



# SLOVENSKI STANDARD SIST ETS 300 917 E1:2003

01-december-2003

---

8 [[ [HJb]`W] b]`hY`\_ca i b]\_UW`g\_]`g]ghYa `fZuU&ŽL`Ě`5 d`]\_UW`g\_]`dfc[ fUa g\_]`  
j a Ygb]\_`nU; GA `f] GA!5 D`L`f] GA `\$+`\$, žfUh`] ]WU) "`&`%L`

Digital cellular telecommunications system (Phase 2+) (GSM); GSM Application Programming Interface (GSM-API) (GSM 07.08 version 5.2.1)

**iteh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Ta slovenski standard je istoveten z: <sup>SIST ETS 300 917 E1:2003</sup> **ETS 300 917 Edition 1**  
<https://standards.iteh.ai/catalog/standards/sist/c89c8a45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>

---

**ICS:**

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)
-----------	---	--

**SIST ETS 300 917 E1:2003**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST ETS 300 917 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>



**E**UROPEAN  
**T**ELECOMMUNICATION  
**S**TANDARD

**ETS 300 917**

May 1998

Source: SMG

Reference: DE/SMG-040708Q

ICS: 33.020

**Key words:** Digital cellular telecommunications system, Global System for Mobile communications (GSM)



**Digital cellular telecommunications system (Phase 2+);  
GSM Application Programming Interface (GSM-API)  
(GSM 07.08 version 5.2.1)**

**ETSI**

European Telecommunications Standards Institute

**ETSI Secretariat**

**Postal address:** F-06921 Sophia Antipolis CEDEX - FRANCE

**Office address:** 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

**Internet:** secretariat@etsi.fr - <http://www.etsi.fr> - <http://www.etsi.org>

Tel.: +33 4 92 94 42 00 - Fax: +33 4 93 65 47 16

**Copyright Notification:** No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1998. All rights reserved.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST ETS 300 917 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>

## Contents

Foreword .....	7
Introduction .....	7
1 Scope .....	9
2 Normative references .....	9
3 Definitions and abbreviations .....	11
3.1 Definitions .....	11
3.2 Abbreviations .....	11
4 Profile A compatible part of GSM-API .....	11
5 Profile B compatible part of GSM-API .....	12
5.1 Overview .....	12
5.2 Parameter description .....	12
5.2.1 Additional Info .....	13
5.2.2 B Channel Information .....	13
5.2.3 B Protocol .....	14
5.2.4 B1 Protocol .....	14
5.2.5 B2 Protocol .....	15
5.2.6 B3 Protocol .....	15
5.2.7 B1 Configuration .....	16
5.2.8 B2 Configuration .....	16
5.2.9 B3 Configuration .....	16
5.2.10 BC .....	17
5.2.11 Called Party Number .....	17
5.2.12 Called Party Subaddress .....	18
5.2.13 Calling Party Number .....	18
5.2.14 Calling Party Subaddress .....	18
5.2.15 CIP Value .....	19
5.2.16 CIP mask .....	22
5.2.17 Connected Number .....	23
5.2.18 Connected Subaddress .....	23
5.2.19 Controller .....	24
5.2.20 Data .....	25
5.2.21 Data Length .....	25
5.2.22 Data Handle .....	25
5.2.23 Facility Selector .....	25
5.2.24 Facility Request Parameter .....	26
5.2.25 Facility Confirmation Parameter .....	26
5.2.26 Facility Indication Parameter .....	27
5.2.27 Facility Response Parameter .....	27
5.2.28 Flags .....	27
5.2.29 HLC .....	28
5.2.30 Info .....	28
5.2.31 Info Element .....	30
5.2.32 Info Mask .....	30
5.2.33 Info Number .....	31
5.2.34 LLC .....	32
5.2.35 Manu ID .....	32
5.2.36 Manufacturer Specific .....	32
5.2.37 NCCI .....	33
5.2.38 NCPI .....	34
5.2.39 PLCI .....	35
5.2.40 Reason .....	35

	5.2.41	Reason_B3 .....	36
	5.2.42	Reject.....	37
6		GSM specific part of GSM-API (addition to ETS 300 838profile A).....	37
7		GSM specific part of GSM-API (addition to ETS 300 838profile B).....	38
	7.1	Overview .....	38
	7.2	GSM specific functionality .....	38
	7.3	Extension mechanism .....	38
	7.4	Registration of GSM support.....	39
	7.4.1	Register GSM support facility message parameter .....	39
	7.5	Support of GSM Tele and Bearer Services.....	40
	7.5.1	Emergency Calls.....	40
	7.6	Basic GSM functions.....	40
	7.6.1	Facility message parameter.....	41
	7.6.1.1	Send Short Messages.....	41
	7.6.1.2	Receive Short Message .....	42
	7.6.1.3	Receive Cell Broadcast Messages .....	44
	7.6.1.4	In Call Modification.....	44
	7.6.1.5	Read SIM Data.....	45
	7.6.1.6	Update SIM Data.....	47
	7.6.1.7	Invalidate SIM file.....	48
	7.6.1.8	Rehabilitate SIM file .....	48
	7.6.1.9	Get SIM File Status .....	49
	7.6.1.10	Handle PIN code .....	50
	7.6.1.11	Get available PLMNs .....	51
	7.6.1.12	Set PLMN Mode.....	52
	7.7	GSM Supplementary Service functions.....	52
	7.7.1	Overview .....	52
	7.7.2	Enable GSM Supplementary Service Functionality .....	53
	7.7.3	GSM Supplementary Services Parameters.....	53
	7.7.3.1	ss_operation.....	53
	7.7.3.2	Forwarding Feature.....	54
	7.7.4	Facility message parameter.....	54
	7.7.4.1	Restrict SS Information .....	54
	7.7.4.2	Mobile Originated SS Transaction .....	55
	7.7.4.3	Clear Mobile Originated SS Transaction.....	56
	7.7.4.4	Receive SS Message.....	57
	7.7.4.5	Call Hold.....	57
	7.7.4.6	Call Retrieve.....	58
	7.7.4.7	Call Related Ussd .....	58
	7.7.4.8	Receive Call Related Facility.....	59
	7.8	Extended GSM functionality .....	59
	7.8.1	Facility Message parameter.....	60
	7.8.1.1	Get Service State .....	60
	7.8.1.2	RX Level and RX Quality .....	60
	7.8.1.3	Get SIM Present Info .....	61
Annex A (informative):		GSM Supplementary Services Message flow.....	62
A.1		Restrict SS information.....	62
A.2		Mobile Originated SS transaction .....	62
A.3		Receive SS Message (Forward Check Indication).....	62
A.4		Mobile originated USSD .....	63
A.5		Mobile terminated USSD .....	63
A.6		Call related USSD.....	63
A.7		Call hold.....	64

A.8 Receiving a Call related Facility ..... 64

Annex B (informative): Change history ..... 65

History..... 66

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ETS 300 917 E1:2003](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>

Blank page

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ETS 300 917 E1:2003](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>



## Foreword

This European Telecommunication Standard (ETS) has been produced by the Special Mobile Group (SMG) of the European Telecommunications Standards Institute (ETSI).

This ETS defines GSM-API, the application programming interface within the digital cellular telecommunications system.

The contents of this ETS may be subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of this ETS, it will be submitted for OAP by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

- y the third digit is incremented when editorial only changes have been incorporated in the specification;
- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

## Introduction

This ETS defines GSM Application Programming Interface (GSM-API), the Application Programming Interface as an extension to ETS 300 838 (HPCI).

GSM-API can be used by PC applications without any modification. The same existing applications can be used to transfer data inside GSM networks as well as between GSM networks and ISDNs. Thus it unifies access to digital networks from application's point of view.

GSM-API enables applications to access GSM interfaces like mobiles, adapter boards, handhelds, etc. in a straightforward manner and allows unrestricted use of their functions through a standardized software interface.

Applications which use this interface will not be affected by future expansions or hardware changes. GSM-API makes the changes transparent to applications using it. Future expansions that retain compatibility with existing software base are possible.

GSM-API provides an abstraction of GSM services and features that is independent from the network provider and from the interfaces used to connect to the network. It provides an easy-to-use interface for applications and offers a unique access to the different GSM services and features like data transfer, fax, voice, modem, short message service, SIM access, etc.

GSM-API provides the base for modular applications development in GSM network systems.

Transposition dates	
Date of adoption of this ETS:	1 May 1998
Date of latest announcement of this ETS (doa):	31 August 1998
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	28 February 1999
Date of withdrawal of any conflicting National Standard (dow):	28 February 1999

Blank page

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ETS 300 917 E1:2003](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003>

## 1 Scope

This European Telecommunication Standard (ETS) defines the GSM Application Programming Interface (GSM-API) in two parts.

The first part describes, how compatibility to existing application interface ETS 300 838 [14] is covered for the GSM network. So existing PCI applications are able to be used in a GSM environment. For these applications the necessary mapping and local knowledge between application interface and network is described. The only modifications needed in ETS 300 838 [14] to fulfil this requirements are covered by changes of the parameter description. These changes of parameters are defined in clauses 4 and 5 of this ETS.

An application compliant with this ETS shall not imply compliance with ETS 300 838 (HPCI).

Clause 4 is meant to replace subclause 5.7 message parameters of ETS 300 838 [14], which defines the parameters of the profile A of the HPCI.

NOTE 1: Clause 4 is for further study.

Clause 5 replaces subclause 6.8 parameter description of ETS 300 838, which defines the parameters of the profile B of the HPCI.

The second part defines GSM specific features. New GSM-API applications need extensions to ETS 300 838 [14] which are defined in section 6 and 7 of this ETS.

These sections are meant as an addition to ETS 300 838 [14]. They do not replace any clause of ETS 300 838 [14].

Clause 6 defines the extensions according to the profile A of ETS 300 838 [14].

NOTE 2: Clause 6 is for further study.

Clause 7 defines the extensions according to the profile B of ETS 300 838 [14] (bit compatible to COMMON ISDN API).

The messages and the operating system dependent part of ETS 300 838 [14] will not be changed for GSM-API.

## 2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- |     |   |
|-----|---|
| [1] | GSM 01.04 (ETR 350): "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".   |
| [2] | GSM 02.04 (ETS 300 918): "Digital cellular telecommunications system (Phase 2+); General on supplementary services".  |
| [3] | GSM 02.30 (ETS 300 907): "Digital cellular telecommunications system (Phase 2+); Man-Machine Interface (MMI) of the Mobile Station (MS)".                       |
| [4] | GSM 03.38 (ETS 300 900): "Digital cellular telecommunications system (Phase 2+); Alphabets and language-specific information".                                  |
| [5] | GSM 03.40 (ETS 300 901): "Digital cellular telecommunications system (Phase 2+); Technical realization of the Short Message Service (SMS) Point to Point (PP)". |
| [6] | GSM 03.41 (ETS 300 902): "Digital cellular telecommunications system (Phase 2+); Technical realization of Short Message Service Cell Broadcast (SMSCB)".        |

- [7] GSM 04.08 (ETS 300 940): "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification".
- [8] GSM 04.11 (ETS 300 942): "Digital cellular telecommunications system (Phase 2+); Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [9] GSM 04.80 (ETS 300 950): "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification Formats and coding".
- [10] GSM 04.90 (ETS 300 957): "Digital cellular telecommunications system; Unstructured supplementary services operation - Stage 3".
- [11] GSM 05.08 (ETS 300 911): "Digital cellular telecommunications system (Phase 2+); Radiosubsystem link control".
- [12] GSM 09.02 (ETS 300 974): "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".
- [13] GSM 11.11 (ETS 300 977): "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".
- [14] ETS 300 383 (1997): "Integrated Services Digital Network (ISDN); Harmonized Programmable Communication Interface (HPCI) for ISDN".
- [15] ETS 300-102-1 (1990): "Integrated Services Digital Network (ISDN), Usernetwork interface layer 3, Specifications for basic call control".
- [16] ITU-T Recommendation Q931 (1993): "Digital subscriber Signalling System No. one (DSS1) - ISDN user network interface layer 3 specification for basic call control".
- [17] ISO 7776 (1986): "Information Processing systems; Data communications; High-level data link control procedures: Description of the X.25 LAPD compatible DTE data link procedures".
- [18] IBM publication: "IBM Synchronous Data Link Control Concepts" (GA27-3093).  
<https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-3093-917-e1-2003>
- [19] ITU-T Recommendation Q921 (1993): "ISDN user network interface - Data link layer specification".
- [20] ITU-T Recommendation T.30 (1993): "Procedures for document facsimile transmission in the general switched telephone Network".
- [21] Request For Comment (RFC) 1661: "The Point-to-Point Protocol (PPP)".
- [22] Request For Comment (RFC) 1618: "PPP over ISDN".
- [23] CCITT Recommendation T.90 (1992): "Characteristics and protocols for terminals for telematic services in ISDN".
- [24] ISO 8208 (1990): "Information technology: Data communications; X.25 Packet Layer Protocol for Data Terminal Equipment".
- [25] ITU-T Recommendation X.213 (1992): "Information technology - Network service definition for Open Systems".
- [26] ITU-T Recommendation X.400: "Reference model open System interconnection for CCITT applications".
- [27] ITU-T Recommendation X.200: "Message handling system and service overview".
- [28] ETS 300 097 (1992): "Integrated Services Digital Network (ISDN), Connected Line Identification Presentation (COLP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol part 1; Protocol implementation description".

### 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of this ETS, the following definitions and those given in ETS 300 838 [14] apply:

Invalidate SIM File	This is a procedure to change the availability of a SIM file. With the invalidate function, the corresponding file will no longer be available. See GSM 11.11 [13].
Rehabilitate SIM File	This function will make a SIM file available for an application. See GSM 11.11 [13].
RP cause	This is an error cause used in the GSM Short Messages Service at the SMR (Short Message Relay) layer. All causes are listed in GSM 04.11 [16].

#### 3.2 Abbreviations

For the purpose of this ETS, the following abbreviations apply:

API	Application Programming Interface
ASN1	Abstract Syntax Notation Number 1. This notation is used in different GSM services.
CAPI	COMMON-ISDN-API
CBS	Cell Broadcast Service. It is a specific GSM service used to broadcast messages to all subscribers. See GSM 03.41 [6].
DCS	Data Coding Scheme. It defines an alphabet and/or a class and/or a language for a message. It is used for the SMS and the CBS. See GSM 03.38 [4].
DTMF	Dual Tone Multi Frequency.
GSM-API	GSM Application Programming Interface.
HPCI	Harmonized Programmable Communication Interface
MI	Message Identifier. Each page of a CBS message is identified by a MI.
PIN Code	Personal Identification Number. See GSM 11.11 [13].
PLMN	Public Land Mobile Network.
PPP	Point to Point Protocol.
RLP	Radio Link Protocol.
SC	Service Centre. It is the network element which handle the SMS messages. See GSM 03.40 [5].
SIM	Subscriber Identity Module. See GSM 11.11 [13] for a full description of the SIM files.
SMS	Short Message Service. It is a specific GSM service used to send point to point short messages. See GSM 03.40 [5] for a complete description.
SMS Command	It is a TPDU initiated from a mobile station which invoke an operation in the service centre. See GSM 03.40 [5].
SS	Supplementary Services. All GSM supplementary services are defined in GSM 02.04 [2].
TPDU	Transfer Protocol Data Unit. It is used in the Short Messages Service. See GSM 03.40 [5].

### 4 Profile A compatible part of GSM-API

(replaces subclause 5.7 of ETS 300 838 [14]).

For further study.

## 5 Profile B compatible part of GSM-API

(replaces subclause 6.8 of ETS 300 838 [14].)

### 5.1 Overview

This part of GSM-API defines the parameter description which replaces subclause 6.8 of ETS 300 838 [14] (i.e. Parameter description of Profile B). This replacement is necessary to run existing COMMON-ISDN-API applications on a GSM network.

### 5.2 Parameter description

This subclause describes the parameters used in ETS 300 838 [14] profile B messages. Each parameter is listed with its type, possible values and reference to the messages in which the parameter appears.

Some parameter values are defined according to ETS 300 102-1 [15], Q.931 [16] or GSM 04.08 [7] and 04.11 [8]. In that case there is no private Profile B coding for these parameters. These parameters are coded as Profile B structures starting with a length octet and the remainder of the parameter being coded as defined in ETS 300 102-1 [15] / Q.931 [16] or GSM specifications from octet three onwards. References to the contents of a structure in this clause always use index 0 to identify the first octet of information, i.e. the octet following the length octet.

Parameters may not be omitted, instead an empty structure shall be used. An empty structure shall be coded as a single octet containing a value of 0.

Reserved structures shall be coded as empty structures. Reserved parameter values shall not be used by GSM-API applications. In case of COMMON-ISDN-API applications using these reserved structures respective parameter values the behaviour of GSM-API is described below.

Default values as described in the following subclause shall be implemented in Profile B. They need not be valid for external ISDN equipment; in that case the external equipment defines the default values for its usage.

[SIST ETS 300 917 E1:2003](https://standards.iteh.ai/catalog/standards/sist/e89aba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

Parameters may again contain parameters which are referred to as "sub parameters".

The GSM specific extensions of some of the ETS 300 838 [14] profile B parameters are mentioned in this subclause even if they are related to the GSM specific part in clause 7.

These values shall be used by either the application and the GSM-API if and only if the application has asked for GSM support as described in the clause 7.3 of this ETS.

### 5.2.1 Additional Info

<b>Additional Info (struct)</b>
---------------------------------

The purpose of the parameter *additional info* is to exchange signalling protocol specific information of the network. Depending on the signalling protocol only relevant elements of this structure shall be used (e.g. the B channel information has to be ignored in the message DISCONNECT\_REQ).

The parameter has the following structure:

struct	B channel information;
struct	reserved, shall be ignored;
struct	User user data (coded according to ETS 300 102-1 [15] / Q.931 [16]);
struct	reserved, shall be ignored.

This information element appears in:

ALERT\_REQ

CONNECT\_REQ

CONNECT\_IND

CONNECT\_RESP

DISCONNECT\_REQ

INFO\_REQ

iTech STANDARD PREVIEW  
(standards.iteh.ai)

### 5.2.2 B Channel Information

[SIST ETS 300 917 E1:2003](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

[https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

[65430176e5a3/sist-ets-300-917-e1-2003](https://standards.iteh.ai/catalog/standards/sist/e89eba45-d88c-4635-86c7-65430176e5a3/sist-ets-300-917-e1-2003)

<b>B Channel Information (struct)</b>
---------------------------------------

The purpose of the sub parameter *B channel information* is to choose between B channel data exchange, D channel data exchange or pure user-user data exchange. If this struct is empty the default value is assumed.

This sub parameter is coded as a structure, to give an easy way of extending its contents in future changes. At the moment, it is coded as a structure of two bytes length and has one element:

word Channel:

0	use B channel (default value);
1	reserved, shall be rejected;
2	reserved, shall be rejected.

This sub parameter appears in parameter:

Additional information.