



**SLOVENSKI STANDARD**  
**SIST TBR 031 E1:2004**  
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Digital cellular telecommunications system (Phase 2) (GSM); Attachment requirements for mobile stations in the DCS 1 800 band and additional GSM 900 band; Access

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**ICS:**

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)
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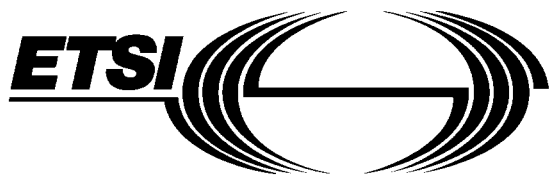
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# TECHNICAL BASIS for REGULATION

## TBR 31

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



GLOBAL SYSTEM FOR  
MOBILE COMMUNICATIONS

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**Digital cellular telecommunications system (Phase 2);  
Attachment requirements for mobile stations in the DCS 1 800  
band and additional GSM 900 band;  
Access**

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## Foreword

This Technical Basis for Regulation (TBR) has been produced by the Special Mobile Group (SMG) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This TBR covers the general access requirements for terminal equipment for Phase 2 of the public land mobile radio service, operating in

- the DCS 1 800 band; or
- both in the DCS 1 800 band and the GSM 900 MHz band.

This TBR contains the procedures and requirements for the approval testing of DCS 1 800 and Multiband terminal equipment for access.

The requirements of other TBRs apply in addition to this TBR.

For each test, supplementary information is provided, giving a justification why this item has been selected for regulatory testing, and a reference to the relevant article of the Terminal Directive [1].

This TBR is based on the ETS 300 607-1 (GSM 11.10-1) [2].

NOTE: This TBR for Phase 2 may be developed in stages. The first release will include, as a minimum, all of the basic Phase 2 requirements for full rate.

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## 1 Scope

This Technical Basis for Regulation (TBR) specifies the technical requirements to be met by terminal equipment capable of connecting to a public telecommunications network. These requirements apply to terminals for Phase 2 of the public land mobile radio service, operating in

- the DCS 1 800 band; or
- both in the DCS 1 800 band and the GSM 900 MHz band.

with a channel separation of 200 kHz, utilizing constant envelope modulation and carrying traffic channels according to the Time Division Multiple Access (TDMA) principle.

This TBR specifies the access requirements for terminals as stated above implementing the GSM standard.

For each test purpose and its corresponding conformance requirement, a reference is given to the test method in ETS 300 607-1 (GSM 11.10-1) [2]. The requirements apply at the air interface and the Subscriber Identity Module - Mobile Equipment interface for the access requirements, which may be stimulated to perform the tests by additional equipment if necessary.

The measurement uncertainty is described in ETS 300 607-1 (GSM 11.10-1) [2].

This TBR covers the essential requirements of the Terminal Directive 91/263/EEC [1] Articles 4d, 4e, 4f. Non access related aspects of speech telephony, where Article 4g has been applied, are covered by TBR 32.

The Terminal Directive 91/263/EEC [1] Articles 4a and 4b are covered by other directives, and, therefore, not by this TBR.

In this TBR, there are no Electromagnetic Compatibility technical requirements in terms of the Terminal Directive 91/263/EEC [1], Article 4c.

NOTE: Technical Requirements for EMC performance and testing of the equipment are covered by the relevant standards applicable to the EMC Directive 89/336/EEC, annex A.

Terminal equipment may be subject to additional requirements in other Common Technical Regulations (CTR) depending on the equipments functionality.

ETS 300 607-1 (GSM 11.10-1) [2] constitutes the conformance test suite referenced by this TBR. The verification of the conformance requirements in this TBR is based on the tests described in this reference. The set of requirements in ETS 300 607-1 (GSM 11.10-1) [2] and the set of requirements in this TBR need not be identical.

Some requirements only apply to specific types of mobile station (e.g. data tests only apply to mobile stations with a data facility). The TBR also indicates the specific test which should be carried out for each mobile station type.

An active accessory is covered by this TBR if it modifies the terminal performance in an aspect which affects conformance to essential requirements.

NOTE: Only active devices are subject to this TBR. Accessories may be tested with specific terminals, and either approved for use with those terminals only, or may possibly be approved for use with a wider range of terminals, depending on the nature and effect of the accessory.

## 2 Normative references

This TBR 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 revision of any of these publications apply to the requirements specified in this TBR, only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- [1] Terminal Directive 91/263/EEC: "Council directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity. ("The Terminal Directive)".
- [2] ETS 300 607-1 Edition 3 (GSM 11.10-1 version 4.16.1): "Digital cellular telecommunications system (phase 2); Mobile station conformity specifications".
- [3] TBR 20 Edition 2: "Digital cellular telecommunications system; Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Telephony".
- [4] ETS 300 500 Edition 2 (GSM 02.01 version 4.6.0): "Digital cellular telecommunication system (Phase 2); Principles of telecommunications services supported by a GSM Public Land Mobile Network (PLMN)".
- [5] ETS 300 501 (GSM 02.02 version 4.2.2): "Digital cellular telecommunications system (Phase 2); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".
- [6] ETS 300 502 (GSM 02.03 version 4.3.1): "Digital cellular telecommunications system (Phase 2); Teleservices supported by a GSM Public Land Mobile Network (PLMN)".
- [7] ETS 300 503 Edition 3 (GSM 02.04 version 4.9.1): "Digital cellular telecommunications system (Phase 2); General on supplementary services".
- [8] ETS 300 504 Edition 3 (GSM 02.06 version 4.4.0): "Digital cellular telecommunications system (Phase 2); Types of Mobile Stations (MS)".
- [9] ETS 300 505 Edition 2 (GSM 02.07 version 4.7.0): "Digital cellular telecommunications system (Phase 2); Mobile Station (MS) features".
- [10] ETS 300 507 Edition 4 (GSM 02.11 version 4.9.0): "Digital cellular telecommunications system (Phase 2); Service accessibility".
- [11] ETS 300 508 Edition 2 (GSM 02.16 version 4.5.0): "Digital cellular telecommunications system (Phase 2); International Mobile station Equipment Identities (IMEI)".
- [12] ETS 300 511 Edition 2 (GSM 02.30 version 4.13.0): "Digital cellular telecommunications system (Phase 2); Man-Machine Interface (MMI) of the Mobile Station (MS)".
- [13] ETS 300 536 Edition 4 (GSM 03.40 version 4.13.0): "Digital cellular telecommunications system (Phase 2); Technical realization of the Short Message Service (SMS) Point to Point (PP)".
- [14] ETS 300 537 Edition 2 (GSM 03.41 version 4.11.0): "Digital cellular telecommunications system (Phase 2); Technical realization of Short Message Service Cell Broadcast (SMSCB)".

- [15] ETS 300 538 Edition 2 (GSM 03.45 version 4.5.0): "Digital cellular telecommunications system (Phase 2); Technical realization of facsimile group 3 transparent".
- [16] ETS 300 539 (GSM 03.46 version 4.1.2): "Digital cellular telecommunications system (Phase 2); Technical realization of facsimile group 3 non-transparent".
- [17] ETS 300 551 (GSM 04.02 version 4.0.4): "Digital cellular telecommunications system (Phase 2); GSM Public Land Mobile Network (PLMN) access reference configuration".
- [18] ETS 300 557 Edition 7 (GSM 04.08 version 4.16.1): "Digital cellular telecommunications system (Phase 2); Mobile radio interface layer 3 specification".
- [19] ETS 300 577 Edition 8 (GSM 05.05 version 4.16.1): "Digital cellular telecommunications system (Phase 2); Radio transmission and reception".
- [20] ETS 300 582 Edition 4 (GSM 07.01 version 4.10.0): "Digital cellular telecommunications system (Phase 2); General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

### 3 Abbreviations

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

ACK	ACKnowledgement
BA	BCCH Allocation
BC	Bearer Capability
BCCH	Broadcast Control CHannel
CC	Call Control
CCCH	Common Control CHannel
CFB	Call Forwarding mobile subscriber Busy
CFNRc	Call Forwarding MS Not Reachable
CFU	Call Forwarding Unconditional
CM	Connection management
CTR	Common Technical Regulations
DRX	Discontinuous Reception (mechanism)
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi Frequency
DTX	Discontinuous Transmission (mechanism)
FACCH	Fast Associated Control CHannel
I	Information (frame)
IMEI	International Mobile station Equipment Identity
IMSI	International Mobile Subscriber Identity
LA	Location Area
LAI	Location Area Identification
ME	Mobile Equipment
MM	Mobility Management
MMI	Man Machine Interface
MO	Mobile Originated
MOC	Mobile Originated Call
MS	GSM Mobile Station
MT	Mobile Terminated
MTC	Mobile Terminated Call
N(R)	Receive sequence Number
N(S)	Send sequence Number
OACSU	Off Air Call Set Up
PLMN	Public Land Mobile Network
RACH	Random Access CHannel
REJ	REJect (frame)
RF	Radio Frequency
RR	Radio Resource (management entity / connection)

RR	Receive Ready (frame) (in L2)
RST	Reset
S	S counter
SABM	Set Asynchronous Balanced Mode (frame)
SAPI	Service Access Point Identifier
SDCCH	Stand-alone Dedicated Control CHannel
SIM	Subscriber Identity Module
SMS	Short Message Service
SS	System Simulator
TCH	Traffic CHannel
TCH/FS	Full rate Traffic CHannel for Speech
TCH/HS	Half rate Traffic CHannel for Speech
TDMA	Time Division Multiple Access
TI	Transaction Identifier
TMSI	Temporary Mobile Subscriber Identity
UA	Unnumbered Acknowledge (frame)
UI	Unnumbered Information (frame)

#### 4 General requirements

The requirements of this TBR apply to the following classes of terminal.

- Terminals operating only in the DCS 1 800 band. These terminals shall conform to the requirements of clause 5.
- Terminals operating in the DCS 1 800 band and in the GSM 900 band (including terminals operating in the Extended GSM 900 band), where operation is possible in only one band at a time. These terminals shall conform to:
  - a) the requirements of TBR 19; and
  - b) the requirements of clause 5 of this TBR.
- Terminals operating simultaneously in the DCS 1 800 band and in the GSM 900 band (including terminals operating in the Extended GSM 900 band). These terminals shall conform to:
  - a) the requirements of TBR 19; and
  - b) the requirements of clause 5 of this TBR; and
  - c) the requirements from clause 6 of this TBR.

## 5 Requirements for terminals operating in the DCS 1 800 band

Table 1 contains all requirements that are needed for terminals operating in the DCS 1 800 band to meet the essential requirements as defined in the Terminal Directive [1]. A justification according to article 4 of the Terminal Directive is given by stating the relevant categories (c to f) together with a text supporting the justification.

The entries are defined as follows:

- "ETS 300 607-1 Item" defines the item number of the conformance requirement and also the reference to ETS 300 607-1 (GSM 11.10-1) [2]. This reference is a normative reference to a subclause of ETS 300 607-1 (GSM 11.10-1) [2] containing the conformance requirement text, and references to the base standard.
- "Description" contains a short description of the requirement.
- "TBR Justification" contains supplementary information to explain the justification of the requirement according to article 4 of the Terminal Directive [1].
- "TD Cat" defines the category according to article 4 of the Terminal Directive [1].
- "Test Cat" is defined as follows:
  - an "X" indicates a special test situation (e.g. a manufacturer's declaration of some sort);
  - a blank entry indicates conformity is by the test referred to by this TBR;
  - an asterisk "\*" indicates that, where the terminal supports both the GSM 900 and DCS 1 800 bands either the test in the DCS 1 800 band in TBR 31 or the equivalent test in the GSM 900 band is performed, and that a special test situation applies for the test which is not performed.

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Table 1: Requirements and Justifications for terminals operating in the DCS 1 800 band

ETS 300 607-1 Item	DESCRIPTION	TBR JUSTIFICATION	TD Cat	Test Cat
11.1.1	Verification of support and non-support of services (MT).	To ensure that the MS correctly accepts BC(s) from the network to ensure correct interworking with the network.	f	*
11.1.2	Verification of support and non-support of services (MO).	To ensure that the MS correctly reports BC(s) to the network to ensure correct interworking with the network.	f	*
11.2	Verification of support of the single numbering scheme.	To ensure correct interworking with a network supporting single numbering scheme.	f	*
11.3	Verification of non-support of services. (Advice of Charge Charging, AOCC)	If the MS incorrectly supports AoCC incorrect charging may result. If the MS incorrectly indicates support of AoCC the network may not correctly decide whether access is allowed.	d, f	*
11.4	Verification of non-support of services. (Call Hold)	If the MS supports AoCC incorrect charging may result If the MS incorrectly indicates non-support of call hold.	f	*
11.5	Verification of non-support of services. (MultiParty)	If the MS supports AoCC incorrect charging may result. If the MS incorrectly indicates non-support of multi-party.	f	*
11.6	Verification of non-support of feature. (Fixed dialling number)	If a fixed dialling number SIM is inserted into a MS not rejecting other call set-ups, calls may be made (and charged) to non-authorized numbers.	d, f	X
11.7	IMEI security.	If an IMEI could be changed without authorization security mechanisms based on the IMEI would not work.	d	X
12.1.1	Conducted spurious emissions - MS allocated a channel.	Non compliance in this area may cause interference to other spectrum users.	e	
12.1.2	Conducted spurious emissions - MS in idle mode.	Non compliance in this area may cause interference to other spectrum users.	e	
12.2.1	Radiated spurious emissions - MS allocated a channel.	Non compliance in this area may cause interference to other spectrum users.	e	
12.2.2	Radiated spurious emissions - MS in idle mode.	Non compliance in this area may cause interference to other spectrum users.	e	
13.1	Transmitter - Frequency error and phase error.	Non Compliance in this area may impair establishment and the maintaining of the call.	e	
13.2	Transmitter - Frequency error under multipath and interference conditions.	Non Compliance in this area may impair establishment and the maintaining of the call.	e	
13.3-1	Transmitter output power and burst timing - MS with permanent antenna connector.	Non Compliance in this area may impair establishment and the maintaining of the call or may cause interference to other spectrum users.	e	
13.3-2	Transmitter output power and burst timing - MS with integral antenna.	Non Compliance in this area may impair establishment and the maintaining of the call or may cause interference to other spectrum users.	e	X

Table 1: Requirements and Justifications for terminals operating in the DCS 1 800 band  
(continued)

ETS 300 607-1 Item	DESCRIPTION	TBR JUSTIFICATION	TD Cat	Test Cat
13.4	Transmitter - Output RF spectrum.	Non compliance in this area may cause interference to other spectrum users.	e	
13.5	Intermodulation attenuation.	Non compliance in this area may cause interference to other spectrum users.	e	X
14.1.1.1	Receiver / Bad Frame Indication - TCH/FS - Random RF input.	Non compliance in this area may degrade speech quality.	e	X
14.1.1.2	Receiver / Bad Frame Indication - TCH/FS - Frequency hopping and downlink DTX.	Non compliance in this area may degrade speech quality.	e	
14.1.2.1	Receiver / Bad Frame Indication - TCH/HS - Random RF input.	Non compliance in this area may degrade speech quality.	e	X
14.1.2.2	Receiver / Bad Frame Indication - TCH/HS - Frequency hopping and downlink DTX.	Non compliance in this area may degrade speech quality.	e	
14.2.1	Receiver / Reference sensitivity - TCH/FS.	Non compliance in this area may degrade speech quality and may impair call maintenance.	f	
14.2.2	Receiver / Reference sensitivity - TCH/HS.	Non compliance in this area may degrade speech quality and may impair call maintenance.	f	
14.2.3	Receiver / Reference sensitivity - FACCH/F.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	
14.2.4	Receiver / Reference sensitivity - FACCH/H.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	
14.2.5	Receiver / Reference sensitivity - full rate data channels.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	X
14.2.6	Receiver / Reference sensitivity - half rate data channels.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	X
14.3	Receiver / Usable receiver input level range.	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	
14.4.1	Co-channel rejection - TCH/FS.	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	
14.4.2	Co-channel rejection - TCH/HS (speech frames).	Non compliance in this area may degrade speech quality and may impair call maintenance.	f	
14.4.4	Co-channel rejection - FACCH/F.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	
14.4.5	Co-channel rejection - FACCH/H.	Non Compliance in this area may impair establishment and the maintaining of the call.	f	