

Apparatus for connection to private circuits run by certain public telecommunication operators —

Part 5: Specification for apparatus for connection to wideband (FDM) circuits

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Telecommunications Standards Committee (TCL/-) to Technical Committee TCL/5 upon which the following bodies were represented:

- Association of Telecommunications Services
- British Airways
- British Approvals Board for Telecommunications
- British Gas Corporation
- British Security Industry Association
- British Telecommunications
- Business Equipment Trade Association
- Cable and Wireless Limited
- Committee of London Clearing Bankers on behalf of London and Scottish Clearing Banks and Yorkshire Bank
- Department of Trade and Industry, Telecommunications Division
- Electricity Supply Industry in England and Wales
- Electronic Engineering Association
- Engineering Equipment and Materials Users' Association
- Independent Broadcasting Authority
- Mobile Radio Users' Association
- Post Office Engineering Union
- Society of Telecom Executives
- Telecommunication Engineering and Manufacturing Association (TEMA)
- Telecommunications Managers' Association
- Telecommunications Users' Association (TUA)
- UK Offshore Operators' Association Ltd.

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Foreword

This Part of BS 6328 has been prepared under the direction of the Telecommunications Standards Committee. It forms one of a series of British Standards that is being produced following the commencement of liberalization in October 1981 of the supply of certain telecommunications apparatus within the United Kingdom.

This series of standards will include product specifications giving particular requirements for individual items of apparatus, together with standards covering general requirements for the connection of apparatus to various public telecommunication systems (i.e. any telecommunication system designated as a public telecommunication system by an order made under Section 9 of the Telecommunications Act 1984). At the present time, these systems include the public switched telephone networks, the telex networks, the packet switching services, and leased private circuits run by British Telecommunications plc and Kingston-upon-Hull City Council.

The requirements specified in the standards also apply to certain forms of "indirect" connection of apparatus to public telecommunication systems. Because of the wording of Section 4(6) of the Telecommunications Act 1984, "indirect" connection is referred to in these standards as connection to a relevant branch telecommunication system which is not itself a public telecommunication system, but is connected to one or more such systems.

The requirements specified in the standards are intended to ensure that apparatus complying with them, when connected to public or branch telecommunications systems, will neither adversely affect any public system nor interfere with the service available to other users of public telecommunication systems. The standards include safety requirements only for the protection of personnel operating the public telecommunication system and for the protection of users from hazards that may arise from the connection of the apparatus, directly or indirectly, to such a system.

Private circuits run by British Telecommunications plc or Kingston-upon-Hull City Council are classified into the following groups:

- a) speechband circuits;
- b) baseband circuits;
- c) direct current circuits;
- d) telegraph circuits using SCVF signalling;
- e) wideband (FDM) circuits;
- f) programme circuits;
- g) digital circuits.

This Part of BS 6328 deals with wideband (FDM) circuits. Other Parts of this standard cover apparatus for connection to other private circuits.

Some general information on British Telecommunications plc's wideband (FDM) circuits is given in Appendix A. This information is also generally applicable to private circuits run by Kingston-upon-Hull City Council.

This standard has been presented for designation under Section 22(6) of the Telecommunications Act 1984. It is stipulated in that Section of the Act that apparatus within the scope of a designated standard may only be approved for connection to a telecommunication system if it complies with that standard, subject to such exceptions as may be determined by or under the designation. While special arrangements apply to the approval of “one-off” items of apparatus, type-approval for direct or “indirect” connection (see the third paragraph) to public telecommunication systems run by British Telecommunications plc or Kingston-upon-Hull City Council may only be given by the Secretary of State, the British Approvals Board for Telecommunications (BABT) or British Telecommunications plc. The Director General of Telecommunications may also be authorized to grant approval, but neither he nor the Secretary of State will normally entertain applications for approval of apparatus. Such applications should be addressed in the first instance to the Director, British Approvals Board for Telecommunications, Mark House, The Green, 9-11 Queen’s Road, Hersham, Walton-on-Thames, Surrey, KT12 5NA.

The designation of this standard may stipulate variations of, or additions to, the requirements of this standard and may also set conditions that have to be complied with as regards the apparatus, or its connection or use. A copy of the designation will be included, when available, with all copies of this standard. Any further information on, or details of, the designation of this standard may be obtained from the Office of Telecommunications (OFTEL), Atlantic House, Holborn Viaduct, London EC1N 2HQ.

Some apparatus may incorporate facilities for which a mandatory standard is necessary, but for which no standard has yet been designated under the Telecommunications Act 1984. Other apparatus may incorporate innovative features not foreseen when the relevant standard was written and designated and for which that standard is not fully appropriate. The BABT can sometimes deal with these cases by writing a “Special Investigation Test Schedule” (SITS), which has the effect of stating requirements where there is no designated standard or of supplementing or varying the requirements in the application of the designated standard. Information on any relevant SITS may be obtained from the Director, BABT.

If this course is not possible, British Telecommunications plc may nevertheless type-approve apparatus for connection to its public communication systems or those run by Kingston-upon-Hull City Council, and to branch systems connected to any of these public systems.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 6328 specifies requirements for apparatus in household, business or office environments, to be connected to wideband (FDM) private circuits either directly or by means of connection to a relevant branch system for wideband (FDM) circuits. This Part of BS 6328 does not apply to apparatus used to convey live speech which has been, or is to be conveyed by means of a public switched telecommunication system except to the extent provided for in a relevant product standard.

NOTE 1 Under the Class Licence for the Running of Branch Telecommunication Systems, granted by the Secretary of State for Trade and Industry under Section 7 of the Telecommunications Act 1984, all branch systems, including therefore relevant branch systems for wideband (FDM) circuits, have to be comprised entirely of apparatus approved for that purpose. This means that wiring or other apparatus not suitable for prior approval, has to be installed in accordance with a relevant code of practice or such other requirements as may be agreed with the operator of the wideband (FDM) circuits or apply under the conditions of relevant licences or approvals.

The requirements provide for the safety of the public telecommunication systems from electrical conditions originating in the connected apparatus and vice versa. The requirements are also intended both to minimize the risk of interference with other users and to minimize the risk of malfunctioning of public telecommunication operators' main transmission plant both from signals of excessive power level and signals that have frequency components which lie outside the normal frequency bands.

This Part of BS 6328 does not apply to apparatus approved under Section 16(2) of the British Telecommunications Act 1981 or Section 22 of the Telecommunications Act 1984 before this Part of BS 6328 is designated. Neither does it apply to apparatus connected with the consent of a public telecommunication operator to any telecommunication system run by that operator, for development purposes or when under test.

NOTE 2 Compliance with this Part of BS 6328 is intended to provide for safety and the absence of interference with networks and other users, but compliance will not necessarily ensure that the equipment is satisfactory for the user's purposes.

NOTE 3 Public telecommunication operators may offer wideband (FDM) circuits under a different name that may change from time to time. Public telecommunication operators should specify which of their circuits are appropriate for the connection of apparatus complying with this Part of BS 6328 or any of the other Parts.

NOTE 4 The characteristics of British Telecommunications plc wideband (FDM) circuits are given in Appendix A. The characteristics of Kingston-upon-Hull wideband (FDM) circuits are obtainable by writing to:

Kingston-upon-Hull Telephone Department
Telephone House
Carr Lane
Kingston-upon-Hull
HU1 3RE

For the attention of:

The Technical Support Unit

Transmission and Private Circuits Section (Reference **B.12**)

NOTE 5 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions and abbreviation

2.1 Definitions

For the purpose of this Part of BS 6328, the following definitions, together with those given in BS 4727 (see note) and in BS 6328-1:1982, apply. One of the definitions given below differs from that given in BS 4727; it is marked with an asterisk.

NOTE The relevant BS 4727 publications concerned are:

Part 1: Group 01:1983

Part 3: Group 01:1971

Part 3: Group 02:1971

2.1.1

analogue transmission test apparatus

apparatus, the sole purpose of which is to determine parameters such as (but not exclusively) attenuation and group delay as a function of frequency

NOTE Both the frequencies of transmission and the power level at which signals are transmitted may be continuously variable.

2.1.2

reference pilot

a sinusoidal signal transmitted over FDM links for regulation and supervision purposes

2.1.3

terminals*

any means associated with the apparatus for making an electrical connection to any wideband (FDM) circuit or relevant branch system for wideband (FDM) circuits

NOTE 1 Output or transmit terminals are those through which an electrical signal originating in the apparatus passes to a private circuit.

NOTE 2 Input or receive terminals are those through which an electrical signal from a private circuit passes into the apparatus.

2.1.4

wideband (FDM) circuit

any wideband (FDM) circuit run by British Telecommunications plc or by Kingston-upon-Hull City Council under a public telecommunication operator's licence granted under Section 7 of the Telecommunications act 1984

NOTE Wideband (FDM) circuits may be offered under other names.

2.1.5

relevant branch system for wideband (FDM) circuits

a telecommunication system, other than a public telecommunication system, that:

- a) is run under a licence granted, or having effect as if granted, under Section 7 of the Telecommunications Act 1984; and
- b) is connected to one or more wideband (FDM) circuits; and
- c) is such that any apparatus to which this standard applies which forms part of it, or is connected via it, is so connected that no signals of any kind may be conveyed between that apparatus and a wideband (FDM) circuit or vice versa except by means of other apparatus which does not materially affect the electrical conditions presented to one another by that apparatus and the wideband (FDM) circuit.

NOTE 1 For the purposes of this definition any apparatus is treated as connected to a wideband (FDM) circuit if it is connected to a relevant branch system for wideband (FDM) circuits which is itself connected to the wideband (FDM) circuit or is regarded as being so connected by virtue of this provision.

NOTE 2 Unless provided otherwise in the licence referred to in a), all the apparatus comprised in or connected to a relevant branch system has to be apparatus approved for that purpose. Items such as wiring and accessories, e.g. junction boxes, that cannot be said to satisfy compatibility or safety requirements prior to installation have to be installed safely and in such a way that the criterion of item c) is met. An appropriate code of practice is under consideration. All other apparatus has to be type-approved in the usual way or be the subject of individual approval.

2.2 Abbreviation

FDM. Frequency division multiplex.

3 Reference level

The reference level for all power levels expressed in dBm shall be 1 mW.

NOTE Further information on the expression of power levels used in this Part of BS 6328 is given in CCITT Recommendation B.12 (1981).

4 General requirements

NOTE The tests described in Appendix B are written in the order that they are normally best carried out. This order does not, in general, agree with the order in which the requirements are presented.

4.1 Safety requirements

Apparatus shall comply with BS 6301:1982.

If it is necessary to use apparatus with a separate protection barrier or barriers between the apparatus and a wideband (FDM) circuit in order to satisfy the requirements of BS 6301, such a protection barrier or barriers shall comply with BS 6301. In addition the apparatus shall be marked as specified in clause 7 of this standard and shall be provided with the information specified in clause 8 of this standard.

Compliance shall be checked by inspection.

4.2 General test requirements

NOTE The tests described in this standard are type tests as defined in BS 4778:1979.

For the purpose of the tests specified in this standard, the apparatus shall be supplied with 2.5 ± 0.25 m lengths of cable marked and terminated in accordance with clause 6.

One end of each cable shall be connected to the apparatus.

Compliance shall be checked by inspection.

4.3 Environment for tests

Unless otherwise specified in a particular test in this standard, the tests are made under normal operating conditions with:

- a) an ambient temperature of 15 °C to 25 °C;
- b) a relative humidity in the range 45 % to 75 %;
- c) an air pressure in the range 86 kPa to 106 kPa.

4.4 Normal operating modes and non-operating states for test

Where relevant the requirements of this Part shall be complied with in all normal operating modes of the apparatus including non-operating states [see 8.3 h)]. Tests shall be carried out in such non-operating states or combinations of normal operating modes as are appropriate to demonstrate such compliance, taking account of the operating principles of the apparatus.

NOTE Simulation of normal operating modes or non-operating states, for example by the use of terminating components, is acceptable.

4.5 Termination for tests

Unless otherwise specified in this standard for a particular test, tests shall be performed with the terminals of the apparatus terminated with a 75 Ω resistor.

4.6 Tolerance on components for tests

Unless otherwise specified in this standard, all resistors and capacitors assigned values in this standard for the purpose of testing shall be within ± 0.5 % of their nominal value.