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Attachment requirements for Data Terminal Equipment (DTE) to connect to public networks that have physical and electrical network presentations based upon the ITU-T V-series of Recommendations

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Candidate Harmonized European Standard (Telecommunications series)

**Attachment requirements for Data Terminal Equipment (DTE)
to connect to public networks that have physical
and electrical network presentations based upon
the ITU-T V-series of Recommendations**

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Project Digital Terminals and Access (DTA).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [4] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The present document is intended to become a Harmonized Standard, the reference of which may be published in the Official Journal of the European Communities referencing the Council Directive 98/13/EC [3] on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity ("the TTE Directive").

Technical specifications relevant to the TTE Directive are given in annex A.

National transposition dates	
Date of adoption of this EN:	22 October 1999
Date of latest announcement of this EN (doa):	31 January 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2000
Date of withdrawal of any conflicting National Standard (dow):	31 July 2000

1 Scope

The present document specifies the technical characteristics to be provided by terminal equipment to be connected to public networks presented at an ITU-T Recommendations V.10 [10], V.11 [11] (including X.26 [21] and X.27 [22]), V.12 [12], V.24 [13]/V.28 [14], V.35 [15] or V.36 [16] interface regardless of data rate. The objective of the present document is to ensure that no disturbance occurs to the public network.

The present document contains the minimum set of requirements derived from the above set of ITU-T Recommendations and is applicable for connection to X.21 [18] leased line and circuit switched, X.21 bis [19] leased lines, X.25, Frame Relay and SMDS plus any other public network service that may be presented on the same electrical interfaces.

NOTE: Not all of the above services are available in all countries.

A test is given for each requirement in the present document, 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.

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

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.

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- [1] Council Directive 73/23/EEC of February 1973 on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits (Low Voltage Directive).
- [2] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of Member States relating to electromagnetic compatibility.
- [3] Council Directive 98/13/EEC of 12 February 1998 relating to telecommunications terminal equipment and satellite earth station equipment, including the mutual recognition of their conformity.
- [4] Council Directive 98/34/EC of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.
- [5] ISO 2110 (1980): "Information technology - Data communication - 25-pole DTE/DCE interface connector and contact number assignments".
- [6] ISO 2593 (1984): "Information technology - Telecommunications and information exchange between systems - 34-pole DTE/DCE interface connector and contact number assignments".
- [7] ISO 4902 (1980): "Information technology - Data communication - 37-pole DTE/DCE interface connector and contact number assignments".

- [8] ISO 4903 (1989): "Information technology - Data communication - 15-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] ITU-T Recommendation V.10 (1993): "Electrical characteristics for unbalanced double-current interchange circuits operating at data signalling rates nominally up to 100 kbit/s".
- [11] ITU-T Recommendation V.11 (1996): "Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s".
- [12] ITU-T Recommendation V.12 (1995): "Electrical characteristics for balanced double-current interchange circuits for interfaces with data signalling rates up to 52 Mbit/s."
- [13] ITU-T Recommendation V.24: "List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)".
- [14] ITU-T Recommendation V.28 (1993): "Electrical characteristics for unbalanced double-current interchange circuits".
- [15] CCITT Recommendation V.35 (1984): "Data transmission at 48 kilobits per second using 60-108 kHz group band circuits - Appendix II Electrical characteristics for balanced double-current interchange circuits".
- [16] ITU-T Recommendation V.36: "Modems for synchronous data transmission using 60-108 kHz group band circuits".
- [17] ITU-T Recommendation X.2 (1996): "International data transmission services and optional user facilities in public data networks and ISDNs".
- [18] ITU-T Recommendation X.21 (1992): "Interface between Data Terminal Equipment and Data Circuit-terminating Equipment for synchronous operation on public data networks".
- [19] ITU-T Recommendation X.21 bis: "Use on public data networks of Data Terminal Equipment (DTE) which is designed for interfacing to synchronous V-Series modems".
- [20] ITU-T Recommendation X.25 (1996): "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".
- [21] ITU-T Recommendation X.26: "see ITU-T Recommendation V.10".
- [22] ITU-T Recommendation X.27: "See ITU-T Recommendation V.11".
- [23] TIA/EIA-613: "High Speed Serial Interface for Data Terminal Equipment and Data Circuit-Terminating Equipment".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

ITU-T Recommendation X.25 [20] network: PSPDN network which offers a ITU-T Recommendation X.25 [20] DTE/DCE interface providing the (E) facilities for user classes of service 8-11 as defined in ITU-T Recommendation X.2, [17].

All other definitions are as given in the ITU-T series of Recommendations.

3.2 Abbreviations

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

ac	alternating current
dc	direct current
DCE	Data Circuit terminating Equipment
DTE	Data Terminal Equipment
EMC	ElectroMagnetic Compatibility
RT	Requirements Table
IUT	Implementation Under Test
PIXIT	Protocol Implementation eXtra Information for Testing
PSPDN	Packet Switched Public Data Network
TBR	Technical Basis for Regulation
TE	Terminal Equipment
Vo	open-circuit generator voltage

4 Safety and EMC requirements

4.1 Safety requirements

There are no safety requirements contained within the present document.

NOTE: Safety requirements are imposed under the Low Voltage Directive (73/23/EEC) [1] and articles 5 (a) and 5 (b) of Directive 98/13/EEC [3].

4.2 EMC requirements

There are no EMC requirements contained within the present document.

NOTE: General EMC requirements are imposed under EMC Directive (89/336/EEC) [2] and article 5 (c) of Directive 98/13/EEC [3].

5 Applicability of Standard

The requirements in the present document are applicable to DTE intended to be connected to DCE interfaces on public networks providing one or more of the following services:

- circuit switched data transmission service;
- packet switched data transmission service;
- leased circuit data transmission service;
- frame relay data transmission service, or

any other service presented via an ITU-T V series interface.

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 2).

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.

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6.2 Connector characteristics and contact number assignments

The means of connection to the DCE should conform to either subclauses 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5 or 6.2.6.

A manufacturer employing an alternative means of connection shall declare details of this arrangement in a format similar to the Requirements Table (RT) contained in annex A. This declaration shall include details of circuit allocation and, information about the ITU-T V series Recommendations against which compliance is to be assessed. Compliance of such alternative connection characteristics shall be checked in a way similar to the tests described in subclause 7.2, if appropriate.

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 [5].

NOTE: This requirement is based upon subclause 1.2 of ITU-T Recommendation X.21 bis [19].

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

Justification: Directive 98/13/EEC [3], article 5 (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.2 and A.3.

NOTE: This requirement is based upon subclause 1.2 of ITU-T Recommendation X.21 bis [19] and ISO 2110 [5].

Compliance shall be checked as described in subclause 7.2.1.2.

Justification: Directive 98/13/EEC [3], article 5 (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 98/13/EEC [3], article 5 (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.6 and A.7 or tables A.10 and A.11.

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 98/13/EEC [3], article 5 (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 [7].

NOTE: This requirement is based upon subclause 1.2 of ITU-T Recommendation X.21 bis [19].

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

Justification: Directive 98/13/EEC [3], article 5 (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 ITU-T Recommendation X.21 bis [19] and ISO 4902 [7].

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

Justification: Directive 98/13/EEC [3], article 5 (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 [6].

NOTE: This requirement is based upon subclause 1.2 of ITU-T Recommendation X.21 bis [19].

Compliance shall be checked by the test given in subclause 7.2.4.1 as appropriate.

Justification: Directive 98/13/EEC [3], article 5 (d).