



SLOVENSKI STANDARD SIST ETS 300 616 E2:2003

01-december-2003

8 [[[HJb]`W] b]`hY`_ca i b]_UW`g_]`g]ghYa `fZuU&L`3`E`DcXUh_]`c`Xc[cX_] \ `]b`_]W]`
f] GA`%&`\$) `fUh`]]WU(" `"%L

Digital cellular telecommunications system (Phase 2) (GSM); Event and call data (GSM 12.05 version 4.3.1)

iteh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **ETS 300 616 Edition 2**
<https://standards.iteh.ai/catalog/standards/sist/9038876b-2e17-4062-8231-c5004db220fc/sist-ets-300-616-e2-2003>

ICS:

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

SIST ETS 300 616 E2:2003

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 616 E2:2003

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 616

February 1998

Second Edition

Source: SMG

Reference: RE/SMG-061205PR1

ICS: 33.020

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



**Digital cellular telecommunications system (Phase 2);
Event and call data
(GSM 12.05 version 4.3.1)**

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

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

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 300 616 E2:2003](https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003)

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>

	8.2.2.1	Event reporting.....	26
		8.2.2.1.1 Event forwarding discriminators.....	26
		8.2.2.1.2 Call event record reporting.....	26
		8.2.2.1.3 Emergency call reporting.....	27
		8.2.2.1.4 Observed IMEI ticket reporting.....	27
	8.2.2.2	Bulk record transfer.....	27
	8.2.2.3	Log access.....	27
Annex A (normative):	Information model.....		28
A.1	Overview.....		28
A.1.1	Tariff administration, the service and distance view.....		28
A.1.2	Tariff administration, the date and time view.....		29
A.1.3	The call recording View.....		31
A.2	Naming hierarchy.....		33
A.3	Inheritance.....		34
A.4	Managed object classes.....		35
A.4.1	AoC service.....		35
A.4.2	Call and event log entry.....		36
A.4.3	Log (CCITT X.721).....		36
A.4.4	Call recording function.....		36
A.4.5	Charging calendar.....		37
A.4.6	Charging destination.....		37
A.4.7	Charging origin.....		38
A.4.8	Charging zone.....		38
A.4.9	Day class.....		38
A.4.10	Event forwarding discriminator.....		38
A.4.11	Roamer tariff.....		39
A.4.12	Record class.....		39
A.4.13	Record type control.....	SIST ETS 300 616 E2:2003	39
A.4.14	Supplementary service action control.....	http://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c9007db2206c/sist-ets-300-616-e2-2003	39
A.4.15	Supplementary service control.....	http://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c9007db2206c/sist-ets-300-616-e2-2003	40
A.4.16	Tarif (AoC).....		40
A.4.17	Tariff administration.....		40
A.4.18	Tariff class.....		41
A.4.19	Tariff switch pattern.....		41
A.4.20	Tariff System.....		42
A.4.21	Emergency call indication log entry.....		43
A.4.22	Observed IMEI ticket report log entry.....		44
A.5	Attributes.....		44
A.5.1	AoC Service Identity.....		44
A.5.2	AoC Service Name.....		44
A.5.3	Basic service.....		44
A.5.4	Basic Services.....		44
A.5.5	Calendar year.....		45
A.5.6	Call duration.....		45
A.5.7	Caller ID.....		45
A.5.8	Call event record content.....		45
A.5.9	Call event record type.....		45
A.5.10	Call recording function Identity.....		45
A.5.11	Call reference.....		46
A.5.12	Call types.....		46
A.5.13	Cause for termination.....		46
A.5.14	Cell identity.....		46
A.5.15	Date definitions.....		46
A.5.16	Day classes.....		46
A.5.17	Day class identity.....		47
A.5.18	Day class name.....		47
A.5.19	Day definitions.....		47

A.5.20	Destination identity.....	47
A.5.21	Destination name.....	47
A.5.22	Emergency call indication destination.....	47
A.5.23	Emergency call indication enable.....	48
A.5.24	E1: Units per time interval.....	48
A.5.25	E2: Seconds per time interval.....	48
A.5.26	E3: Scaling factor.....	48
A.5.27	E4: Unit increment.....	48
A.5.28	E5: Units per data interval.....	49
A.5.29	E6: Segments per data interval.....	49
A.5.30	E7: Initial seconds per time interval.....	49
A.5.31	Home PLMN identity.....	49
A.5.32	Location.....	49
A.5.33	Mobile station classmark.....	50
A.5.34	MSC incoming trunk group.....	50
A.5.35	MSC outgoing trunk group.....	50
A.5.36	MS power classes.....	50
A.5.37	Network-specific services.....	50
A.5.38	Observed IMEI ticket destination.....	51
A.5.39	Observed IMEI ticket generation enable.....	51
A.5.40	Origin identity.....	51
A.5.41	Origin destination combinations.....	51
A.5.42	Origin name.....	51
A.5.43	Partial record timer.....	52
A.5.44	Partial record generation.....	52
A.5.45	Radio channels requested.....	52
A.5.46	Radio channel used.....	52
A.5.47	Record class destination.....	52
A.5.48	Record class identity.....	53
A.5.49	Record class name.....	53
A.5.50	Recording method.....	53
A.5.51	Record type.....	53
A.5.52	Served IMSI.....	53
A.5.53	Served MSISDN.....	53
A.5.54	Service centre address (SMS).....	54
A.5.55	Service distance dependencies.....	54
A.5.56	Supplementary service action type.....	54
A.5.57	Supplementary service code.....	54
A.5.58	Supplementary Services.....	54
A.5.59	Tariff administration id.....	54
A.5.60	Tariff class Id.....	55
A.5.61	Tariff id.....	55
A.5.62	Tariff name.....	55
A.5.63	Tariff periods.....	55
A.5.64	Tariff switching pattern id.....	55
A.5.65	Tariff system id.....	56
A.5.66	Tariff system status.....	56
A.5.67	Transparency indicator.....	56
A.5.68	TS active.....	56
A.5.69	TS next change.....	56
A.5.70	TS standby.....	57
A.5.71	Type of subscribers.....	57
A.5.72	Type of transaction.....	57
A.5.73	Zone id.....	57
A.5.74	Zone name.....	57
A.5.75	Observed IEMI ticket content.....	58
A.6	Actions.....	58
A.6.1	TS Cancel change-over.....	58
A.6.2	TS Change-over.....	58
A.6.3	TS Check.....	58
A.6.4	TS Copy tariff system.....	58
A.6.5	TS Unfreeze.....	59

A.7	Notifications	59
A.7.1	Call event record report.....	59
A.7.2	Emergency call indication.....	60
A.7.3	Observed IMEI ticket report	60
A.8	Name bindings.....	60
A.9	Abstract syntax	63
A.10	Application context.....	76
Annex B (normative):	Call and event records.....	77
B.1	General.....	77
B.1.1	Use of supplementary services	77
B.1.1.1	Use of call forwarding	77
B.1.1.2	Use of call hold and multi-party services	78
B.1.2	Partial records	78
B.1.3	Use of packet data services	79
B.1.4	Inter-msc handover	79
B.1.5	Call re-establishment	79
B.1.6	Restricted directory numbers	80
B.2	Record contents.....	80
B.2.1	Mobile originated call attempt.....	81
B.2.2	Mobile originated emergency call attempt.....	82
B.2.3	Mobile originated call forwarding attempt.....	83
B.2.4	Mobile terminated call attempt	84
B.2.5	Roaming call attempt	85
B.2.6	Incoming gateway call attempt	86
B.2.7	Outgoing gateway call attempt	87
B.2.8	Transit call attempt.....	88
B.2.9	Supplementary service actions.....	89
B.2.10	HLR interrogation.....	90
B.2.11	Location update (VLR)	90
B.2.12	Location update (HLR)	91
B.2.13	Short message service, mobile originated	91
B.2.14	Short message service, mobile terminated.....	92
B.2.15	SMS-MO interworking record.....	92
B.2.16	SMS-MT gateway record.....	93
B.2.17	Common equipment usage record.....	93
B.2.18	Reduced partial records	94
B.3	Description of record fields	94
B.3.1	Additional Charging Information.....	94
B.3.2	AoC parameters / change of AoC parameters.....	94
B.3.3	Basic Service / change of service / ISDN Basic Service.....	95
B.3.4	Call duration	95
B.3.5	Call reference.....	95
B.3.6	Calling / called / connected / translated number	95
B.3.7	Cause for termination.....	96
B.3.8	Data volume	96
B.3.9	Diagnostics.....	96
B.3.10	Equipment id.	96
B.3.11	Equipment type	96
B.3.12	Event time stamps.....	96
B.3.13	Incoming/ outgoing trunk group.....	97
B.3.14	Interrogation result	97
B.3.15	Location / change of location.....	98
B.3.16	Message reference	98
B.3.17	Mobile station classmark / change of classmark	98
B.3.18	Entity number	98
B.3.19	Number of forwarding.....	98

B.3.20	Old /new location	98
B.3.21	Radio channel requested / rad. channel used / change of rad. channel.....	98
B.3.22	Record extensions	99
B.3.23	Record type.....	99
B.3.24	Routing number / roaming number	99
B.3.25	Sequence number	99
B.3.26	Served IMEI	99
B.3.27	Served IMSI	99
B.3.28	Served MSISDN.....	99
B.3.29	Service centre address	99
B.3.30	Short message service result	99
B.3.31	Supplementary service(s)	99
B.3.32	Supplementary service action.....	100
B.3.33	Supplementary service action result.....	100
B.3.34	Supplementary service parameters	100
B.3.35	Transparency indicator	100
B.3.36	Update result.....	100
B.4	Example scenarios	100
B.4.1	Mobile to land (outgoing) call	102
B.4.2	Land to mobile (incoming) call.....	103
B.4.3	Mobile to mobile call within the same network.....	104
B.4.4	Incoming call to a roaming subscriber	105
B.4.5	Incoming call to a PLMN service centre	106
B.4.6	Call forwarding unconditional.....	107
B.4.7	Call forwarding conditional (on busy).....	108
B.4.8	Delivery of a mobile terminated short message.....	109
B.4.9	Call hold and multi-party service.....	110
Annex C (normative):	Observed IMEI tickets.....	111
C.1	General.....	111
C.2	Observed IMEI tickets.....	111
C.3	Description of record fields.....	111
C.3.1	IMEI Check Event	111
C.3.2	IMEI Status	112
History.....		113

iteh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 616 E2:2003](https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003)

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 616 E2:2003](https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003)

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>

Foreword

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

This ETS describes the administration of subscriber related event and call data within the Digital cellular telecommunications system.

The specification from which this ETS has been derived was originally based on GSM Phase 1 documentation, hence the presentation of this ETS is not entirely in accordance with the ETSI/PNE Rules.

Transposition dates	
Date of adoption of this ETS:	23 January 1998
Date of latest announcement of this ETS (doa):	31 May 1998
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	30 November 1998
Date of withdrawal of any conflicting National Standard (dow):	30 November 1998

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 616 E2:2003](https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003)

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 616 E2:2003](https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003)

<https://standards.iteh.ai/catalog/standards/sist/5038876b-2ef7-40b2-8231-c5004db220fc/sist-ets-300-616-e2-2003>

1 Scope

This European Telecommunication Standard (ETS) is concerned with the administration of subscriber related event and call data. This includes both the collection of call data from, and the distribution of tariff data to, the network elements.

The subscriber (IMSI) and mobile equipment (IMEI) related call and event data collected is employed by a number of management activities including billing & accounting, statistical analysis and customer care.

The tariff data in the network elements is required to support the supplementary service "Advice of Charge".

The aim of this ETS is to describe both the network management functions required and the data involved.

2 Normative references

This ETS incorporates by dated or 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] CCITT D.93 (1988): " Charging & Accounting in the international land mobile telephone service provided via cellular radio systems".
- [2] CCITT E.164 (1988): " Numbering Plan for the ISDN Era".
- [3] CCITT M.3010: " Principles for a telecommunications management network".
- [4] CCITT M.3200: " TMN Management Services: Overview".
- [5] CCITT X.721 (ISO/IEC 10165-2) (1992): " Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".
- [6] CCITT X.722 (ISO/IEC 10165-4) (1992): " Information technology - Open Systems Interconnection - Structure of Management Information: Guidelines for the definition of managed objects".
- [7] CCITT X.730 (ISO/IEC 10164-1): "Information technology - Open Systems Interconnection - Systems Management: Object Management Function".
- [8] CCITT X.731 (ISO/IEC 10164-2): "Information technology - Open Systems Interconnection - Systems Management: State Management Function".
- [9] CCITT X.733: "Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function".
- [10] CCITT X.734 (ISO/IEC 10164-5): "Information technology - Open Systems Interconnection - Systems Management: Event Report Management Function".
- [11] CCITT X.735 (ISO/IEC 10164-6): "Information technology - Open Systems Interconnection - Systems Management: Log Control Function".
- [12] GSM 02.24 (ETS 300 510): "Digital cellular telecommunication system (Phase 2); Description of Charge Advice Information (CAI)".
- [13] GSM 02.86 (ETS 300 519): "Digital cellular telecommunication system (Phase 2); Advice of charge (AoC) supplementary services - Stage 1".

- [14] GSM 03.03 (ETS 300 523): "Digital cellular telecommunication system (Phase 2); Numbering, addressing and identification".
- [15] GSM 03.40 (ETS 300 536): "Digital cellular telecommunication system (Phase 2); Technical realization of the Short Message Service (SMS) Point to Point (PP)".
- [16] GSM 04.08 (ETS 300 557): "Digital cellular telecommunication system (Phase 2); Mobile radio interface layer 3 specification".
- [17] GSM 09.02 (ETS 300 599): "Digital cellular telecommunication system (Phase 2); Mobile Application Part (MAP) specification".
- [18] GSM 12.00 (ETS 300 612-1): "Digital cellular telecommunication system (Phase 2); Objectives and structure of Network Management (NM)".
- [19] GSM 12.01 (ETS 300 612-2): "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".
- [20] GSM 12.02 (ETS 300 613): "Digital cellular telecommunication system (Phase 2); Subscriber, Mobile Equipment (ME) and services data administration".
- [21] ETS 300 196-1 (1993): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

3 Definitions

iTeh STANDARD PREVIEW

For the purposes of this ETS, the following definitions apply. (standards.iteh.ai)

accounting meter record: A record containing one or more counters employed to register the usage of resources en masse. Includes simple event counters and/or cumulative call second counters.

advice of charge: The real-time display of the network utilisation charges incurred by the Mobile Station. The charges are displayed in the form of charging units. If a unit price is stored by the MS then the display may also include the equivalent charge in the home currency.

aoc service: A combination of one or more services, both basic and supplementary, together with a number of other charging relevant parameters to define a customised service for the purpose of advice of charge.

call data: One or more call records.

call record: A set of parameters related to one call attempt.

charging calendar: One or more date definitions each of which assigns a day class to a particular day.

charging destination: Also referred to as a destination for charging, this is a nominal reference defining the point of termination of a connection for charging purposes.

charging origin: A nominal reference defining the point of origin of a connection for charging purposes.

charging zone: A distance class (e.g. "local" and "long distance") defined by one or more combinations of charging origins and charging destinations.

day class: A group of days for which the same tariff switch-over pattern applies e.g. public holidays

event data: One or more event records.

event record: A set of parameters related to a single telecommunications event.

observed IMEI ticket: A record used to describe an EIR relevant event e.g. a blacklisted IMEI

service distance dependency: The relationship between an AoC service, a charging zone and the relevant tariff class.

successful call: A connection that reaches the communication or data transfer phase e.g. the "answered" state for speech connections. All other connection attempts are regarded as unsuccessful.

tariff: A set of parameters defining the network utilisation charges for the use of a particular service.

tariff class: A grouping of one or more service distance dependencies for the purpose of defining the corresponding tariff switching patterns.

tariff period: A part of one (calendar) day during which a particular tariff is applied. Defined by the time at which the period commences (the switch-over time) and the tariff to be applied after switch-over.

tariff switch-over pattern: A set of tariff periods defining the tariffs to be applied over one complete 24 hour period (calendar day).

4 Abbreviations

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

ADC	Administration Centre
AoC	Advice of Charge
BSS	Base Station System
CAI	Charge Advice Information
CMIP	Common Management Information Protocol
CMIS	Common Management Information Service
CUG	Closed User Group
EFD	Event forwarding discriminator
EIR	Equipment Identity Register
ETSI	European Telecommunications Standard Institute
FTAM	File Transfer, Access and Management
GMSC	Gateway MSC
HLR	Home Location Register
HPLMN	Home PLMN
ICS	Implementation Conformance Statements
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
ISDN	Integrated Services Digital Network
ISP	Internal Standardized Profiles
MCS	Management Conformance Summary
MMI	Man Machine Interface
MOC	Mobile Originated Call (attempt)
MOCS	Managed Object Conformance Statements
MS	Mobile Station
MSC	Mobile Services Switching Centre
MSRN	Mobile Station Roaming Number
MTC	Mobile Terminated Call (attempt)
NE	Network Element
NEF	Network Element Function block
NM	Network Management
OACSU	Off air call set-up
OMC	Operations and Maintenance Centre
OS	Operations System
OSF	Operations System Function
PICS	Protocol Implementation Conformance Statements
PLMN	Public Land Mobile Network
PSPDN	Packet Switched Public Data Network
SCI	Subscriber Controlled (MMI) Input
SCS	System Conformance Statement
SDR	Special Drawing Right
SMF	System Management Function
SMS	Short Message Service
TAP	Transferred Account Procedure
TMN	Telecommunications Management Network
TMN-MF	TMN Management Function
TMN-MS	TMN Management Service
TMN-MSC	TMN Management Service Component