

# **Essential requirements for terminal equipment intended for connection to 2-wire analogue speechband leased lines of the public telecommunications network**

ICS 35.180

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The following BSI references relate to the work on this standard:  
Committee reference TCT/-/2/1

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## TELECOMMUNICATIONS ACT 1984 (C 12)



Designation under section 22(6) of a standard specifying technical requirements for the attachment of terminal equipment to 2-wire analogue speechband leased lines of the United Kingdom public telecommunication network.

### DESIGNATION NO. 96/035 NTR 1

1 The Secretary of State, having consulted in accordance with section 22(8), hereby designates, under section 22(6) of the Telecommunications Act 1984 ("the Act"), the document identified in Annex 1 as the standard to which apparatus falling within the scope of that document must conform if it is to be approved for connection to any public telecommunication system within the meaning of the Act. The standard shall apply to approvals under section 22 of the Act for the purposes of licences granted under section 7 of the Act.

2 This designation applies only to terminal equipment intended for connection to 2-wire analogue speechband leased lines of the United Kingdom public telecommunications network.

3 The analogue interface of terminal equipment within the scope of the designation may also be connected to a 2-wire baseband analogue leased line via a suitable adapter.

4 Apparatus may be approved for connection even though it does not comply with all the requirements above where the person giving such approval is satisfied that:

- (a) it is connected at a particular place specified in accordance with the terms of an approval under section 22(1) of the Act; or
- (b) it is apparatus specially designed or adapted for disabled people; or
- (c) any deviation from the standard, including agreed and recognised use of equivalent standards and tests in any member state of the European Economic Area, is such that the essential requirements for telecommunication terminal equipment given in European Community Directives are satisfied; and the apparatus could not reasonably be foreseen to give rise to a risk of death or injury to any person or animal, or damage to property, or material impairment of the quality of any public telecommunication service; or
- (d) for approvals given before 31 December 1996, the equipment would have met the requirements for approval in force at the date of this designation, or any subsequent modification thereof;

and any such exception shall be dealt with in a transparent manner and on the basis of objective criteria.

Date.....20/3/96

Signed.....

D A Hendon

for the Secretary of State for

Trade and Industry

dti

Department of Trade and Industry

## **ANNEX 1**

### **DESCRIPTION OF REQUIREMENTS DOCUMENT**

**PD 7020**            Essential requirements for terminal equipment intended for connection to 2-wire analogue speechband leased lines of the public telecommunications network

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## Foreword

This Published Document has been prepared under the direction of the Telecommunications Standards Policy Committee and at the request of the Telecommunications and Posts Division of the Department of Trade and Industry. Any enquiries relating to this document should be directed to BSI quoting the committee reference TCT/-/2/1, which was involved in the preparation of the document. This Published Document forms one of a series of PDs that are being produced to record the essential requirements, consistent with Articles 4(c) to 4(f) of Directive 91/263/EEC, for the connection of terminal equipment to those telecommunication systems designated as a public telecommunications system by an order made under Section 9 of the Telecommunications Act 1984.

The requirements specified in this Published Document were drawn from the following document.

|                                                       |                                                                                                       |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| BS 6328 :                                             | <i>Apparatus for connection to private circuits run by certain public telecommunication operators</i> |
| BS 6328 : Part 1 : 1985                               | <i>Specification for apparatus for connection to speechband circuits</i>                              |
| Amendment No 1 (AMD 5165)                             |                                                                                                       |
| Amendment No 2 (AMD 5977)                             |                                                                                                       |
| Amendment No 3 (Draft for Public Comment 92/94219 DC) |                                                                                                       |

This Published Document is presented for designation under Section 22 of the Telecommunications Act 1984.

A copy of any designation will be included when available with all copies of this Published Document. Any further information on, or details of, the designation may be obtained from the Office of Telecommunications (OFTEL), 50 Ludgate Hill, London, EC4M 7JJ.

BSI waives copyright in respect of the tables in annexes A and B.

**Compliance with a Published Document does not of itself confer immunity from legal obligations. In particular, attention is drawn to the Telecommunications Act 1984.**

## 1 Scope

This Published Document specifies the technical requirements under Section 22 of the Telecommunications Act 1984 for terminal equipment intended for connection to 2-wire analogue speechband leased lines of the public telecommunications network. These technical requirements are aligned with Articles 4(c) to 4(f) of Directive 91/263/EEC.

This Published Document does not contain any essential requirements under Article 4(g) for interworking via the public network, and so does not provide any guarantee of correct terminal-to-terminal operation.

This Published Document applies to all terminal equipment that is intended for connection to the form of access referred to above, irrespective of whether the terminal equipment provides additional interfaces, telecommunication services or functions.

## 2 References

### 2.1 Normative references

This Published Document incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this Published Document only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

### 2.2 Informative references

This Published Document refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this Published Document are listed on the inside back cover, but reference should be made to the latest editions.

## 3 Definitions, abbreviations and notation

### 3.1 Definitions

For the purposes of this Published Document, the following definitions apply.

#### 3.1.1 2-wire circuit

A circuit that is presented to the terminal equipment (TE) in the form of two conductors.

NOTE. 2-wire leased line circuits may be used for either simplex or duplex signals depending on the functionality of the terminal equipment.

#### 3.1.2 internally generated signals

A signal, the transmission of which is stimulated by a signal or event not associated with the level, amplitude or character of the transmitted signal.

#### 3.1.3 leased line

The telecommunications facilities provided by certain public telecommunication operators that provide defined transmission characteristics between network termination points and that do not include switching functions that the user can control (e.g. on-demand switching).

#### 3.1.4 network termination point

All physical connections and their technical access specifications which form part of the public telecommunication network and are necessary for access to, and efficient communication through, that public network.

#### 3.1.5 return loss

A quantity, expressed in decibels, associated with the degree of match between two impedances calculated from the following expression:

$$20 \log_{10} \left| \frac{Z_b + Z_t}{Z_b - Z_t} \right|$$

where:

$Z_t$  is the measured impedance;

$Z_b$  is the reference impedance.

#### 3.1.6 speechband circuit

A circuit intended to carry voice or data signals within a nominal bandwidth of 300 Hz to 3400 Hz.

NOTE 1. The circuit may produce significant attenuation and distortion outside this range.

NOTE 2. Speechband circuits may be offered under other names, e.g. voiceband etc.

#### 3.1.7 terminal equipment

Equipment intended to be connected to the public telecommunication network, i.e.:

- a) to be connected directly to the termination of a public telecommunication network; or
- b) to interwork with a public telecommunication network being connected directly or indirectly to the termination of a public telecommunication network;

in order to send, process, or receive information.

#### 3.1.8 terminals

Any means associated with the TE for making an electrical connection to any speechband circuit.

#### 3.1.9 transverse conversion loss

A measure of the impedance balance between the output terminals of the terminal equipment and earth.

It is expressed in decibels as the ratio between a sinusoidal voltage applied across the terminals of the TE and any resultant voltage appearing between the centre-point of a balanced connection to the terminals and earth.

NOTE. When the transverse conversion loss is large, the TE is said to be balanced. A balanced TE has a good ability to prevent crosstalk between circuits.

### 3.2 Abbreviations

For the purposes of this Published Document the following abbreviations apply.

**3.2.1 a.c.** alternating current

**3.2.2 CCITT** International Telecommunication Union: International Telegraph and Telephone Consultative Committee

**3.2.3 d.c.** direct current

**3.2.4 e.m.f.** electromotive force

**3.2.5 EMC** electro-magnetic compatibility

**3.2.6 r.m.s.** root mean square

**3.2.7 TE** terminal equipment

**3.2.8 TEUT** terminal equipment under test

### 3.3 Notation

For the purposes of this Published Document the following notations apply.

#### 3.3.1 dBm

Absolute power level with respect to 1 mW, expressed in decibels.

#### 3.3.2 dBV

Absolute voltage level with respect to 1 V, expressed in decibels.

NOTE. Further information on all expressions for power levels used in this document is given in CCITT Recommendation B.12.

## 4 Conformance principles

### 4.1 Requirements

Each requirement in this Published Document is either applicable to all terminal equipment within the scope of this document, or only applicable to certain terminal equipment, depending on the functions implemented within the terminal equipment. Annex A specifies the relationship between the requirements and the terminal. The supplier shall provide information on the functions implemented in the terminal and this information shall be used to determine which requirements apply and the manner in which the tests are performed.

NOTE. This information may be provided by completing the tables in annex A.

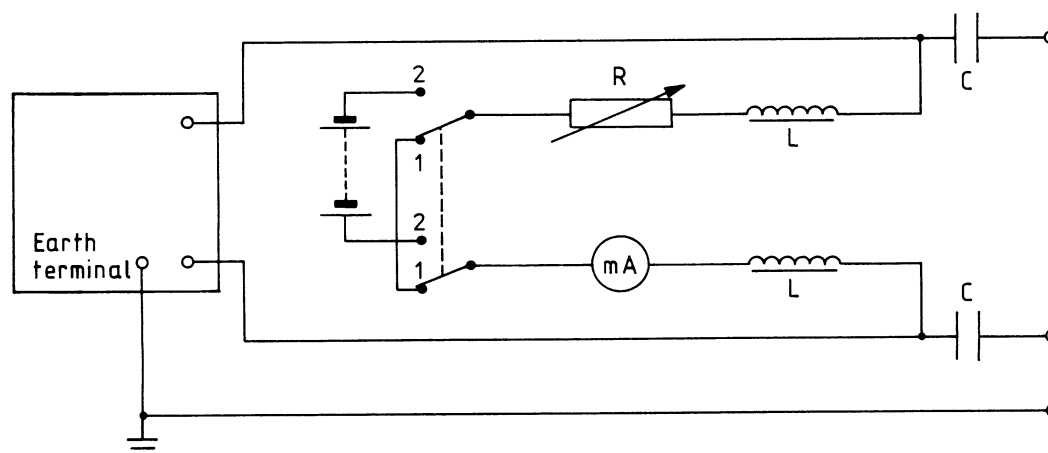
This Published Document does not require any additional tests to cover the case of terminal equipment that can be connected to 2-wire analogue speechband leased lines by means of multiple interfaces. Where there is more than one interface on the terminal equipment and these interfaces are implemented in the same manner, the tests shall be applied to only one of these interfaces.

### 4.2 Test connections

The tests shall normally be applied at the plug or other location intended for connection to the network termination point.

### 4.3 Test configuration for TE

**4.3.1** For purposes of the tests described in annexes D to F the TE shall be connected in the circuit of figure 1 in accordance with 4.3.2 or 4.3.3 as appropriate. The terminals A and B to the right of figure 1 shall then be regarded as being the TE terminals. Clauses 4.3.4 to 4.3.7 specify characteristics of certain components in figure 1.



NOTE. If the TE has separate protective and signal earth terminals they are connected together.

**Figure 1. Additional circuitry for testing TE in which direct currents flow**