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Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Technical Specifications and Technical Reports
for a GERAN-based 3GPP system
(3GPP TS 41.102 version 4.8.0 Release 4)**



Reference

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Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

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Foreword

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

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

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- 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.

1 Scope

The present document identifies the GSM system specifications for GSM Release 4.

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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 21.900: "Technical Specification Group working methods".

3 Abbreviations

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 apply.

4 General

GSM Release 4 consists of GSM-only specifications and common specifications developed for both GSM Release 4 and Release 4 of the 3rd Generation mobile system.

The present document identifies the GSM system set of specifications required to implement GSM Release 4.

Specifications for GSM-only Release 4 can be identified by the "**ab.cde**" numbering scheme where "ab" is in the range 41 to 52.

Specifications for both GSM Release 4 and Release 4 of the 3rd Generation mobile system are identified by the "**ab.cde**" numbering scheme where "ab" is in the range 21 to 35.

A more detailed description of the specification numbering scheme is given in 3GPP TR 21.900.

5 Specifications and Reports

Number	Title	WG prime	For publication?
21.801	Specification drafting rules	SP	No
21.900	Technical Specification Group working methods	SP	Yes
22.001	Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)	S1	Yes
22.002	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)	S1	Yes
22.003	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)	S1	Yes

Number	Title	WG prime	For publication?
22.004	General on supplementary services	S1	Yes
22.011	Service accessibility	S1	Yes
22.016	International Mobile Equipment Identities (IMEI)	S1	Yes
22.022	Personalisation of Mobile Equipment (ME); Mobile functionality specification	S3	Yes
22.024	Description of Charge Advice Information (CAI)	S1	Yes
22.030	Man-Machine Interface (MMI) of the User Equipment (UE)	S1	Yes
22.031	Fraud Information Gathering System (FIGS); Service description; Stage 1	S3	Yes
22.032	Immediate Service Termination (IST); Service description; Stage 1	S3	Yes
22.034	High Speed Circuit Switched Data (HSCSD); Stage 1	S1	Yes
22.038	USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1	S1	Yes
22.041	Operator Determined Call Barring	S1	Yes
22.042	Network Identity and Time Zone (NITZ) service description; Stage 1	S1	Yes
22.048	Security Mechanisms for the (U)SIM application toolkit; Stage 1	T3	Yes
22.053	Tandem Free Operation (TFO); Service description; Stage 1	S4	Yes
22.057	Mobile Execution Environment (MExE) service description; Stage 1	S1	Yes
22.060	General Packet Radio Service (GPRS); Service description; Stage 1	S1	Yes
22.066	Support of Mobile Number Portability (MNP); Stage 1	S1	Yes
22.067	enhanced Multi-Level Precedence and Pre- emption service (eMLPP); Stage 1	S1	Yes
22.071	Location Services (LCS); Stage 1	S1	Yes
22.072	Call Deflection (CD); Stage 1	S1	Yes
22.076	Noise suppression for the AMR codec; Service description; Stage 1	S4	Yes
22.078	Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1	S1	Yes
22.079	Support of optimal routing; Stage 1	S1	Yes
22.081	Line Identification supplementary services; Stage 1	S1	Yes
22.082	Call Forwarding (CF) Supplementary Services; Stage 1	S1	Yes
22.083	Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1	S1	Yes
22.084	MultiParty (MPTY) supplementary service; Stage 1	S1	Yes
22.085	Closed User Group (CUG) supplementary services; Stage 1	S1	Yes
22.086	Advice of Charge (AoC) supplementary services; Stage 1	S1	Yes
22.087	User-to-user signalling (UUS); Stage 1	S1	Yes
22.088	Call Barring (CB) supplementary services; Stage 1	S1	Yes
22.090	Unstructured Supplementary Service Data (USSD); Stage 1	S1	Yes
22.091	Explicit Call Transfer (ECT) supplementary service; Stage 1	S1	Yes
22.093	Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1	S1	Yes
22.094	Follow Me service description - Stage 1	S1	Yes
22.096	Name identification supplementary services; Stage 1	S1	Yes

Number	Title	WG prime	For publication?
22.097	Multiple Subscriber Profile (MSP) Phase 1; Service description - Stage 1	S1	Yes
22.115	Service Aspects Charging and billing	S1	Yes
22.121	Service aspects; The Virtual Home Environment; Stage 1	S1	Yes
22.129	Handover requirements between UTRAN and GERAN or other radio systems	S1	Yes
23.002	Network architecture	S2	Yes
23.003	Numbering, Addressing and Identification	N4	Yes
23.007	Restoration procedures	N4	Yes
23.008	Organisation of subscriber data	N4	Yes
23.009	Handover procedures	N1	Yes
23.011	Technical realization of Supplementary Services	N4	Yes
23.012	Location management procedures	N4	Yes
23.014	Support of Dual Tone Multi Frequency (DTMF) signalling	N1	Yes
23.015	Technical realisation of Operator Determined Barring (ODB)	N4	Yes
23.016	Subscriber data management; Stage 2	N4	Yes
23.018	Basic Call Handling; Technical realization	N4	Yes
23.031	Fraud Information Gathering System (FIGS); Service description; Stage 2	S3	Yes
23.032	Universal Geographical Area Description (GAD)	S2	Yes
23.034	High Speed Circuit Switched Data (HSCSD); Stage 2	N1	Yes
23.035	Immediate Service Termination (IST); Stage 2	S3	Yes
23.038	Alphabets and language-specific information	T2	Yes
23.039	Interface Protocols for the Connection of Short Message Service Centers (SMSCs) to Short Message Entities (SMEs)	T2	Yes
23.040	Technical realization of Short Message Service (SMS)	T2	Yes
23.041	Technical realization of Cell Broadcast Service (CBS)	T2	Yes
23.042	Compression algorithm for SMS	T2	Yes
23.048	Security Mechanisms for the (U)SIM application toolkit; Stage 2	T3	Yes
23.053	Tandem Free Operation (TFO); Service description; Stage 2	S4	Yes
23.057	Mobile Execution Environment (MExE); Functional description; Stage 2	T2	Yes
23.060	General Packet Radio Service (GPRS) Service description; Stage 2	S2	Yes
23.066	Support of GSM Mobile Number Portability (MNP) stage 2	N4	Yes
23.067	Enhanced Multi-Level Precedence and Pre-emption Service (eMLPP); Stage 2	N4	Yes
23.072	Call Deflection Supplementary Service; Stage 2	N4	Yes
23.078	Customised Applications for Mobile network Enhanced Logic (CAMEL); Stage 2	N2	Yes
23.079	Support of Optimal Routeing (SOR); Technical realization; Stage 2	N4	Yes
23.081	Line Identification supplementary services; Stage 2	N4	Yes
23.082	Call Forwarding (CF) Supplementary Services; Stage 2	N4	Yes
23.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service; Stage 2	N4	Yes
23.084	MultiParty (MPY) Supplementary Service; Stage 2	N4	Yes
23.085	Closed User Group (CUG) Supplementary Service; Stage 2	N4	Yes
23.086	Advice of Charge (AoC) Supplementary Service; Stage 2	N4	Yes

Number	Title	WG prime	For publication?
23.087	User-to-User Signalling (UUS) supplementary service; Stage 2	N4	Yes
23.088	Call Barring (CB) Supplementary Service; Stage 2	N4	Yes
23.090	Unstructured Supplementary Service Data (USSD); Stage 2	N4	Yes
23.091	Explicit Call Transfer (ECT) Supplementary Service; Stage 2	N4	Yes
23.093	Technical realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2	N4	Yes
23.094	Follow Me Stage 2	N4	Yes
23.096	Name Identification Supplementary Service; Stage 2	N4	Yes
23.097	Multiple Subscriber Profile (MSP) Phase 1; Stage 2	N4	Yes
23.108	Mobile radio interface layer 3 specification core network protocols; Stage 2 (structured procedures)	N1	Yes
23.110	UMTS Access Stratum Services and Functions	S2	Yes
23.116	Super-Charger technical realization; Stage 2	N4	Yes
23.119	Gateway Location Register (GLR); Stage2	N4	Yes
23.140	Multimedia Messaging Service (MMS); Functional description; Stage 2	T2	Yes
23.221	Architectural requirements	S2	Yes
23.271	Location Services (LCS); Functional description; Stage 2	S2	Yes
23.908	Technical report on Pre-Paging	N4	Yes
23.909	Technical report on the Gateway Location Register	N4	Yes
23.911	Technical report on Out-of-band transcoder control	N4	Yes
23.912	Technical report on Super-Charger	N4	Yes
23.925	UMTS Core network based ATM transport	S2	Yes
24.002	GSM-UMTS Public Land Mobile Network (PLMN) Access Reference Configuration	N1	Yes
24.007	Mobile radio interface signalling layer 3; General Aspects	N1	Yes
24.008	Mobile radio interface Layer 3 specification; Core network protocols; Stage 3	N1	Yes
24.010	Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects	N4	Yes
24.011	Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface	N1	Yes
24.022	Radio Link Protocol (RLP) for circuit switched bearer and teleservices	N3	Yes
24.030	Location Services (LCS); Supplementary service operations; Stage 3	N4	Yes
24.067	Enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 3	N4	Yes
24.072	Call Deflection Supplementary Service; Stage 3	N4	Yes
24.080	Mobile radio Layer 3 supplementary service specification; Formats and coding	N4	Yes
24.081	Line Identification Supplementary Service; Stage 3	N4	Yes
24.082	Call Forwarding supplementary service; Stage 3	N4	Yes
24.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service; Stage 3	N4	Yes
24.084	MultiParty (MPTY) Supplementary Service; Stage 3	N4	Yes
24.085	Closed User Group (CUG) Supplementary Service; Stage 3	N4	Yes
24.086	Advice of Charge (AoC) Supplementary Service; Stage 3	N4	Yes
24.087	User-to-User Signalling (UUS); Stage 3	N4	Yes

Number	Title	WG prime	For publication?
24.088	Call Barring (CB) Supplementary Service; Stage 3	N4	Yes
24.090	Unstructured Supplementary Service Data (USSD); Stage 3	N4	Yes
24.091	Explicit Call Transfer (ECT) Supplementary Service; Stage 3	N4	Yes
24.093	Call Completion to Busy Subscriber (CCBS); Stage 3	N4	Yes
24.096	Name Identification Supplementary Service; Stage 3	N4	Yes
26.071	AMR speech Codec; General description	S4	Yes
26.073	AMR speech Codec; C-source code	S4	Yes
26.074	AMR speech Codec; Test sequences	S4	Yes
26.077	Minimum Performance Requirements for Noise Suppressor Application to the AMR Speech Encoder	S4	Yes
26.090	AMR speech Codec; Transcoding Functions	S4	Yes
26.091	AMR speech Codec; Error concealment of lost frames	S4	Yes
26.092	AMR speech Codec; comfort noise for AMR Speech Traffic Channels	S4	Yes
26.093	AMR speech Codec; Source Controlled Rate operation	S4	Yes
26.094	AMR Speech Codec; Voice Activity Detector for AMR Speech Traffic Channels	S4	Yes
26.102	AMR speech Codec; Interface to lu and Uu	S4	Yes
26.103	Speech codec list for GSM and UMTS	S4	Yes
26.104	ANSI-C code for the floating-point Adaptive Multi-Rate (AMR) speech codec	S4	Yes
26.110	Codec for circuit switched multimedia telephony service; General description	S4	Yes
26.111	Codec for Circuit switched Multimedia Telephony Service; Modifications to H.324	S4	Yes
26.901	AMR wideband speech codec; Feasibility study report	S4	Yes
26.911	Codec for Circuit switched Multimedia Telephony Service; Terminal Implementor's Guide	S4	Yes
26.975	Performance characterization of the Adaptive Multi-Rate (AMR) speech codec	S4	Yes
26.978	Results of the AMR noise suppression selection phase	S4	Yes
27.001	General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)	N3	Yes
27.002	Terminal Adaptation Functions (TAF) for services using Asynchronous bearer capabilities	N3	Yes
27.003	Terminal Adaptation Functions (TAF) for services using Synchronous bearer capabilities	N3	Yes
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	Yes
27.007	AT command set for 3G User Equipment (UE)	T2	Yes
27.010	Terminal Equipment to User Equipment (TE-UE) multiplexer protocol	T2	Yes
27.060	Packet domain; Mobile Station (MS) supporting Packet Switched services	N3	Yes
27.103	Wide Area Network Synchronization	T2	Yes
28.062	Inband Tandem Free Operation (TFO) of speech codecs; Service description; Stage 3	S4	Yes
29.002	Mobile Application Part (MAP) specification	N4	Yes
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	Yes

Number	Title	WG prime	For publication?
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	Yes
29.011	Signalling Interworking for Supplementary Services	N4	Yes
29.013	Signalling interworking between ISDN supplementary services Application Service Element (ASE) and Mobile Application Part (MAP) protocols	N4	Yes
29.016	Serving GPRS Support Node SGSN - Visitors Location Register (VLR); Gs Interface Network Service Specification	N1	Yes
29.018	General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface layer 3 specification	N1	Yes
29.060	General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface	N4	Yes
29.061	Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based services and Packet Data Networks (PDN)	N3	Yes
29.078	Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification	N2	Yes
29.994	Recommended infrastructure measures to overcome specific Mobile Station (MS) and User Equipment (UE) faults	N1	Yes
30.902	Guidelines for the modification of the Mobile Application Part (MAP)	N4	No
31.048	Test specification for security mechanisms for the (U)SIM application toolkit	T3	Yes
31.111	USIM Application Toolkit (USAT)	T3	Yes
32.200	Telecommunication management; Charging management; Charging principles	S5	Yes
32.311	Telecommunication management; Generic Integration Reference Point (IRP) management; Requirements	S5	Yes
32.401	Telecommunication management; Performance Management (PM); Concept and requirements	S5	Yes
32.403	Telecommunication management; Performance Management (PM); Performance measurements - UMTS and combined UMTS/GSM	S5	Yes
32.600	Telecommunication management; Configuration Management (CM); Concept and high-level requirements	S5	Yes
32.601	Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP): requirements	S5	Yes
32.602	Telecommunication management; Configuration Management (CM); Basic Configuration Management Integration Reference Point (IRP) information service	S5	Yes
32.603	Telecommunication management; Configuration Management (CM); Basic Configuration Management Integration Reference Point (IRP): CORBA solution set	S5	Yes
32.621	Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): requirements	S5	Yes
32.622	Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)	S5	Yes

Number	Title	WG prime	For publication?
32.623	Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): CORBA solution set	S5	Yes
32.624	Telecommunication management; Configuration Management (CM); Generic network resources: Integration Reference Point (IRP) CMIP solution set	S5	Yes
32.632	Telecommunication management; Configuration Management (CM); Core Network Resources Integration Reference Point (IRP): Network Resource Model (NRM)	S5	Yes
32.633	Telecommunication management; Configuration Management (CM); Core network resources Integration Reference Point (IRP): CORBA solution set	S5	Yes
32.634	Telecommunication management; Configuration Management (CM); Core network resources Integration Reference Point (IRP): CMIP solution set	S5	Yes
32.651	Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): requirements	S5	Yes
32.652	Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)	S5	Yes
32.653	Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): CORBA solution set	S5	Yes
32.654	Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): CMIP solution set	S5	Yes
41.031	Fraud Information Gathering System (FIGS); Service requirements; Stage 0	S3	Yes
41.033	Lawful Interception requirements for GSM	S3	Yes
41.061	General Packet Radio Service (GPRS); GPRS ciphering algorithm requirements	S3	Yes
41.102	GSM Release 4 specifications	SP	Yes
42.009	Security Aspects	S3	Yes
42.017	Subscriber Identity Module (SIM); Functional characteristics	T3	Yes
42.019	Subscriber Identity Module Application Programming Interface (SIM API); Stage 1	T3	Yes
42.033	Lawful Interception; Stage 1	S3	Yes
42.043	Support of Localised Service Area (SoLSA); Service description; Stage 1	S1	Yes
42.056	GSM Cordless Telephony System (CTS), Phase 1; Service description; Stage 1	S1	Yes
42.068	Voice Group Call Service (VGCS); Stage 1	S1	Yes
42.069	Voice Broadcast Service (VBS); Stage 1	S1	Yes
43.005	Technical performance objectives	NP	Yes
43.010	GSM Public Land Mobile Network (PLMN) connection types	N3	Yes
43.013	Discontinuous Reception (DRX) in the GSM system	G1	Yes
43.019	Subscriber Identity Module Application Programming Interface (SIM API) for Java Card; Stage 2	T3	Yes
43.020	Security-related network functions	S3	Yes
43.022	Functions related to Mobile Station (MS) in idle mode and group receive mode	G1	Yes

Number	Title	WG prime	For publication?
43.026	Multiband operation of GSM / DCS 1800 by a single operator	G1	Yes
43.030	Radio network planning aspects	G1	Yes
43.033	Lawful Interception; Stage 2	S3	Yes
43.045	Technical Realization of Facsimile Group 3 Service - transparent	N3	Yes
43.050	Transmission Planning Aspects of the Speech Service in the GSM Public Land Mobile Network (PLMN) System	S4	Yes
43.052	Lower layers of the GSM Cordless Telephony System (CTS) radio interface; Stage 2	G1	Yes
43.055	Dual Transfer Mode (DTM); Stage 2	G1	Yes
43.058	Characterisation, test methods and quality assessment for handsfree Mobile Stations (MSs)	S4	Yes
43.059	Functional stage 2 description of Location Services (LCS) in GERAN	G1	Yes
43.064	Overall description of the GPRS radio interface; Stage 2	G1	Yes
43.068	Voice Group Call Service (VGCS); Stage 2	N1	Yes
43.069	Voice Broadcast service (VBS); Stage 2	N1	Yes
43.073	Support of Localised Service Area (SoLSA); Stage 2	N4	Yes
44.001	Mobile Station - Base Station System (MS - BSS) Interface General Aspects and Principles	N1	Yes
44.003	Mobile Station - Base Station System (MS - BSS) Interface Channel Structures and Access Capabilities	G2	Yes
44.004	Layer 1 - General Requirements	G2	Yes
44.005	Data Link (DL) Layer General Aspects	G2	Yes
44.006	Mobile Station - Base Stations System (MS - BSS) Interface Data Link (DL) Layer Specification	G2	Yes
44.012	Short Message Service Cell Broadcast (SMSCB) Support on the Mobile Radio Interface	G2	Yes
44.013	Performance Requirements on Mobile Radio Interface	N1	Yes
44.014	Individual equipment type requirements and interworking; Special conformance testing functions	G2	Yes
44.018	Mobile radio interface layer 3 specification; Radio Resource Control Protocol	G2	Yes
44.021	Rate Adaption on the Mobile Station - Base Station System (MS-BSS) Interface	N3	Yes
44.031	Location Services (LCS); Mobile Station (MS) - Serving Mobile Location Centre (SMLC) Radio Resource LCS Protocol (RRLP)	G2	Yes
44.035	Location Services (LCS); Broadcast network assistance for Enhanced Observed Time Difference (E-OTD) and Global Positioning System (GPS) positioning methods	G2	Yes
44.056	GSM Cordless Telephony System (CTS), (Phase 1) CTS Radio Interface Layer 3 Specification	N1	Yes
44.057	GSM Cordless Telephony System (CTS), (Phase 1) CTS CTS supervising system Layer 3 Specification	N1	Yes
44.060	General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol	G2	Yes
44.064	Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) Layer Specification	N1	Yes

Number	Title	WG prime	For publication?
44.065	Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDP)	N1	Yes
44.068	Group Call Control (GCC) Protocol	N1	Yes
44.069	Broadcast Call Control (BCC) protocol	N1	Yes
44.071	Location Services (LCS); Mobile radio interface layer 3 LCS specification	G2	Yes
45.001	Physical layer on the radio path; General description	G1	Yes
45.002	Multiplexing and multiple access on the radio path	G1	Yes
45.003	Channel coding	G1	Yes
45.004	Modulation	G1	Yes
45.005	Radio transmission and reception	G1	Yes
45.008	Radio subsystem link control	G1	Yes
45.009	Link adaptation	G1	Yes
45.010	Radio subsystem synchronization	G1	Yes
45.022	Radio link management in hierarchical networks	G1	Yes
45.050	Background for RF Requirements	G1	Yes
45.056	CTS-FP Radio Sub-system	G1	Yes
46.001	Full Rate Speech Processing Functions	S4	Yes
46.002	Half Rate Speech Processing Functions	S4	Yes
46.006	Half-rate speech: ANSI-C code for GSM half-rate speech codec	S4	Yes
46.007	Half Rate Speech: Test Sequence for GSM Half Rate Speech Codec	S4	Yes
46.008	Half Rate Speech; Performance Characterization of the GSM Half Rate speech codec	S4	Yes
46.010	Full-rate speech transcoding	S4	Yes
46.011	Substitution and Muting of Lost Frames for Full Rate Speech Channels	S4	Yes
46.012	Comfort Noise Aspects for Full Rate Speech Traffic Channels	S4	Yes
46.020	Half Rate Speech Transcoding	S4	Yes
46.021	Half rate speech; Substitution and muting of lost frames for half rate speech traffic channels	S4	Yes
46.022	Comfort Noise Aspects for Half Rate Speech Traffic Channels	S4	Yes
46.031	Discontinuous Transmission (DTX) for Full Rate Speech Traffic Channels	S4	Yes
46.032	Voice Activity Detection (VAD)	S4	Yes
46.041	Discontinuous Transmission (DTX) for Half Rate Speech Traffic Channels	S4	Yes
46.042	Voice Activity Detection (VAD) for Half Rate Speech Traffic Channels	S4	Yes
46.051	GSM Enhanced full rate speech processing functions: General description	S4	Yes
46.053	ANSI-C code for the GSM Enhanced full rate speech codec	S4	Yes
46.054	Test sequences for the GSM Enhanced Full Rate (EFR)	S4	Yes
46.055	Performance characterisation of the GSM EFR Speech Codec	S4	Yes
46.060	Enhanced full rate speech transcoding	S4	Yes
46.061	Substitution and muting of lost frames for enhanced full rate speech traffic channels	S4	Yes
46.062	Comfort noise aspects for Enhanced Full Rate (EFR) speech traffic channels	S4	Yes
46.076	Adaptive Multi-Rate (AMR) speech codec; Study phase report	S4	Yes
46.081	Discontinuous Transmission (DTX) for enhanced full rate speech traffic channels	S4	Yes

Number	Title	WG prime	For publication?
46.082	Voice Activity Detection (VAD) for enhanced full rate speech traffic channels	S4	Yes
46.085	Subjective tests on the interoperability of the HR/FR/EFR speech codecs; single, tandem and tandem free operation	S4	Yes
48.001	General Aspects on the BSS-MSC Interface	G2	Yes
48.002	Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface - Interface Principles	G2	Yes
48.004	Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface Layer 1 Specification	G2	Yes
48.006	Signalling Transport Mechanism Specification for the Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface	G2	Yes
48.008	Mobile Switching Centre - Base Station system (MSC-BSS) Interface Layer 3 Specification	G2	Yes
48.014	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) interface; Gb Interface Layer 1	G2	Yes
48.016	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) Interface; Network Service	G2	Yes
48.018	General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN); BSS GPRS Protocol	G2	Yes
48.020	Rate Adaptation on the Base Station System - Mobile Service Switching Centre (BSS-MSC) Interface	N3	Yes
48.031	Location Services LCS: Serving Mobile Location Centre - Serving Mobile Location Centre (SMLC - SMLC); SMLCPP specification	G2	Yes
48.051	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface General Aspects	G2	Yes
48.052	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface - Interface Principles	G2	Yes
48.054	Base Station Controller - Base Transceiver Station (BSC - BTS) interface; Layer 1 structure of physical circuits	G2	Yes
48.056	Base Station Controller - Base Transceiver Station (BSC - BTS) interface; Layer 2 specification	G2	Yes
48.058	Base Station Controller - Base Transceiver Station (BSC-BTS) Interface Layer 3 Specification	G2	Yes
48.060	In-band control of remote transcoders and rate adaptors for full rate traffic channels	G1	Yes
48.061	In-band control of remote transcoders and rate adaptors for half rate traffic channels	G1	Yes
48.071	Location Services (LCS); Serving Mobile Location Centre - Base Station System (SMLC-BSS) interface; Layer 3 specification	G2	Yes
49.001	General network interworking scenarios	N4	Yes
49.008	Application of the Base Station System Application Part (BSSAP) on the E-Interface	N1	Yes
49.031	Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)	G2	Yes
50.059	Enhanced Data rates for GSM Evolution (EDGE); Project scheduling and open issues for EDGE	G1	No
51.010-1	Mobile Station (MS) conformance specification; Part 1: Conformance specification	G5	Yes

Number	Title	WG prime	For publication?
51.010-2	Mobile Station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification	G5	Yes
51.010-3	Mobile Station (MS) conformance specification; Part 3: Layer3 (L3) Abstract Test Suite (ATS)	G5	Yes
51.011	Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface	T3	Yes
51.013	Test specification for SIM API for Java card	T3	Yes
51.021	GSM radio aspects base station system equipment specification	G3	Yes
51.026	GSM Repeater Equipment Specification	G3	Yes
52.021	Network Management (NM) Procedures and Messages on the A-bis Interface	G3	Yes
52.402	Telecommunication management; Performance Management (PM); Performance measurements - GSM	S5	Yes

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2001-03	SP-11	SP-010212	-	-	Approved and placed under TSG SA Change Control (Rel-4)	2.2.0	4.0.0
2001-07	SP-12	SP-010383	001	1	Correction to list of specs	4.0.0	4.1.0
2001-09	SP-13	SP-010592	002	5	Correction to list of specs	4.1.0	4.2.0
2001-12	SP-14	SP-010754	003	1	Correction to list of specs	4.2.0	4.3.0
2002-03	SP-15	SP-020179	004	1	Correction to list of specs	4.3.0	4.4.0
2002-06	SP-16	SP-020400	006	1	Correction to list of specs	4.4.0	4.5.0
2002-06					Corect correction to list of specs plus editorials	4.5.0	4.5.1
2002-09	SP-17	SP-020615	007	1	Correction to list of specs; editorial correction of titles	4.5.1	4.6.0
2002-12	SP-18	SP-020782	008	-	Correction to list of specs; editorial correction of titles	4.6.0	4.7.0
2003-03	SP-19	SP-030077	009		Correction to list of specs; editorial correction of titles	4.7.0	4.8.0

History

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V4.3.0	December 2001	Publication
V4.4.0	March 2002	Publication
V4.5.1	June 2002	Publication
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V4.7.0	December 2002	Publication
V4.8.0	March 2003	Publication