SLOVENSKI STANDARD
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Digitalni terminali in dostop (DTA) - Priključitvene zahteve za podatkovno terminalsko opremo (DTE) za priključevanje na paketno komutirana javna podatkovna omrežja (PSPDNs) za vmesnike po priporočilu CCITT, X.25, s podatkovnimi signalizacijskimi hitrostmi do 1 920 kbit/s, ki uporabljajo vmesnike po priporočilih CCITT, X.21 in X.21 bis

Digital Terminals and Access (DTA); Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDNs) for CCITT Recommendation X.25 interfaces at data signalling rates up to 1 920 kbit/s utilizing interfaces derived from CCITT Recommendations X.21 and X.21 bis

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Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDNs) for CCITT Recommendation X.25 interfaces at data signalling rates up to 1 920 kbit/s utilizing interfaces derived from CCITT Recommendations X.21 and X.21 bis

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Foreword

This Technical Basis for Regulation (TBR) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunication Standards Institute (ETSI).

Introduction

The physical layer requirements contained in this TBR are a superset of the physical layer requirements contained in TBR 1 (see annex D), which relate to the connection of a terminal to a Circuit Switched Public Data Network (CSPDN) using CCITT Recommendation X.21 [7]. It is recommended that a demonstration of compliance with these requirements be accepted as a demonstration of compliance with the relevant parts of TBR 1 for the purpose of determining conformity with that TBR, and vice versa.

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1 Scope

This Technical Basis for Regulation (TBR) specifies the technical characteristics (electrical and mechanical interface requirements) and access control protocol to be provided by packet mode terminal equipment intended for connection to a dedicated interface of a Packet Switched Public Data Network (PSPDN) using CCITT Recommendation X.25 [1], [2] and [3] making use of Link Access Procedure Balanced (Modulo 8 operation) (LAPB) and Link Access Procedure Balanced (Modulo 128 operation) (LAPB Extended) modes of operation.

The objective of this TBR is to ensure that no disturbance occurs to the public network, and to ensure interworking between network and terminal, but without any guarantee of terminal operation and end to end operability across networks.

This TBR contains the minimum set of requirements derived from CCITT Recommendation X.25 [1], [2] and [3] in accordance with prior European harmonization documents (NET 2, see annex D). The requirements of this TBR are suitable for testing terminal equipment for connection to CCITT Recommendation X.25 [1], [2] and [3] (1980, 1984, and 1988) PSPDNs. Terminal equipment that is capable of either originating only or terminating only, packet level modes of operation have been included. Data Terminal Equipment (DTE) which satisfies the relevant technical requirements of this TBR may be connected to every PSPDN, use any of the essential (E) facilities and invoke any of the provided additional (A) facilities as given in CCITT Recommendation X.2 [4] and [5].

For each requirement in this TBR, a test is given, including measurement methods. Requirements apply at the public network interface of the terminal equipment, which may be stimulated to perform tests by additional equipment if necessary. For the purposes of this TBR a terminal equipment comprises of that apparatus included between a PSPDN Network Termination Point (Data Circuit Terminating Equipment (DCE)), and the terminal equipment boundary point that delimits the Network to Transport layers as defined in ITU-T (CCITT Recommendation X.200) subclause 7.5 (Reference model of Open Systems Interconnection). Equipment in this context is taken to mean either software, firmware or hardware.

Where the packet mode terminal equipment supplied for test does not contain the functions of layers 1, 2 and 3 (as defined in ITU-T (CCITT Recommendation X.200) subclause 7.5 (Reference model of Open Systems Interconnection)), the terminal's documentation and instructions for use shall state which additional equipment is required for compliance to this TBR and the additional equipment shall be submitted for test, as though all the functional layers were provided by the packet terminal equipment.

This TBR also gives guidance on appropriate standards relating to the essential requirements on safety.

Terminal equipment may be subject to additional or alternative attachment requirements in other CTRs depending on its functionality, in particular if it supports a service which is considered a justified case for regulation of terminal equipment interworking via the public telecommunications network.

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

[1] CCITT Recommendation X.25 (1980): "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".

[2] CCITT Recommendation X.25 (1984): "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".

[3] CCITT Recommendation X.25 (1988): "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".

[4] CCITT Recommendation X.2 (1984): "International data transmission services and optional user facilities in public data networks".

[5] CCITT Recommendation X.2 (1988): "International data transmission services and optional user facilities in public data networks and ISDNs".

[6] CCITT Recommendation X.21bis (1988): "Use on public data networks of data terminal equipment (DTE) which is designed for interfacing to synchronous V-series modems".

[7] CCITT Recommendation X.21 (1988): "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks".

[8] ISO 2110 (1980): "Information Technology - Data communication - 25-pole DTE/DCE interface connector and contact number assignments".

[9] ISO/IEC 11569 (1992): "Information Technology - Telecommunications and information exchange between systems - 26-pole interface connector mateability dimensions and contact number assignments".

[10] ISO 4902 (1980): "Information Technology - Data communication - 37-pole DTE/DCE interface connector and contact number assignments".

[11] ISO 2593 (1984): "Information Technology - Telecommunications and information exchange between systems - 34-pole DTE/DCE interface connector and contact number assignments".

[12] ISO 4903 Second edition (1989): "Information Technology - Data communication - 15-pole DTE/DCE interface connector and contact number assignments".

[13] CCITT Recommendation X.200: "Information technology - Open Systems Interconnection - Basic reference model: The basic model".

3 Definitions and abbreviations

3.1 Definitions

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

CCITT recommendation X.25 [1] to [3] network: A PSPDN network which offers a CCITT Recommendation X.25 [1], [2] and [3] DTE/DCE interface providing the (E) facilities for user classes of service 8-11 as defined in CCITT Recommendation X.2, [4] and [5].

All other definitions are as given in the CCITT series of Recommendations.

3.2 Abbreviations

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

C_L	total effective capacitance associated with the load, measured at the interchange point
DCE	Data Circuit Terminating Equipment
DTE	Data Terminal Equipment
EMC	Electro-Magnetic Compatibility
hex	hexadecimal
IUT	Implementation Under Test
LAPB	Link Access Procedure Balanced (Modulo 8 operation)
LAPB Extended	Link Access Procedure Balanced (Modulo 128 operation)
PIXIT	Protocol Implementation Extra Information For Testing
PSPDN	Packet Switched Public Data Network
R_L	total effective resistance associated with the load, measured at the interchange point
TBR-RT	TBR Requirements Table
V_o	open-circuit generator voltage

4 Modes of operation and signalling rates

4.1 Types of operation

This TBR is applicable to packet mode terminal equipment intended for connection to a dedicated interface of a packet switched public data network.

NOTE: The requirements contained in this TBR may be suitable for terminal equipment intended for connection to a public data network interface using CCITT Recommendations X.21 [6] or X.21bis [7] interfaces that is not a PSPDN.

4.2 Data signalling rate

This TBR is applicable for packet mode terminal equipment operating at data signalling rates up to and including 1 920 kbit/s (User Class 59 of CCITT Recommendation X.1, see annex D).

5 Safety and EMC requirements

5.1 Safety requirements

There are no safety requirements under this TBR.

NOTE: Safety requirements are imposed under the Low Voltage Directive (73/23/EEC) and articles 4 (a) and 4 (b) of Directive 91/263/EEC.

5.2 EMC requirements

There are no EMC requirements under this TBR.

NOTE: General EMC requirements are imposed under EMC Directive (89/336/EEC).

6 Electrical, mechanical, and access control protocol requirements

The requirements of this clause apply at the means of connection to the DCE.

6.1 General characteristics

6.1.1 Generator presentations

6.1.1.1 Balanced generator

In the case of balanced terminal equipment generators, points A and B are defined as the two physical connections, on the means provided for connection to the DCE, to which the output of a terminal generator is connected, and point C is the physical connection on the means of connection to the DCE to which the terminal equipment signal ground may optionally be connected (see figure 5).

6.1.1.2 Unbalanced generator

In the case of unbalanced terminal equipment generators, point A is defined as the physical connection on the means provided for connection to the DCE, to which the output of a terminal generator is connected, and point C is the physical connection on the means of connection to the DCE to which the signal ground associated with that generator is connected.

6.1.2 Receiver presentations

6.1.2.1 Balanced receiver

In the case of balanced terminal equipment receivers, points A' and B' are defined as the two physical connections, on the means provided for connection to the DCE, to which the input of a terminal receiver is connected, and point C' is the physical connection on the means of connection to the DCE to which the terminal equipment signal ground may optionally be connected.

6.1.2.2 Unbalanced receiver

In the case of unbalanced terminal equipment receivers, point A' is defined as the physical connection on the means provided for connection to the DCE, to which the input of a terminal receiver is connected, and point C' is the physical connection on the means of connection to the DCE to which the signal ground associated with that generator is connected.

6.2 Connector characteristics and contact number assignments

The means of connection to the DCE shall conform to either subclause 6.2.1, 6.2.2, 6.2.3 ,6.2.4 or 6.2.5.

6.2.1 Attachment to a DCE interface presented on a 25-pole connector

6.2.1.1 Connector

The means of connection to the DCE shall be a male connector conforming to ISO 2110 [8].

NOTE: This requirement is based upon subclause 1.2 of CCITT Recommendation X.21 bis [6].

Compliance shall be checked by the test given in subclause 7.2.1.1.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.1.2 Contact number assignments

On the means of connection to the DCE, the presentation of the interchange circuits shall be in accordance with annex A, tables A.1 and A.2 or tables A.5 and A.6.

NOTE: This requirement is based upon subclause 1.2 of CCITT Recommendation X.21 bis [6] and ISO 2110 [8].

Compliance shall be checked as described in subclause 7.2.1.2.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.2 Attachment to a DCE interface presented on a 26-pole connector

6.2.2.1 Connector

The means of connection to the DCE shall be a male connector conforming to ISO/IEC 11569 [9].

NOTE: This requirement is based upon ISO/IEC 11569 [9].

Compliance shall be checked by the test given in subclause 7.2.2.1 as appropriate.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.2.2 Contact number assignments

On the means of connection to the DCE, the presentation of the interchange circuits shall be in accordance with annex A, tables A.5 and A.6 or tables A.9 and A.10.

NOTE: This requirement is based upon ISO/IEC 11569 [9].

Compliance shall be checked as described in subclause 7.2.2.2 as appropriate.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.3 Attachment to a DCE interface presented on a 37-pole connector

6.2.3.1 Connector

The means of connection to the DCE shall be a male connector conforming to ISO 4902 [10].

NOTE: This requirement is based upon subclause 1.2 of CCITT Recommendation X.21 bis [6].

Compliance shall be checked by the test given in subclause 7.2.3.1 as appropriate.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.3.2 Contact number assignments

On the means of connection to the DCE, the presentation of the interchange circuits shall be in accordance with annex A, tables A.13 and A.14.

NOTE: This requirement is based upon subclause 1.2 of CCITT Recommendation X.21 bis [6] and ISO 4902 [10].

Compliance shall be checked as described in subclause 7.2.3.2 as appropriate.

Justification: Directive 91/263/EEC, article 4 (d).

6.2.4 Attachment to a DCE interface presented on a 34-pole connector

6.2.4.1 Connector

The means of connection to the DCE shall be a male connector conforming to ISO 2593 [11].