Busy Subscriber (CCBS); Stage 3	N4
24.096	Name Identification Supplementary Service; Stage 3	N4
26.975	Performance characterization of the Adaptive Multi-Rate (AMR) speech codec	S4
27.001	General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)	N3
27.002	Terminal Adaptation Functions (TAF) for services using Asynchronous bearer capabilities	N3
27.003	Terminal Adaptation Functions (TAF) for services using Synchronous bearer capabilities	N3
27.005	Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE-DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)	T2
27.007	AT command set for 3G User Equipment (UE)	T2
27.010	Terminal Equipment to User Equipment (TE-UE) multiplexer protocol	T2
27.060	Packet domain; Mobile Station (MS) supporting Packet Switched services	N3
27.103	Wide Area Network Synchronization	T2
29.002	Mobile Application Part (MAP) specification	N4
29.007	General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)	N3
29.010	Information Element Mapping between Mobile Station - Base Station System (MS - BSS) and Base Station System - Mobile-services Switching Centre (BSS - MCS) Signalling Procedures and the Mobile Application Part (MAP)	N4
29.011	Signalling Interworking for Supplementary Services	N4
29.013	Signalling interworking between ISDN supplementary services Application Service Element (ASE) and Mobile Application Part (MAP) protocols	N4
29.016	Serving GPRS Support Node SGSN - Visitors Location Register (VLR); Gs Interface Network	N1



Number	Title	WG prime
	Service Specification	
29.018	General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface layer 3 specification	N1
29.060	General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface	N4
29.061	Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based services and Packet Data Networks (PDN)	N3
29.078	Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification	N2
31.111	USIM Application Toolkit (USAT)	T3

6.1 (void)

6.2 (void)

## Annex A (informative): Document change history

Status of GSM 01.01		
Date	Version	Information about changes
August 1999	version 0.0.0	1 <sup>st</sup> draft created by MCC
August 1999	version 0.0.1	Comment from SMG6/S5 and N1 included. New LCS specs
September 1999	version 0.0.2	Transfer of 04.12 to 24.012 included, 22.121, 22.115, 22.129 included (SA1 comment)
September 1999	version 0.0.3	Joint SMG11/S4 Meeting decisions on AMR and TFO
September 1999	version 0.1.0	Joint SMG11/S4, S2 and WOME comments included
September 1999	version 0.2.0	03.41 transferred T2/SMG4
October 1999	version 0.3.0	Editorial changes
October 1999	version 0.4.0	Updated to align with 21.101
November	version 1.0.0	Updated to align with 21.101. For information to SMG#30
November	version 1.1.0	Updated to align with 21.101.
June 00	version 2.0.0	Updated and checked by SMG12 chairman and MCC. Approved by SMG#32
June 00	version 8.0.0	Cleaned up.

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2000-12	SA#10	SP-000526	001		Corrections to table of specs which comprise GSM Release 1999	8.0.0	8.1.0
2001-06	SA#12	SP-010382	002	1	Correction to list of specs	8.1.0	8.2.0
2001-09	SA#13	SP-010586	003	2	Correction to list of specs	8.2.0	8.3.0
2001-12	SA#14	SP-010657	004		Correction to list of specs	8.3.0	8.4.0
2002-03	SA#15	SP-020178	005	1	Correction to list of specs Also eliminated 01.00 since this was withdrawn (from all Releases) by separate agreement of SA#15.	8.4.0	8.5.0

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## History

<b>Document history</b>		
V8.0.0	October 2000	Publication
V8.1.0	December 2000	Publication
V8.2.0	July 2001	Publication
V8.3.0	September 2001	Publication
V8.4.0	December 2001	Publication
V8.5.0	March 2002	Publication