

**Source:** Ian Doig, MCC

**Title:** 3GPP Specification TS 21.101 version 0.3.0

**Document for:** Information

**Agenda Item:**

Following the approval of TD SP-99267 on 2G and 3G specification handling by TSG#4 and further endorsement by SMG#29, PCG#2, both 3GPP and ETSI SMG have requested that the Specification sets for 3G R99 and GSM R99 be clearly identified. To this end the support team have produced a draft specification 3G TS 21.101 identifying the basic content and the specifications of 3G R99

Note that an equivalent specification for GSM R99, GSM 01.01 is available for information (TD RP-99523).

TD SP-99267 stated that "The provisional list [of specifications] given in annex A should be further elaborated and reviewed by SMG STCs and TSG WGs in detail".

The specifications listed in 3G TS 21.101 have been based on the original list given in TD SP-99267 and information from the TSG WGs and WG Chairmen.

To meet the time scale of producing an approved version 3.0.0 by TSG#6, the support group has undertaken to draft the Draft Specification to enable it to be presented to TSG SA#5 for information (version 1.0.0). therefore, 3G TS 21.101 will be presented to TSG SA#5 for information as version 1.0.0 following any revisions agreed by TSGT#5, TSGCN#5 and TSGRAN#5.

Notes for 3G TS 21.101 version 0.3.0:

Clause 1: Scope should be clarified.

Clause 3: Abbreviations to be added.

Clause 4: Included for completeness, this is the PCG agreed numbering Scheme used for guidance.

Clause 5: The content of this clause is also included for completeness, however, the present text is far from stable and accurate and should be viewed as an example placeholder. The content of this clause should be elaborated by TSG SA and/or TSG SA2 producing the 3G R99 "Roadmap".

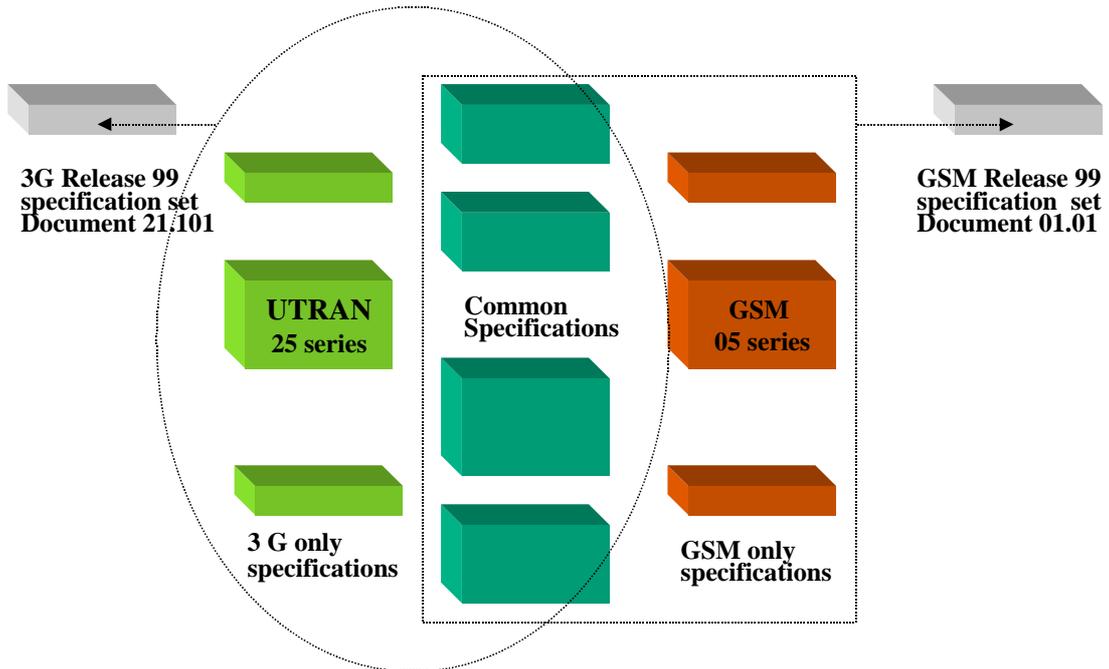
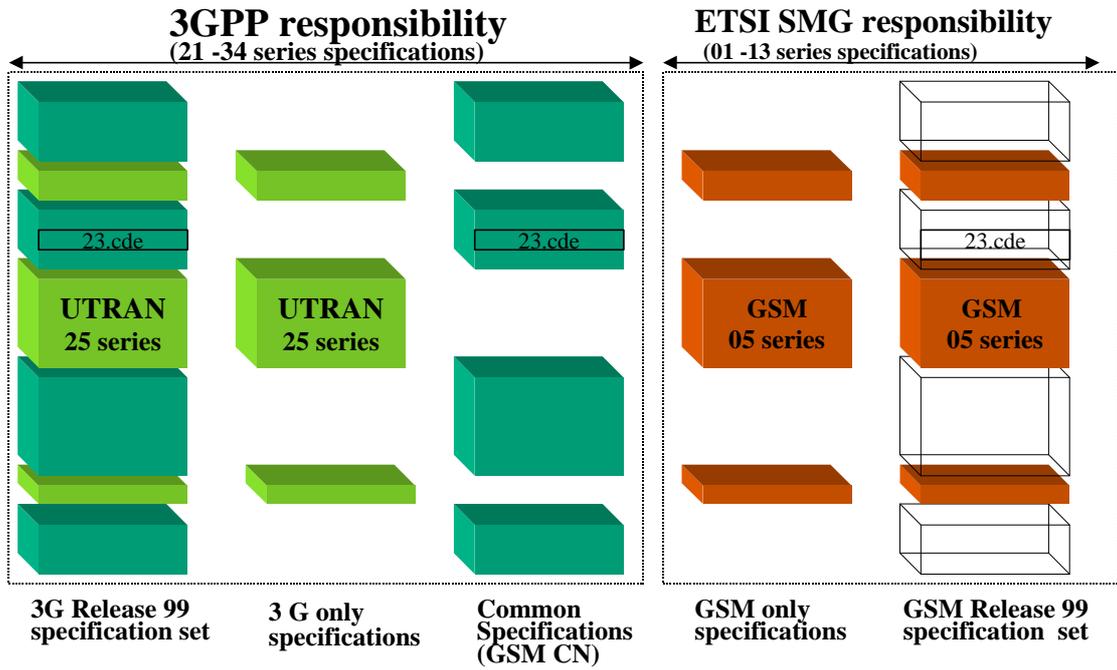
Clause 6: This contains the list of Specifications and reports which make up the content of 3G Release 1999 as identified by 3GPP. The present content of this list has been compiled from the TSG status lists and information supplied by the TSG WGs and WG Chairmen etc.

**TSG T, CN and RAN are invited to review and revise this list for the Specifications and Reports under their responsibility.**

**TSG#5 should confirm the transfer of common specifications listed, and the applicability of the Specifications and Reports for 3G release 99.**

The decisions of TSG T, CN and RAN #5 will be implemented in the version 1.0.0 for TSG SA#5.

# R99 Specification sets documents overview



# 3G TS 21.101 V0.3.0 (1999-10)

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*Technical Specification*

## **3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Release 1999 Specifications (3G TS 21.101 version 0.3.0)**



The present document has been developed within the 3<sup>rd</sup> Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPP Organisational Partners and shall not be implemented. This Specification is provided for future development work within 3GPP only. The Organisational Partners accept no liability for any use of this Specification. Specifications and reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organisational Partners' Publications Offices.

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Reference

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DTS/TSGSA-0021101U

Keywords

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R99 Specification Report 3G

**3GPP**

Postal address

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3GPP support office address

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650 Route des Lucioles - Sophia Antipolis  
Valbonne - FRANCE  
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

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<http://www.3gpp.org>

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# Foreword

This Technical Specification has been produced by the 3GPP.

This TS identifies the 3G system specifications for Release 1999.

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 this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version 3.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 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 specification;

**Ed Note: This draft Specification has been produced following the TSGSA#4 , ETSI Board#20 and PCG #2 approval of the content of TD SP-99267 (SMG#29 TD P-99-546 made some clarifications modifications to TD SP-99267).**

**TD SP-99267 states "The provisional list given in annex A should be further elaborated and reviewed by SMG STCs and TSG WGs". This is an ongoing process, which it is hoped will be completed by TSGSA#6. It is anticipated that this Specification will then be presented to TSGSA#5 as V1.0.0 (to meet the approval time scale of V3.0.0 at TSGSA#6).**

**The content of Clause 5 should be considered unstable and is included only for completeness at this time. The R99 "Roadmap" style content requires further work ( S2 in conjunction with MCC?).**

**The recommendations from CN3 are not yet implemented.**

**The equivalent SMG Specification (GSM 01.01) is being developed in a similar manner For GSM R99 and is aligned with this document.**

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# 1 Scope

The present document identifies the 3G system specifications for Release 1999.

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# 2 References

This TS contains no references.

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# 3 Abbreviations

For the purposes of the present document, the terms and definitions apply.

TBC

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# 4 General

Release 1999 consist of 3G 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 consist of many enhanced features developed within the 3<sup>rd</sup> Generation Partnership Project.

The present document identifies the 3G system set of specifications required to implement Release 1999.

## 4.1 Specification and report numbering

The numbering scheme described is similar to the GSM numbering scheme. The numbering scheme is designed on the experience of GSM in document structure and to create a structure that is easy to understand and remember.

To allow for more flexibility in the 3GPP numbering scheme and to allow for expansion, it has been decided to increase the numbering scheme by one digit to a 2+3 digit system (ab.cde). This permits a maximum number of 999 specifications in one series. It should be noted that the GSM system numbering has almost been completely used up.

The numbering scheme applies to specifications and reports for the 3GPP 3<sup>rd</sup> Generation Mobile System.

Where existing GSM Specifications are enhanced/modified by the TSGs for the 3<sup>rd</sup> Generation Mobile System the specification title and version should change (title reflecting 3<sup>rd</sup> Generation Mobile System). The GSM number (ab) should be increased by 20 and a "c" digit equal to zero added (e.g. GSM 07.07 becomes 3GTS 27.007) indicating the GSM heritage of the Specification.

For newly created 3GPP Specifications the "c" digit should not be equal to zero.

Existing 3<sup>rd</sup> Generation specifications transferred from ETSI SMG should have a "c" digit equal to one e.g. SMG UMTS TS 22.00 becomes 3G TS 22.100.

For newly created 3GPP Technical reports the "c" digit should normally be equal to nine e.g. A report in the 23 series will have a number 23.9de. The "c" digit equal to eight may be used for over-spill of the ab.9de range, or allocated to reports not intended for external circulation.

Specification numbers will be allocated on request by a centralised point within the 3GPP support group (see section 4.1 of the 3GPP Working Methods). A particular Series will not necessarily remain within, or be the sole responsibility of a particular TSG or WG.

The following Series titles and descriptions should be used for guidance only and may be further developed with experience.

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

## 4.2 Specification series

In general the Specification series is identified as follows:

### 4.2.1 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 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's for the composition of a service, including the control by the user; a platform may comprise a single 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 realised by generic building blocks etc. also belong into this series.

### 4.2.3 23-series

#### **Technical realisation**

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 24-series

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

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

### 4.2.5 25-series

#### **UTRA aspects**

#### 4.2.5.1 25.100-series

##### **UTRA radio performance aspects**

This series defines the radio performance of UTRAN.

#### 4.2.5.2 25.200-series

##### **UTRA radio aspects**

This series defines the (Physical) layer 1 of UTRA.

#### 4.2.5.3 25.300-series

**UTRA radio interface architecture, layer 2 and layer 3 aspects.**

This series defines the layer 2/3 of the UMTS radio.

#### 4.2.5.4 25.400-series

##### **UTRA Network aspects**

This series defines the Iub, Iur and Iu interfaces within UTRAN

#### 4.2.6 26-series

##### **Codecs (speech, video, etc. )**

This series defines speech codecs and other codecs (video etc., to be identified) for the 3GPP 3<sup>rd</sup> Generation Mobile System.

#### 4.2.7 27-series

##### **Data**

This series defines the functions necessary to support data applications.

#### 4.2.8 28-series

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

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

#### 4.2.9 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 30-series

##### **Program management**

This series contains the 3GPP 3<sup>rd</sup> Generation Mobile System, Project plans/project work programme and stand alone documents for major work items.

#### 4.2.11 31-series

##### **UIM**

This series specifies the User Identity Module (UIM) and the interfaces between UIM and other entities.

#### 4.2.12 32-series

##### **Operation and maintenance**

This series defines the application of TMN for the 3GPP 3<sup>rd</sup> Generation Mobile System and other functions for operation, administration and maintenance of a 3<sup>rd</sup> Generation Mobile System network.

#### 4.2.13 33-series

##### **Security aspects**

This series contains specifications of security functions for the 3GPP 3<sup>rd</sup> Generation Mobile System.

## 4.2.14 34-series

### Test specifications

This series contains the test specifications for the 3GPP 3<sup>rd</sup> Generation Mobile System.

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# 5 Content of 3G Release 1999

## 5.1 GSM only Work Areas

NOTE: 3rd Generation specifications may contain GSM R99 Specific parts.

Title
Enhanced Data rates for GSM Evolution (EDGE) - BSS Part
Enhanced Data rates for GSM Evolution (EDGE) - NSS Part <sup>1</sup>
General Packet Radio Service Phase 2 (GPRS) – radio part <sup>2</sup>
GSM on 450 MHz Frequency Band
BSS co-ordination of Radio Resource allocation for class A GPRS services - GSM Radio Access (R99)
BSS co-ordination of Core Network Resource allocation for class A GPRS services -GSM-3G Core Network (R99) <sup>3</sup>

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<sup>1</sup> As EDGE will not be used by 3G network, this WI has been classified as a GSM only WI, even if it impacts the common R99 GSM/3G CN.  
However, this WI should study that the proposed changes are not incompatible with the use of the UTRAN by the R99 GSM/3G CN.

<sup>2</sup> Comprises some related sub-work items.

<sup>3</sup> Same remark as for note 1.

## 5.2 Common GSM/3G Work Areas

Title
Access to ISPs and Intranets in GPRS Phase 2 – Wireless/Remote Access to LANs (R99)
Access to ISPs and Intranets in GPRS Phase 2; Separation of General Packet Radio Service (GPRS) bearer establishment and ISP service environment setup (R99)
Advanced Addressing
Architecture of the GSM-UMTS Platform
Architecture overview of the GSM-UMTS System
Automatic Establishment of Roaming Relations
Call Forwarding Enhancements (CFE)
Calling Name Presentation – Euro (CNAP-EU)
CAMEL Phase 3
Charging and Billing for GPRS – Advice of Charge
Charging and Billing for GPRS – Hot Billing
Charging and Billing for GPRS – Pre-Paid
Enhanced QoS Support in GPRS
Follow Me
Fraud Information Gathering System applied to GPRS
General Packet Radio Service Phase 2 (GPRS) – network part <sup>2</sup>
Generic signalling mechanism for service support
GPRS - Point-To-Multipoint Services
GPRS Mobile IP Interworking
Idle mode classmark <sup>4</sup>
Immediate Service Termination (IST) : CAMEL free solution
Impact of Telecommunications Data Protection Directive on GSM Standards <sup>5</sup>
Interworking with Mobile Satellite Systems
LAPDm performance enhancement
MexE Release 99
MS and Network-Resident Execution Environments (MS/N-RExE)
MS Antenna Test Method <sup>6</sup>
Multiple Subscriber Profile (MSP) based on CAMEL ph. 3
Noise Suppression for AMR speech codec
Provision of text telephony service in GSM and UMTS
Service Continuity and Provision of VHE via GSM/UMTS
Service to GSM Handportables in trains <sup>7</sup>
Specification of a bearer independent protocol for SAT applications to exchange data over the GSM network
SS7 Security
Study on Combined GSM and Mobile IP Mobility Handling in UMTS IP CN
Study on provision of facsimile services in GSM and UMTS
Support for real time services in the Packet domain for GSM/GPRS/UMTS R99
Tandem Free Operation of speech codecs in Mobile-to-Mobile Calls (MMCs) : out-band
Tandem free aspects for UMTS and between UMTS and 2G systems
USSD Enhancements
Virtual Home Environment
Codec for Low Bitrate Multimedia Telephony Service
Support of non-realtime Multimedia Messaging Service
Mandatory Speech Codec for Narrowband Telephony Service
WAP WAE User Agent / SIM toolkit interworking
Generic Logical and Physical specification for IC card and terminal interface
Specification of administrative commands and functions for IC cards
Codec(s) for Wide band Telephony Services <sup>8</sup>
AMR – Wideband <sup>9</sup>
Gateway Location Register (GLR)
Turbo-Charger: Feasibility Study

<sup>4</sup> According to a working assumption made by N1, two MS Classmarks should be maintained both for UMTS and GSM, selectively used depending on the indication given by the CN. The WIs on MS classmark should be re-organised as to reflect such working assumption.

<sup>5</sup> This WI should be renamed as “Impact of Telecommunications Data Protection Directive on GSM/3G Standards”

<sup>6</sup> This WI might be split into “MS antenna test methods for GSM BSS” and “MS antenna test methods for UTRAN”.

<sup>7</sup> The applicability of this WI to 3G should be checked. If relevant to 3G, the WI should be renamed.

<sup>8</sup> This WI was previously classified in SP-99331 as “3G only WI”. However, it should be applicable also to GSM using e.g. EDGE BSS, as stated in some comments received in the meantime: this is the reason why it has now been moved to this category.

<sup>9</sup> The merging of this WI with the WI entitled “Codec(s) for Wide band Telephony Services” should be studied.

The following WIs state in their title that they apply only for 3G system. However, it is proposed that these WIs also apply to GSM, as they impact the core network, which is common to GSM and UMTS. In case such proposal is accepted, they should be renamed and classified as common GSM/3G WIs.

UMTS Charging & Billing <sup>10</sup>
UMTS Numbering, Addressing and Identities <sup>11</sup>
UMTS Open Service Architecture
UMTS Core based on ATM Transport
IP-in-IP tunnelling in GPRS backbone for UMTS, phase 1
End to End UMTS QoS Management <sup>12</sup>
QoS for Speech and Multimedia Codec <sup>13</sup>
Multimedia in UMTS <sup>14</sup>
3G Audio-Visual Terminal Characteristics
3G charging management <sup>15</sup>
3G system fault management
3G system configuration management
3G system performance management

## 6 Specifications and Reports

### Specification/Report Number and Specification/Report Title

#### Number Title

21.900	3GPP Working methods
21.904	Terminal Capability Requirements
21.905	3G Vocabulary
21.906	O&M requirements
21.910	Multi-system issues
22.002	Bearer Services Supported by a GSM PLMN
22.004	General on Supplementary Services
22.011	Service accessibility
22.016	International Mobile Equipment Identities (IMEI)
22.022	Personalisation of GSM ME Mobile functionality specification - Stage 1
22.024	Description of Charge Advice Information (CAI)
22.030	Man-Machine Interface (MMI) of the Mobile Station (MS)

<sup>10</sup> If applicable to GSM, either the differences with the WI “Charging and billing for GPRS” should be stressed or these two WIs should be merged.

<sup>11</sup> If applicable to GSM, then the WI “Advanced Addressing” should be merged to it.

<sup>12</sup> If applicable to GSM, either the differences with the WI “Enhanced QoS Support in GPRS” should be stressed or these two WIs should be merged.

<sup>13</sup> The differences with previous WI should be stressed.

<sup>14</sup> Even if it can be surprising to move this WI to the ‘common 3G/GSM WI’ category, it should be stressed why the mechanisms developed for 3G are not applicable to e.g. GPRS CN and EGDE BSS.

<sup>15</sup> The difference with the WI entitled “UMTS Charging & Billing” is that the latter specifies the requirements whereas “3G charging management” intends to specify the actual mechanisms. This should be clarified in the WI titles.

22.034	High Speed Circuit Switched Data (HSCSD) - Stage 1
22.038	SIM application toolkit (SAT); Stage 1
22.041	Operator Determined Call Barring
22.042	Network Identity and Time Zone (NITZ), stage 1
22.043	Support of Localised Service Area (SoLSA) - Stage 1
22.053	Tandem Free Operation of speech codecs; Stage 1 service description
22.057	Mobile Station Application Execution Environment (MExE); Stage 1
22.060	General Packet Radio Service (GPRS); Stage 1
22.066	Support of Mobile Number Portability (MNP); Stage 1
22.067	enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1 (ASCI spec)
22.068	Voice Group Call Service (VGCS); Stage 1(ASCI spec)
22.069	Voice Broadcast Service (VBS); Stage 1(ASCI spec)
22.071	Location Services (LCS); Stage 1 (T1P1)
22.072	Call Deflection (CD); Stage 1
22.078	CAMEL phase 3; Stage 1
22.079	Support of Optimal Routing; Stage 1
22.081	Line Identification Supplementary Services; Stage 1
22.082	Call Forwarding (CF) Supplementary Services; Stage 1
22.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Services; Stage 1
22.084	MultiParty (MPTY) Supplementary Service; Stage 1
22.085	Closed User Group (CUG) Supplementary Services; Stage 1
22.086	Advice of Charge (AoC) Supplementary Services; Stage 1
22.087	User-to-user signalling (UUS); Stage 1
22.088	Call Barring (CB) Supplementary Services; Stage 1
22.090	Unstructured Supplementary Service Data (USSD); Stage 1
22.091	Explicit Call Transfer (ECT) Supplementary Service; Stage 1
22.093	Call Completion to Busy Subscriber (CCBS); Stage 1
22.094	Follow Me Stage 1
22.096	Calling Name Presentation (CNAP); Stage 1 (T1P1)
22.097	Multiple Subscriber Profile (MSP); Stage 1
22.100	UMTS Phase 1
22.101	UMTS Service principles
22.105	Services & Service capabilities
22.115	Service Aspects Charging and billing
22.121	Provision of Services in UMTS - The Virtual Home Environment

22.129	Handover Requirements between UMTS and GSM or other Radio Systems
22.135	Multicall Stage1
22.140	Multimedia Messaging Service Stage 1
22.907	Terminal concepts
22.924	Charging and accounting mechanisms
22.925	Quality of service and network performance
22.945	Study of provision of fax service in GSM and UMTS
22.960	Mobile multimedia services
22.970	Virtual Home Environment Report
22.971	Automatic establishment of roaming relationships
22.972	Multimedia
22.975	Advanced addressing
23.002	Network Architecture
23.003	Numbering, Addressing and Identification
23.007	Restoration procedures
23.008	Organisation of subscriber data
23.009	Handover procedures
23.010	Public Land Mobile Network (PLMN) Connection Types
23.011	Technical Realization of Supplementary Services - General Aspects
23.012	Location registration procedures
23.014	Support of Dual Tone Multi Frequency (DTMF) signalling
23.015	Technical realisation of Operator Determined Barring (ODB)
23.016	Subscriber data management - Stage 2
23.018	Basic Call Handling - Technical realisation
23.022	Functions related to Mobile Station (MS) in idle mode
23.032	Universal Geographical Area Description (GAD)
23.034	High Speed Circuit Switched Data (HSCSD) - Stage 2
23.038	Alphabets & Language
23.039	Interface Protocols for the Connection of Short Message Service Centers (SMSCs) to Short Message Entities (SMEs)
23.040	Technical realisation of SMS Point to Point
23.041	Technical Realization of Short Message Service Cell Broadcast (SMSCB)
23.042	Compression algorithm for SMS
23.043	Support of Videotext

23.044	Support of Teletext in a Public Land Mobile Network (PLMN)
23.045	Technical realisation of facsimile Group 3 service- transparent
23.046	Technical realisation of facsimile Group 3 service- non-transparent
23.053	Tandem Free Operation (TFO); Service description; Stage 2
23.054	Shared Interworking Functions - Stage 2
23.057	Mobile Station Application Execution Environment (MExE)
23.060	General Packet Radio Service (GPRS) Service description; Stage 2
23.066	Support of GSM Mobile Number Portability (MNP) stage 2
23.067	Enhanced Multi-Level Precedence and Preemption Service (EMLPP) - Stage 2
23.068	Voice Group Call Service (VGCS) - Stage 2
23.069	Voice Broadcast service (VBS) - Stage 2
23.070	Routing of calls to/from Public Data Networks
23.071	Location Services (LCS) Stage 2
23.072	Call Deflection Supplementary Service - Stage 2
23.073	Support of Localised Service Area (SoLSA) - Stage 2
23.078	CAMEL Stage 2
23.079	Support of optical routeing - Phase 1 - Stage 2
23.081	Line Identification Supplementary Services - Stage 2
23.082	Call Forwarding (CF) Supplementary Services - Stage 2
23.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service - Stage 2
23.084	MultiParty (MPTY) Supplementary Service - Stage 2
23.085	Closed User Group (CUG) Supplementary Service - Stage 2
23.086	Advice of Charge (AoC) Supplementary Service - Stage 2
23.087	User-to-User Signalling (UUS) - Stage 2
23.088	Call Barring (CB) Supplementary Service - Stage 2
23.090	Unstructured Supplementary Service Data (USSD) - Stage 2
23.091	Explicit Call Transfer (ECT) Supplementary Service - Stage 2
23.093	Call Completion to Busy Subscriber (CCBS) - Stage 2
23.094	Follow Me Stage 2
23.096	Name Identification Supplementary Service - Stage 2
23.097	Multiple Subscriber Profile (MSP); Stage 2
23.101	General UMTS Architecture
23.108	Mobile Radio Interface Layer 3 specification Core Network Protocols stage 2 (structured procedures)
23.110	UMTS Access Stratum;

## Services and Functions

- 23.121 Architecture Requirements for release 99
- 23.127 Virtual Home Environment / Open Service Architecture
- 23.171 Functional stage 2 description of location services in UMTS
- 23.907 Quality of Service
- 23.908 Technical report on Pre-Paging
- 23.909 Technical report on the Gateway Location Register
- 23.920 Evolution of the GSM platform towards UMTS
- 23.922 Architecture for an All IP network
- 23.923 Combined GSM and Mobile IP mobility handling in UMTS IP CN
- 23.925 UMTS Core network based ATM transport
- 23.927 VHE, Open Service Architecture
- 23.930 Iu Principles
- 23.960 Framework of Network functions to support multimedia services in UMTS
- 24.007 Mobile Radio Interface Signalling Layer 3 - General Aspects
- 24.008 Mobile Radio Interface Layer 3 specification; Core Network Protocols-Stage 3
- 24.010 Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects
- 24.011 Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface
- 24.012 Short Message Service Cell Broadcast (SMS-SCB) Support on the Mobile Radio Interface
- 24.022 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
- 24.030 Location Services (LCS); Mobile radio interface layer 3 supplementary services specification; Mobile Originating Location Request (MO-LR).
- 24.031 Location Services (LCS); Mobile Station (MS) - Serving Mobile Location Centre (SMLC); Radio Resource LCS Protocol (RRLP)
- 24.035 Location Services (LCS); Broadcast Network Assistance for Enhanced Observed Time Difference (E-OTD) and Global Positioning System (GPS) Positioning Methods
- 24.065 Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDP)
- 24.067 Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3
- 24.068 Group Call Control (GCC) Protocol
- 24.069 Broadcast Call Control (BCC) Protocol - Stage 3
- 24.071 Location Services (LCS) Stage 3
- 24.072 Call Deflection Supplementary Service - Stage 3
- 24.080 Mobile radio Layer 3 Supplementary Service specification - Formats and coding
- 24.081 Line Identification Supplementary Service - Stage 3
- 24.082 Call Forwarding Supplementary Service - Stage 3

24.083	Call Waiting (CW) and Call Hold (HOLD) Supplementary Service - Stage 3
24.084	MultiParty (MPTY) Supplementary Service - Stage 3
24.085	Closed User Group (CUG) Supplementary Service - Stage 3
24.086	Advice of Charge (AoC) Supplementary Service - Stage 3
24.087	User-to-User Signalling (UUS) - Stage 3
24.088	Call Barring (CB) Supplementary Service - Stage 3
24.090	Unstructured Supplementary Service Data (USSD) - Stage 3
24.091	Explicit Call Transfer (ECT) Supplementary Service - Stage 3
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24.096	Name Identification Supplementary Service - Stage 3
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## Annex A (informative): Document change history

<b>Status of GSM 21.101</b>		
<b>Date</b>	<b>Version</b>	<b>Information about changes</b>
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
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 (incomplete) and comments included
September 1999	version 0.2.0	03.41 transferred T2/SMG4 and S2 new specs and reports
October 1999	version 0.3.0	Editorial changes and addition of new specifications and reports identified in WGs

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# History

<b>Document history</b>		