

Terminal Equipment (TE); Attachment requirements for terminal equipment to be connected to circuit switched data networks and leased circuits using a CCITT Recommendation X.21 interface, or at an interface physically, functionally and electrically compatible with CCITT Recommendation X.21 but operating at any data signalling rate up to, and including, 1 984 kbit/s

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Foreword

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

Introduction

The physical layer requirements contained in this TBR are equivalent to the physical layer requirements contained in TBR 2 which relate to the connection of a terminal to a Packet Switched Public Data Network (PSPDN) using CCITT Recommendation X.25 and offering the interface specified in CCITT Recommendation X.21 [2]. It is recommended that a demonstration of compliance with these requirements be accepted as a demonstration of compliance with the relevant parts of TBR 2 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 terminal equipment to be connected to Circuit Switched Public Data Networks (CSPDNs) and leased circuits presented at a CCITT Recommendation X.21 [2] interface, or at an interface physically, functionally and electrically compatible with CCITT Recommendation X.21 [2] but operating at any data signalling rate up to, and including, 1 984 kbit/s. The objective of this TBR is to ensure that no disturbance occurs to the public network.

This TBR contains the minimum set of requirements derived from CCITT Recommendation X.21 [2], in accordance with prior European harmonization documents (NET 1). These include circuit switched service and leased circuits for point-to-point connection for various user classes of service.

NOTE 1: Not all applicable user classes and services are available in all countries.

The multipoint service is not included in the minimum set. Not all optional features and facilities defined in CCITT Recommendation X.21 [2] are included in the minimum set.

A test is given for each requirement in this TBR, including measurement methods. Requirements apply at the public network interface of the terminal equipment, which may be stimulated to perform the tests by additional equipment if necessary.

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

Terminal equipment may be subject to additional or alternative requirements in other Common Technical Regulations (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.

NOTE 2: Although this TBR provides a means of approving terminal equipment for connection to public networks operating at any data signalling rate in a continuous range up to 1 984 kbit/s, the choice of data signalling rates within this range offered by a particular public network is determined by the operator of that network.

2 Normative references

This TBR incorporates by dated and 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 TBR only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ISO 4903, Second edition (1989): "Information technology - Data communication - 15-pole DTE/DCE interface connector and contact number assignments".
- [2] CCITT Recommendation X.21 (1988): "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks".

3 Abbreviations

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

CTR	Common Technical Regulation
DCE	Data Circuit-terminating Equipment
DTE	Data Terminal Equipment
EMC	Electro-Magnetic Compatibility
TBR	Technical Basis for Regulation
IUT	Implementation Under Test
PIXIT	Physical layer implementation eXtra Information for Testing
TBR-RT	TBR Requirements Table

4 TBR-Requirements

4.1 Safety

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.

4.2 Electro-Magnetic Compatibility (EMC)

There are no EMC requirements under this TBR.

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

4.3 Physical layer requirements

NOTE 1: Since the Data Circuit-terminating Equipment (DCE) presents the same electrical interface to the terminal equipment regardless of whether the terminal equipment makes use of balanced or unbalanced interchange circuits, this TBR contains a single set of physical layer requirements applicable to the terminal equipment for connection to that interface, and makes no distinction between balanced and unbalanced circuits.

NOTE 2: Interchange circuits meeting the requirements of CCITT Recommendation V.11 will normally meet the electrical characteristics defined in this TBR. Interchange circuits meeting the requirements of CCITT Recommendation V.10 may meet the electrical characteristics defined in this TBR.

4.3.1 General characteristics

4.3.1.1 Types of operation

This TBR is applicable for the following types of operation:

- circuit switched operation;
- leased circuit operation.

4.3.1.2 Data signalling rate

This TBR is applicable for data signalling rates within the range of 0 to 1 984 kbit/s for leased line and circuit switched services.

4.3.2 Connector characteristics and contact number assignments

4.3.2.1 Connector

The means of connection to the DCE shall be a male connector conforming to ISO 4903 [1].

NOTE: This requirement is based upon subclause 2.2 of CCITT Recommendation X.21 [2].

Compliance shall be checked by the test given in subclause 5.2.1.1.

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

4.3.2.2 Contact number assignments

On the means of connection to the DCE, the presentation of the interchange circuits shall be in accordance with annex A, table A.1 for both Leased Circuit operation and Circuit Switched operation.

NOTE: This requirement is based upon subclause 2.2 of CCITT Recommendation X.21 [2] and ISO 4903 [1].

Compliance shall be checked as described in subclause 5.2.1.2.

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

4.3.3 Generator characteristics

The following requirements apply to the interchange circuits as presented on the means of connection to the DCE.

For a particular terminal implementation, the requirements of this subclause apply only to the extent that they are relevant to a particular generator. For instance, where, in a particular terminal implementation, a particular generator circuit, in normal operation, is fixed in one of the binary states, only those requirements relevant to that fixed binary state shall apply.

In this subclause, 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 (contact number 8) to which the terminal equipment signal ground may optionally be connected (see figure 1).

4.3.3.1 Generator circuit output voltage

See figure 1.

When a 3 900 ohm non-reactive impedance is connected between points A and B, for each binary state:

- a) the magnitude of the voltage between points A and B shall be less than or equal to 12,0 volts;
- b) the magnitude of the voltage between either A or B and point C shall be less than or equal to 12,0 volts.