SLOVENSKI STANDARD
SIST ETS 300 117 E2:2003

01-december-2003

Priključitve na javno komutirano telefonsko omrežje (PSTN) - Specifikacija kategorije II za dupleksne modeme za hitrosti 2400 b/s, standardizirane za uporabo v PSTN

Public Switched Telephone Network (PSTN); Category II specification for 2 400 bits per second duplex modems standardized for use on the PSTN

Ta slovenski standard je istoveten z: ETS 300 117 Edition 2

ICS:

33.040.35 Telefonska omrežja Telephone networks

SIST ETS 300 117 E2:2003 **en**

EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 117

May 1996

Second Edition

Source:ETSI TC-TE

Reference:RE/TE-05048

ICS: 33.020

Key words: modem, PSTN, testing

Public Switched Telephone Network (PSTN); Category II specification for 2 400 bits per second duplex modems standardized for use on the PSTN

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Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

The objective of this specification, the application of which is entirely voluntary, is to provide the users with an added degree of assurance that modems in compliance with this specification can interwork with each other, under most network conditions.

This ETS contains the technical characteristics required for end-to-end interworking over the Public Switched Telephone Network (PSTN), for 2 400 bits per second duplex modems standardized for use over the PSTN.

These requirements are based upon, and do not conflict with, CCITT Recommendation V.22bis [2]. Additionally, requirements are included relating to end-to-end inter-operability over PSTN connections. Such requirements are in excess of the CCITT/ITU-T Recommendations.

Except where otherwise stated, a modem which complies with CCITT Recommendation V.22bis [2] should always meet the requirements of this ETS which relate to parameters specified in that CCITT Recommendation.

Clause 4 of this ETS references the requirements which are common to both Category I and Category II modems, which are contained in clause 4 of final draft prETS 300 114 [1]. The definition of Category I and Category II modems can be found in the foreword of final draft ETS 300 114 [1].

Clause 5 of this ETS contains Category II requirements specific to 2 400 bits per second duplex modems. In the case of certain functions common to a number of different types of modem (e.g. Auto-answering sequence) reference is made to clause 5 of final draft prETS 300 114 [1] which contains the relevant requirements.

Transposition dates	
Date of adoption of this ETS:	26 April 1996
Date of latest announcement of this ETS (doa):	31 August 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	29 February 1997
Date of withdrawal of any conflicting National Standard (dow):	29 February 1997

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1 Scope

This ETS contains the technical characteristics required for end-to-end interworking over the Public Switched Telephone Network (PSTN) of 2 400 bits per second (bit/s) duplex modems standardized for use over the PSTN, in accordance with CCITT Recommendation V.22bis [2].

The term "modem" in the context of this ETS includes all physical implementation practices for a voice band modem, which is conductively connected to the PSTN.

This ETS specifies four modes of operation each with up to five modes of use (see subclause 5.2).

This ETS also contains descriptions of the tests to be performed in order to confirm compliance with the functional requirements contained herein. A general description of the test conditions and test requirements is given in annex A.

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] Final draft prETS 300 114 (1996): "Public Switched Telephone Network (PSTN); Basic Category I and Category II specification for modems standardized for use on the PSTN".

[2] CCITT Recommendation V.22bis (1988): "2 400 bits per second duplex modem using the frequency division technique standardized for use on the General Switched Telephone Network and on point-to-point 2-wire leased telephone-type circuits".

[3] CCITT Recommendation V.22 (1984): "1 200 bits per second duplex modem standardized for use in the General Switched Telephone Network and on point-to-point 2-wire leased telephone-type circuits".

[4] ETS 300 001: "Attachments to the Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN".

[5] CCITT Recommendation V.25 (1984): "Automatic answering equipment and/or parallel automatic calling equipment on the general switched telephone network including procedures for disabling of echo control devices for both manually and automatically established calls".

[6] CCITT Recommendation S.33 (1984): "Standardization of an international text for the measurement of the margin of start-stop machines using International Alphabet No 5".

[7] CCITT Recommendation V.52 (1984): "Characteristics of distortion and error-rate measuring apparatus for data transmission".

3 Definitions and abbreviations

3.1 Definitions

For the purpose of this ETS the definitions of final draft prETS 300 114 [1] apply, together with the following:

Initiation and Acknowledgement Signal (S1): Comprises an unscrambled repetitive double dibit pattern of '00' and '11' at 1 200 bit/s.

Modem Conformance Tester (MCT): This is essentially a modem to the same recommendation as the modem under test, but the individual sub-systems within it are both accessible (e.g. provide test points and permit functions to be enabled or disabled when required) and externally controllable (e.g. permit sequences such as the start up procedure to be selectively repeated). The sub-systems within a conformance tester may be constructed as discrete items of equipment, so as to permit their assembly into varying configurations required to suit the tests (e.g. the asynchronous to synchronous converter may be simply applied to a synchronous CCITT Recommendation V.22 [3] conformance tester to achieve an asynchronous CCITT Recommendation V.22 [3] conformance tester).

As an interim measure, until the conformance tester is defined, its definition agreed to be appropriate by ETSI, and such a tester is available, a modem used for reference may be used in its place. In the case that the modem used for reference has not been shown to conform to the ETS in the relevant modes of operation/use, in the relevant modes of use/operation, the testing authority ensures that the modem used for reference complies with the relevant ETS to the extent necessary for the performance of the test.

3.2 Abbreviations

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

AMM	Answer Mode Modem
CcT	Circuit
CMM	Call Mode Modem
DCE	Data Circuit-Terminating Equipment
DTE	Data Terminal Equipment
MCT	Modem Conformance Tester
PSTN	Public Switched Telephone Network
TE	Terminal Equipment

4 General requirements

4.1 References to other ETSs

The modem shall comply with final draft prETS 300 114 [1], clause 4.

NOTE: Final draft prETS 300 114 [1] in turn refers to ETS 300 001 [4] for the majority, if not all, of its requirements.

4.2 Information to be provided by the applicant

4.2.1 Information required for testing purposes

The applicant shall declare for which of the modes of operation/use identified in this ETS the modem is supposed to undergo tests.

Compliance is considered to have been accomplished by provision of the relevant information.

NOTE: This could be accomplished by completion of forms such as those provided in annex C (informative).

4.2.2 Instructions for use

Instructions for use shall be made available with the apparatus. The instructions for use shall include:

a) the apparatus or types of apparatus to which the instructions apply;

b) any information specifically indicated in this ETS for inclusion in the "Instructions for use";

c) any national restrictions on the use of the apparatus.

Any additional information that has been included shall be disregarded unless it is the subject of another ETS.

Compliance shall be checked by inspection.

5 Functional requirements specific to Category II modems

5.1 General requirements

To comply with the requirements of this ETS, the modem shall provide:

a) duplex mode of operation with continuous carrier, by means of the modulation scheme specified in CCITT Recommendation V.22bis [2];

b) channel separation by frequency division;

c) means by which the channels may be selected either manually and/or automatically, where a modem is capable of transmitting in either of the two channels;

d) provision of a guard tone of 1 800 Hz ± 20 Hz, which a modem is to transmit while transmitting in the high channel;

e) signalling rates of 2 400 bit/s and 1 200 bit/s;

f) the interchange circuits (or equivalent) that are required to change state after an identifiable event or point in time, shall have changed state within a maximum of 3 seconds of that event, unless otherwise specified (see note 4).

NOTE 1: The general requirements described above are a subset of those given in CCITT Recommendation V.22bis [2]. In the requirements which follow any deviations from the strict interpretation of the CCITT Recommendation V.22bis [2] have been identified.