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Evropski digitalni celiļ ni telekomunikacijski sistem (faza 2) - Priključļ itvene zahteve za mobilne postaje globalnega sistema mobilnih komunikacij (GSM) - Dostop

European digital cellular telecommunications system (Phase 2); Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Access

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GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

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Foreword

This third edition 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 the Global System for Mobile communications (GSM) mobile services.

This TBR contains the procedures and requirements for the approval testing of GSM 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 ETS 300 607-1 (GSM 11.10-1 version 4.15.1) [2].

This TBR 19 corresponds to TC-SMG TBR 19 version 4.2.0 and is a result of further work within TC-SMG.

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, half rate, and primary and extended bands. Subsequent releases will include additional requirements.

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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 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 terminal equipment access requirements for the GSM 900 version of the Global System for Mobile communications (GSM).

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 20.

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 1: 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 for GSM. 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 2: 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 2 (GSM 11.10-1 version 4.15.1): Digital cellular telecommunications system (phase 2); Mobile station conformity specifications".

[3] TBR 20 Edition 2: "European 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 telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[5] ETS 300 501 (GSM 02.02 version 4.2.2): "Digital cellular telecommunication 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 telecommunication 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 telecommunication system (Phase 2); General on supplementary services".

[8] ETS 300 504 Edition 3 (GSM 02.06 version 4.4.0): "Digital cellular telecommunication system (Phase 2); Types of Mobile Stations (MS)".

[9] ETS 300 505 Edition 2 (GSM 02.07 version 4.7.0): "Digital cellular telecommunication system (Phase 2); Mobile Station (MS) features".

[10] ETS 300 507 Edition 4 (GSM 02.11 version 4.9.0): "Digital cellular telecommunication system (Phase 2); Service accessibility".

[11] ETS 300 508 Edition 2 (GSM 02.16 version 4.5.0): "Digital cellular telecommunication system (Phase 2); International Mobile station Equipment Identities (IMEI)".

[12] ETS 300 511 Edition 2 (GSM 02.30 version 4.13.0): "Digital cellular telecommunication 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 telecommunication 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 telecommunication 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 telecommunication system (Phase 2); Technical realization of facsimile group 3 transparent".

[16] ETS 300 539 (GSM 03.46 version 4.1.2): "Digital cellular telecommunication system (Phase 2); Technical realization of facsimile group 3 non-transparent".

[17] ETS 300 551 (GSM 04.02 version 4.0.4): "Digital cellular telecommunication system (Phase 2); GSM Public Land Mobile Network (PLMN) access reference configuration".

[18] ETS 300 557 Edition 6 (GSM 04.08 version 4.15.0): "Digital cellular telecommunication system (Phase 2); Mobile radio interface layer 3 specification".

[19] ETS 300 577 Edition 7 (GSM 05.05 version 4.15.0): "Digital cellular telecommunication system (Phase 2); Radio transmission and reception".

[20] ETS 300 582 Edition 4 (GSM 07.01 version 4.10.0): "Digital cellular telecommunication system (Phase 2); General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

3 Abbreviations

ACK	ACKnowledgement
AoC	Advice of Charge
AoCC	Advice of Charge Charging supplementary service
ACM	Address Complete Message
ACMM	Address Complete Message Maximum
ARFCN	Absolute Radio Frequency Channel Number
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
DCD	Data Call Direction
DRX	Discontinuous Reception (mechanism)
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi Frequency
DTX	Discontinuous Transmission (mechanism)
FACCH	Fast Associated Control CHannel
FDN	Fixed Dialling Number
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
RMS	Root Mean Square (value)
RNR	Receiver Not Ready (frame)
RR	Radio Resource (management entity / connection)
RR	Receive Ready (frame) (in L2)
RST	Reset
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)
UDI	Unrestricted Digital Information
USSD	Unstructured Supplementary Service Data

4 Requirements

The following table contains all requirements that are needed 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" defines whether the requirement is covered by a "special test situation" (e.g. a manufacturer’s declaration of some form). An "X" indicates a special test situation, whilst, a blank entry indicates conformity is by the test referred to by this TBR.

Table 1: Requirements and Justifications

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	

Table 1: Requirements and Justifications (continued)

ETS 300 607-1 Item	DESCRIPTION	TBR JUSTIFICATION	TD Cat	Test Cat
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
13.4	Transmitter - Output RF spectrum	Non compliance in this area may cause interference to other spectrum users.	e	
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	

Table 1: Requirements and Justifications (continued)

ETS 300 607-1 Item	DESCRIPTION	TBR JUSTIFICATION	TD Cat	Test Cat
14.5.1	Adjacent channel rejection - speech channels	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	
14.5.2	Adjacent channel rejection - control channels	Non Compliance in this area may impair establishment and the maintaining of the call.	f	
14.6.1	Intermodulation rejection - speech channels	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	
14.6.2	Intermodulation rejection - control channels	Non Compliance in this area may impair establishment and the maintaining of the call.	f	
14.7.1	Blocking and spurious response - speech channels	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	
14.7.2	Blocking and spurious response - control channels	Non Compliance in this area may impair establishment and the maintaining of the call.	f	X
14.8.1	AM suppression - speech channels	Non compliance in this area may impair establishment and maintenance of the call	f	
14.8.2	AM suppression - control channels	Non compliance in this area may impair establishment and maintenance of the call	f	
15	Timing advance and absolute delay	If the timing advance is set or reported wrongly the establishment or maintenance of a connection may be disturbed. Calls on adjacent timeslots may be disturbed.	f	
16	Reception time tracking speed	If the MS does not respond correctly to changes in timing, the call may drop or interference may be caused to other users.	f	
17.1	Access times during handover - Intra cell channel change	There may be an unacceptable audible break in the speech if this time is exceeded.	f	
17.2	Access times during handover - Inter cell handover	Tp1/2: There may be an unacceptable audible break in the speech if this time is exceeded. Tp3/4: The call may drop if these requirements are not met.	f	
18	Temporary reception gaps	Non Compliance in this area may impair the holding of the connection.	f	
19.1	Channel release after unrecoverable errors - 1	Failure in these requirements will result in incorrect call holding and clearance performance in marginal RF signal conditions.	e, f	
19.2	Channel release after unrecoverable errors - 2	Failure in these requirements will result in incorrect call holding and clearance performance in marginal RF signal conditions.	e, f	
19.3	Channel release after unrecoverable errors - 3	Failure in these requirements will result in incorrect call holding and clearance performance in marginal RF signal conditions.	e, f	