SLOVENSKI STANDARD
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Digitalni celiļ ni telekomunikacijski sistem (faza 2+) - Priključļ itvene zahteve za globalni sistem mobilnih komunikacij (GSM) - Frekvenļ ni pasovi za ģeleznico (R-GSM) - Mobilne postaje - Dostop (GSM 13.67, razliļ ica 5.1.1, izdaja 1996)

Digital cellular telecommunications system (Phase 2+) (GSM); Attachment requirements for Global System for Mobile communications (GSM); Railways Band (R-GSM); Mobile Stations; Access (GSM 13.67 version 5.1.1 Release 1996)

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Digital cellular telecommunications system (Phase 2+); Attachment requirements for Global System for Mobile communications (GSM); Railways Band (R-GSM); Mobile Stations; Access (GSM 13.67 version 5.1.1 Release 1996)

GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Special Mobile Group (SMG).

The present document covers the requirements for GSM terminal equipment capable of operating in the frequency bands allocated for use by private networks of the European railways (876 - 880 MHz and 921 - 925 MHz), hereafter designated R-GSM terminals.

The present document contains the procedures and requirements for the approval testing of R-GSM terminals.

The requirements of TBR-19, Access apply in addition to the present document, for R-GSM terminals.

Equipments complying with these standards will carry the presumption of conformity with the essential requirements referred to in Article 5 of the Directive 98/13 EC of the European Parliament and of the Council.

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].

The present document is based on EN 300 607-1 (GSM 11.10-) [2].

The contents of the present document may be subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will then be re-submitted for formal approval procedures by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

5 GSM Phase 2+ Release 1996

x the second digit is incremented for changes of substance, i.e. technical enhancements, corrections, updates, etc.;

y the third digit is incremented when editorial only changes have been incorporated in the specification.

National transposition dates	
Date of adoption of this EN:	21 July 2000
Date of latest announcement of this EN (doa):	31 October 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2001
Date of withdrawal of any conflicting National Standard (dow):	30 April 2001

1 Scope

The present document specifies the technical requirements to be met by GSM terminal equipment capable of operating in the frequency bands allocated for use by private networks of the European Railways (876 - 880 MHz and 921 - 925 MHz). The present document applies to R-GSM terminals for Phase 2+ of the public land mobile radio service, operating in the European Railways R-band frequency in addition to the 900 MHz GSM band with a channel separation of 200 kHz, utilising constant envelope modulation and carrying traffic channels according to the Time Division Multiple Access (TDMA) principle.

The present document specifies the R-GSM terminal requirements for the European Railways 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 EN 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 EN 300 607-1 (GSM 11.10-1) [2].

The present document covers the telecommunication terminal equipment (TTE) essential requirements of the Terminal Directive 98/13/EC [1] Articles 5d, 5e, 5f.

The Terminal Directive 98/13/EC [1] Articles 5a and 5b are covered by other directives, and, therefore, not by the present document.

In the present document, there are no Electromagnetic Compatibility technical requirements in terms of the Terminal Directive 98/13/EC [1], Article 5c.

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.

The present document specifies the R-GSM terminals additional requirements, which will apply in addition to the Harmonised Standards covering the operation of these terminals in the frequency bands allocated for public GSM networks.

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

All the requirements in the present document are specific to mobile stations supporting R-GSM.

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

NOTE 2: Only active devices are subject to the present document. 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.

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].

The present document is based on EN 300 607-1 (GSM 11.10-1) [2].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1996 document, references to GSM documents are for Release 1996 versions (version 5.x.y).

[1] Directive 98/13/EC of the European Parliament and of the Council of 12 February 1998 relating to telecommunications terminal equipment and satellite earth station equipment, including the mutual recognition of their conformity.

[2] EN 300 607-1 (GSM 11.10-1): "Digital cellular telecommunications system (Phase 2+); Mobile station conformity specifications".

[3] TBR 19: "European digital cellular telecommunications system; Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Access".

[4] GSM 01.04 (ETR 350): "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".

[5] TBR 20: "European digital cellular telecommunications system (Phase 2); Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Telephony".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ASCI	Advanced Speech Call Items
eMLPP	enhanced Multi-Level Precedence and Pre-emption service
MO	Mobile Originated
MT	Mobile Terminated
R-GSM	Railways Global System for Mobile communications
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service

Additional GSM related abbreviations can be found in GSM 01.04 (ETR 350) [4].

4 General requirements

R-GSM Band terminals shall conform to:

a) the requirements of the GSM 900 requirements of TBR19; and

b) the requirements of clause 5 of the present document; and

c) the requirements in Annex A of the present document; and

d) if the terminal implements speech services, the requirements of TBR 20.

5 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 5 of the Terminal Directive is given by stating the relevant categories (d to f) together with a text supporting the justification.

The entries are defined as follows:

- "EN 300 607-1 Item" defines the item number of the conformance requirement and also the reference to EN 300 607-1 (GSM 11.10-1) [2]. This reference is a normative reference to a subclause of EN 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.
- "Justification" contains supplementary information to explain the justification of the requirement according to article 5 of the Terminal Directive [1].
- "TD Cat" defines the category according to article 5 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 standard;
  - an asterisk "*" indicates that, for a R-GSM MS the test in this standard shall be performed by using the R-GSM test parameters and the test in TBR 19 does not need to be performed.
  - a double asterisk "**" indicates that, for a R-GSM MS the test in this standard shall be performed and that the corresponding test in TBR 19 does not need to be performed. The corresponding test cases can be found in Table A.27: Cross reference R-GSM RF tests to P- and E-GSM.

Table 1: Requirements and Justifications

EN 300 607-1 Item	Description	Justification	TD Cat	Test Cat
12.3.1	Conducted spurious emissions for MS supporting the R-GSM frequency band/ MS allocated a channel	Non compliance in this area may cause interference to other spectrum users.	e	**
12.3.2	Conducted spurious emissions for MS supporting the R-GSM frequency band/ MS in idle mode	Non compliance in this area may cause interference to other spectrum users.	e	**
12.4.1	Radiated spurious emissions for MS supporting the R-GSM frequency band/ MS allocated a channel	Non compliance in this area may cause interference to other spectrum users.	e	**
12.4.2	Radiated spurious emissions for MS supporting the R-GSM frequency band/ MS in idle mode	Non compliance in this area may cause interference to other spectrum users.	e	**
13.9	Transmitter - Output RF spectrum for MS supporting the R-GSM band.	Non compliance in this area may cause interference to other spectrum users.	e	**
14.2.9	Reference sensitivity - TCH/FS for MS supporting the R-GSM band	Non compliance in this area may degrade speech quality and may impair call maintenance.	f	**
14.7.3	Blocking and spurious response - speech channels for MS supporting the R-GSM band	Non compliance in this area may degrade speech quality and may impair call maintenance.	e	**
14.7.4	Blocking and spurious response - control channels for MS supporting the R-GSM band	Non Compliance in this area may impair establishment and the maintaining of the call.	f	X
20.21.1	R-GSM cell selection	An MS which does not select the correct cell at switch on, may not camp onto the optimum cell for establishing a connection with the network, or may not offer service at all.	e, f	**
20.21.2	R-GSM cell selection with varying signal strength values	An MS which incorrectly averages signal strength values during cell selection, may not camp onto the optimum cell for establishing a connection with the network.	e, f	**
20.21.3	R-GSM basic cell reselection	An MS which reselects cells incorrectly, may not camp onto the optimum cell for establishing a connection with the network.	d, e, f	**
20.21.4	R-GSM cell reselection using TEMPORARY_OFFSET, CELL_RESELECT_OFFSET, POWER_OFFSET and PENALTY_TIME parameters	An MS which reselects cells incorrectly, may not camp onto the optimum cell for establishing a connection with the network.	d, e, f	**
20.21.5	R-GSM cell reselection using parameters transmitted in the System Information type 2bis, type 7 and type 8 messages	An MS which reselects incorrectly, may not camp onto the optimum cell for establishing a connection with the network.	d, e, f	**
20.21.6	R-GSM cell reselection timing	An MS which reselects cells incorrectly, may not camp onto the optimum cell for establishing a connection with the network.	d, e, f	**
20.21.7	R-GSM priority of cells	An MS which reselects cells incorrectly, may not camp onto the optimum cell for establishing a connection with the network. Too frequent reselections may cause increased network signalling load at LA boundaries, or missed paging messages.	d, e, f	**
20.21.8	R-GSM cell reselection when C1 (serving cell) < 0 for 5 seconds.	An MS that selects a cell of incorrect priority or incorrectly uses the cell selection parameters, may not camp onto the optimum cell for establishing a connection with the network.	d, e, f	**

EN 300 607-1 Item	Description	Justification	TD Cat	Test Cat
20.21.9	R-GSM running average of the surrounding cell BCCH carrier signal levels.	An MS which incorrectly calculates the C1 parameter may not camp onto the optimum cell for establishing a connection with the network, Too frequent reselections may cause increased network signalling load at LA boundaries, or missed paging messages.	d, e, f	**
20.21.10	R-GSM running average of the serving cell BCCH carrier signal level	An MS which incorrectly averages signal levels may not camp onto the optimum cell for establishing a connection with the network, Too frequent reselections may cause increased network signalling load at LA boundaries, or missed paging messages.	d, e, f	**
20.21.11	R-GSM updating the list of six strongest neighbour carriers and decoding the BCCH information of a new carrier on the list	An MS which incorrectly averages signal levels may not camp onto the optimum cell for establishing a connection with the network, Too frequent reselections may cause increased network signalling load at LA boundaries, or missed paging messages.	d, e, f	**
20.21.12	R-GSM decoding the BCCH information of the neighbouring carriers on the list of six strongest neighbour carriers	An MS that fails to decode the BCCHs of surrounding cells correctly, may not reselect the optimum cell for establishing a connection with the network., This may cause increased network signalling load at LA boundaries.	d, e, f	**
20.21.13	R-GSM decoding the BSIC of the neighbour carriers on the list of six strongest neighbour carriers	An MS that fails to decode the BSICs of surrounding cells correctly, may not reselect the optimum cell for establishing a connection with the network. This may cause increased network signalling load at LA boundaries.	d, e, f	**
20.21.14	R-GSM emergency calls	An MS that fails to work correctly in the limited service state may not be able to establish a connection for an emergency call. It may also attempt to establish a connection with a network that is not permitted.	d, f	**
20.21.15	R-GSM cell reselection due to MS rejection "LA not allowed"	An MS which fails to reselect correctly when rejected with the cause "LA not allowed" may attempt to establish a connection on a cell which is not allowed, or not the optimum cell, causing increased interference in the network.	d, e, f	**
20.21.16	R-GSM downlink signalling failure	An MS which fails to reselect correctly in conjunction with the DSC counter, may not select the optimum cell for establishing a connection with the network, or may not offer service at all.	d, e, f	**
20.21.17	R-GSM cell selection if no suitable cell found in 10 s	An MS which is unable to reselect a suitable cell and does not perform a cell selection, may not offer service when cells suitable for establishing a connection with the network are available.	f	**
20.21.18	R-GSM cell reselection due to MS rejection "Roaming not allowed in this LA"	An MS which fails to reselect correctly when rejected with the cause "Roaming not allowed in this LA" may repeatedly attempt to establish a connection on a cell which is not allowed.	d, e, f	X
20.21.19	R-GSM cell selection on release of SDCCH and TCH	If wrongly implemented, paging messages may be missed on release of the TCH or SDCCH.	f	**