

Text for BS 6789 : Part 2 : 1992

**Apparatus with one or more
particular functions for
connection to public switched
telephone networks run by
certain public
telecommunication operators**

**Part 2. Specification for apparatus with
loudspeaking facilities**

Committees responsible for this Published Document

The preparation of this Published Document was entrusted by the Telecommunications Standards Policy Committee (TCT/-) to Technical Committee TCT/2, upon which the following bodies were represented:

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 British Facsimile Industry Consultative Committee
 British Radio and Electronic Equipment Manufacturers' Association
 British Telecommunications plc
 Cable and Wireless plc
 Communications Marketing and Servicing Association
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 Department of Trade and Industry (Telecommunications and Posts Division)
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Preface

This Published Document, PD 6571, has been prepared during the run-up to the anticipated designation of NET4 in November 1992.

It has been prepared under the direction of the Telecommunications Standards Policy Committee.

The text for BS 6789 : Part 2 : 1992 set out herein has been considered and approved by the TCT/2 Technical Committee and is derived from BS 6789 : Part 2 : 1992 and TCT/2 Technical Committee document 91/94132.

However, because of the shortness of available time, it has not been possible to pursue the normal BSI procedure of public comment, reconsideration and adjustment by the Technical Committee followed by correction and examination by the BSI's editorial department.

Consequently, this Published Document may contain errors and lack the quality of presentation of the documents usually published by BSI.

The readers and users of this text for BS 6789 : Part 2 : 1992 are requested to be indulgent and to notify us of any errors, technical, editorial or otherwise, that might be encountered, or provide comments.

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DRAFT BS6789 Part 2: 1992

APPARATUS WITH ONE OR MORE PARTICULAR FUNCTIONS FOR CONNECTION TO PUBLIC SWITCHED TELEPHONE NETWORKS RUN BY CERTAIN PUBLIC TELECOMMUNICATIONS OPERATORS

Part 2. Specification for apparatus with loudspeaking facilities.

Foreword

This Part of BS 6789 has been prepared under the direction of Telecommunications Standards Policy Committee. It forms one of a series of British Standards that are being produced following the commencement of liberalisation in October 1981 of the supply of certain telecommunications apparatus within the United Kingdom.

This series of standards includes product specifications giving particular requirements for individual items of apparatus, together with standards covering general requirements for the connection of apparatus to various networks. At the present time, these networks include the public switched telephone network, the telex network, the packet switching services, and private circuits leased from British Telecommunications plc, Kingston Communications (Hull) plc and Mercury Communications Limited.

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

The multi-part standard to which this Part belongs is intended to specify all the additional functions and facilities that require specifying for approval purposes and that may be added to apparatus submitted for approval for use in conjunction with simple telephones or modems on the British Telecommunications public switched telephone network. There are a large number of possible permutations in the choice of these facilities to form a particular configuration of apparatus. In order to present a coherent range of specifications that is appropriate to this variety of configurations, Part 1 of this standard is used as an essential initial specification and the remaining Parts each specify an additional facility. Part 1 of the standard requires the supplier to state which of these facilities is present on the apparatus submitted for approval so that it is clear which of the subsequent Parts are relevant.

This part of this standard specifies requirements for the loudspeaking facility. It is for use only in conjunction with Part 1 of this standard.

This standard is presented to the Secretary of State for designation under Section 22 of the Telecommunications Act 1984. It is government policy that, once the Secretary of State's approval has entered into force, apparatus within the scope of an approval standard may be connected to British Telecommunications networks only if it conforms to the technical requirements of that standard and any relevant product standard and if it has been approved by the Secretary of State, British Telecommunications or the British Approvals Board for Telecommunications. The Secretary of State will not normally entertain applications for approval of apparatus. Applications for approval of apparatus should be addressed in the first instance to The Director, British Approvals Board for Telecommunications (BABT), Claremont House, 34 Molesey Road, Hersham, Walton-on-Thames, Surrey, KT12 4RQ.

In approving this standard, the Secretary of State may, at his discretion, stipulate variations of, or additions to, the requirements of the 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 Secretary of State's approval will be included, when available, with all copies of this standard. Any further information on details of approval of this standard may be obtained from the Office of Telecommunications (OFTEL), Export House, 50 Ludgate Hill, London EC4M 7JJ.

Some apparatus may incorporate facilities for which a mandatory standard is necessary, but for which no standard has yet been approved by the Secretary of State. Other apparatus may incorporate innovative features not foreseen when the relevant standard was written and approved 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 approved British Standard or of supplementing or varying the requirements in the application of the approved British Standard. Information on any relevant SITS may be obtained from the Director, BABT.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Section one. General

1. Scope

This part of BS 6789 specifies requirements for loudspeaking facilities incorporated in apparatus for connection to a single exchange line or to systems connected to the public switched telephone network.

This Part does not apply to apparatus for connection to shared service lines nor to apparatus for connection between a TJF of a PBX and the PSTN lines of a PBX. This part of BS6789 does however apply to apparatus intended for connection to a port of a PBX where allowed by the scope of BS6450 part 4.

This Part applies only where the apparatus containing the loudspeaking facility also provides either integral handset telephony or the capability of associated handset telephony.

This Part applies in conjunction with Part 1 of this standard, and the requirements of this Part are additional to those of Part 1:1984 of this standard. In particular, clause 6 of Part 1:1984 of this standard is applicable, which states that the requirements of BS 6317 apply except where otherwise specified. This Part does not apply to apparatus with control of or switching of other voice circuits.

This Part applies to apparatus for household, office and similar general indoor use.

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

NOTE 1: This Part does not exclude the simultaneous use of the loudspeaking and simple telephone facilities. This Part does not exclude apparatus making use of adaptive techniques but see A.10.

NOTE 2: The titles of the publications referred to in this Part are listed on the inside back cover.

2. Abbreviations, definitions and notation

For the purpose of the Part of BS 6789, in addition to the abbreviations and definitions given in BS 6317: 1992, the following abbreviation, definitions and notation apply:

2.1 Abbreviation. LST. Loudspeaking telephone

2.2 Definitions

2.2.1 pink noise. Noise whose sound pressure spectral density is inversely proportional to frequency.

2.2.2 spectral density. The limit, as the bandwidth approaches zero, of the mean square value of a field quantity divided by bandwidth.

NOTE. When the term spectral density is used, the kind of field density is stated, for example, as sound pressure.

2.2.3 mean receiving cross-talk sensation level. The equivalent mean sensation level (Z) giving equal loudness to that of a continuous spectrum sound.

2.2.4 loudspeaking facility. A facility in an apparatus where one or more of the transducers used to provide the speech communication path is not closely coupled to the user's mouth or ear.

NOTE: This definition includes three different modes of user operation as defined in 2.2.4.1, 2.2.4.2 and 2.2.4.3.

2.2.4.1 call progress monitor. A mode of operation of apparatus where the apparatus is capable of receiving with the integral or associated handset inoperative, and where the apparatus reverts to normal handset operation when the integral or associated handset is operative.

NOTE: The apparatus may also be capable of signalling in this mode.

2.2.4.2. full monitor (group listening). A mode of operation of apparatus where the apparatus is capable of amplifying received signals through an additional transducer (for example, a loudspeaker) simultaneously with the normal telephone handset operation.

NOTE: This apparatus may also be used in the call progress monitor mode.

2.2.4.3. full hands free operation. A mode of operation of apparatus where the apparatus is capable of both speech reception and transmission with the integral or associated handset inoperative, and where the

apparatus reverts to normal handset operation when the integral or associated handset is operative.

2.2.4.4. non-speech call progress monitor. A mode of operation of non-speech apparatus where the apparatus is capable of amplifying received signals through an integral transducer (for example a loudspeaker) when the normal mode of operation is inoperative.

NOTE: The apparatus may also be capable of signalling in this mode.

2.2.4.5. non-speech full monitor. A mode of operation of non-speech apparatus where the apparatus is capable of amplifying received signals through an integral transducer (for example a loudspeaker) simultaneously with the normal mode of operation.

NOTE: The apparatus may also be used in the non-speech call progress monitor mode.

2.2.5. integral handset telephony. A configuration of apparatus where both a loudspeaking facility and a simple telephone facility are provided as part of the apparatus.

NOTE: Integral handset telephony includes apparatus where the simple telephone facility is contained or partly contained in a separate module that is connected to the apparatus by means other than a plug that meets the requirements of BS 6312: 1985 and a socket that is compatible with it.

2.2.6. associated handset telephony. A configuration of apparatus where a simple telephone facility is not integral but where a simple telephone meeting the requirements BS 6317: 1992 is capable of being plugged into a compatible socket that is part of the apparatus.

2.2.7. apparatus making use of adaptive techniques. Apparatus whose circuit parameters are automatically adjusted to the room conditions or line conditions that exist for each connection.

2.2.8. LST apparatus. Speech apparatus that, in the configuration in which the apparatus is supplied to the user, when the apparatus is in the loudspeaking mode and when powering arrangements forming part of the apparatus, if any, are connected and energised, is designed to meet the requirements of 9.1 of BS 6317: 1992

NOTE: 'Supplied to the user' implies that the whole of the apparatus necessary to satisfy the above definition forms a single package, even if the apparatus itself comprises more than one module.

2.2.9. Text deleted

2.3 Notation. Z. Mean sensation level.

3. General requirements and test conditions.

3.1 General. The requirements of Part 1: 1984 of this standard apply (see clause 1).

3.2 Modes of operation.

3.2.1. Speech apparatus. The apparatus shall provide a loudspeaking facility with one or more of the following modes of operation:

- a) call progress monitor;
- b) full monitor (group listening);
- c) full hands free operation.

3.2.2 non-speech apparatus. The apparatus shall provide a loudspeaking facility with one or both of the following modes of operation:

- a) non-speech call progress monitor;
- b) non-speech full monitor.

NOTE 1. For definitions of the terms used for these modes of operation: see clause 2. The supplier is required to state which modes of operation are available on the apparatus; see clause 4.

Where the simple telephone facility is provided by an associated telephone, the apparatus shall be provided with a socket that is compatible with BS 6312: 1985. The allocation of socket pins shall be given in table 1 of BS 6317: 1992.

Where the apparatus consists of more than one module the modules shall be interconnected by a means other than a plug that meets the requirements of BS 6312: 1985 and a socket that is compatible with it.

The apparatus shall provide a mode of operation in which the simple telephone facility is capable of being used alone. In this mode, the following requirements apply:

a) *Integral handset telephony.* Where the apparatus provides integral handset telephony, when the apparatus is in the simple telephone mode the requirements BS 6317: 1992 apply.

b) *Associated handset telephony.* Where the simple telephone facility is provided by an associated telephone, when the apparatus is in the simple telephone mode the requirements of BS 6317: 1992 do not apply and instead, the apparatus shall meet the requirements of Part 6 of this standard for series connected apparatus.

NOTE 2. Tests are not made on a simple telephone that meets the requirements of BS 6317: 1992 and is associated with the apparatus for test purposes (see A.1).

Compliance with requirements in this subclause that are not specified by reference to other standards shall be checked by inspection.

3.3. Power source (speech apparatus). The requirements of 3.1 of BS 6317: 1992 do not apply. Where the LST utilizes an external power source and is capable of making a 999 call, it shall be capable of providing that facility both with and without the power source connected.

Compliance shall be checked by inspection.

3.4. Test conditions. The general conditions for the tests both in the main text and in appendix B shall be as described in appendix A.

NOTE 1. The requirements of clause 11 of Part 1:1984 and thereby of A.1 of BS 6305: 1992, also continue to apply. The test conditions described in appendix A of BS 6317:1982 also continue to apply where appropriate.

NOTE 2 For associated handset telephony, the suitability for use of the apparatus is not limited to use only with the particular model of associated telephone used during its tests for compliance with this Part of this standard (see A.1).

3.5. Independence of line polarity. The requirements of section two of this Part of this standard shall be met independently of line polarity.

Compliance shall be checked by reversal of the d.c. voltage appearing between the A and B terminals of the apparatus under test between individual tests as appropriate.

3.6. Volume controls. For apparatus fitted with user-controlled volume controls, unless otherwise stated in this Part of this standard, the requirements of this Part of this standard shall be met for all positions of the controls.

3.7 Suppression of transmission while PSTN connection is maintained

NOTE 1: Suppression of transmission in the sending direction is, in effect, reduction of the sending sensitivity, but in customer literature it may be given different names, such as 'mute' or 'microphone off', and it may be used for privacy or in noisy environments. To allow tests to be simplified without risking harm to the PSTN, this standard refers to 30 dB of suppression but, in reality, this would not be sufficient for a user seeking complete privacy and an attenuation of the order of 70 dB is appropriate as a design target. It is also recommended that the loudspeaker should not act as a microphone while sending is suppressed.

Sometimes a PSTN connection could be maintained but, temporarily, conversation over it not desired at all. In such cases, both sending and receiving sensitivities could effectively be suppressed simultaneously. Such a condition could, in user literature, also be referred to as 'mute', or sometimes as 'hold'.

NOTE 2: Application of the requirements of 3.7.1 and 3.7.2 is determined by the supplier in accordance with 4.1.1.

3.7.1 General. Where suppression of the transmission in either the sending or receiving direction is effected by a latching operation, when that suppression has been invoked and when that action which would normally establish the off-line condition is executed (e.g., the handset is replaced):

- a). the off-line conditions shall be restored within 30 seconds of that action
- and
- b). normal transmission shall be available when the apparatus is next placed in the on-line state.

Compliance is determined by an appropriate functional test.

NOTE: This requirement is intended to guard a naive user against difficulty in making emergency calls.

3.7.2. Suppression of sending or suppression of sending and receiving.

3.7.2.1 There shall be a mode of operation in which sending, or sending and receiving, is not suppressed.

Compliance shall be checked by an inspection of the supplier's declaration (see 4.1.1).

3.7.2.2. For apparatus where the user can invoke a mode of operation that suppresses transmission in the sending direction, or in both sending and receiving directions, while a PSTN connection is maintained (see 4.1.1), when that suppression is invoked, the requirements of clauses 6 and 7 shall apply.

4. Information to be provided by the supplier.

4.1 Information required for testing purposes. Where the apparatus incorporates integral handset telephony the requirements of 5.1 of BS 6317: 1992 apply for use when the apparatus is in the simple telephone mode. Where the simple telephone facility is provided by an associated telephone, the requirements of clause 5 of Part 6 of this standard for series connected apparatus apply, for use when the apparatus is in the simple telephone mode. In addition the following requirements apply, for use when the apparatus is in a loudspeaking mode:

(a) The supplier shall state which of the modes of user operation of the apparatus, listed in 3.2, are available.

(b) The supplier shall state the impedance classification of the apparatus as given in table 6 of BS 6305: 1992 but with the reference to 4.3.2. of BS 6305: 1992 being taken to mean a reference to the requirements of that subclause when modified by 6.2 of this Part of this standard.

(c) The supplier shall state how any power supply can be properly connected and switched on.

(d) Where the effects of the test signals on the performance of the apparatus do not differ from each other, the supplier shall determine which of the test signals (a), (b) or (c) described in A.7 and A.8 should be used. In the absence of a statement, test signal (b) shall be adopted.

NOTE 1. The supplier should state which test signal should be used, but provision is made for an appropriate test signal to be used where no such statement is available.

Where the effect of test signal (a) on the performance of the apparatus differs from the effect of test signals (b) or (c), the supplier shall state that this is so, and shall state which of the test signals (b) or (c) should be used.

NOTE 2. An example of apparatus where the type of test signal affects the performance is an apparatus that automatically compensates for the presence of room noise.

Where test signal (c) is chosen, in each instance the supplier shall state the duration for which the signal is switched on, and the duration for which it is switched off. The stated duration of the 'on' time in each instance shall be not less than 100ms.

e) The supplier shall state whether or not the apparatus has an earth connection and, if so, the position of the earth reference point in the apparatus.

NOTE 3. This information is useful because some requirements are relevant only where the apparatus has an earth connection. References to these requirements are listed in paragraph (a) of the note to clause 5 of Part 1: 1984 of this standard.

f) The supplier shall declare that the sound output from the loudspeaker is limited by the power output capability of the loudspeaker drive amplifier (see 7.5).

g) The supplier shall state whether or not the apparatus makes use of adaptive techniques (see A.10).

h) Text deleted

j) Text deleted

k) Text deleted

4.1.1 The supplier shall state whether or not the apparatus offers suppression of transmission while a PSTN connection is maintained, and if it does, the supplier shall state one or both of (a) and (b):

a). that transmission is suppressed in the sending direction, and that there is a mode of operation in which sending is not suppressed;

b). that the transmission is suppressed in both sending and receiving directions, and that there is a mode of operation in which sending and receiving are not suppressed.

4.2 Instruction for use

4.2.1. Where a socket is provided for associated handset telephony, the instructions for use shall state that apparatus approved for direct connection to the public switched telephone network and which includes a handset telephone shall be connected to that socket.

4.2.2. For LST apparatus with a power supply the instructions for use shall state that the power has to be properly connected and switched on.

NOTE. This requirement applies whether the power supply is built-in or separate.

4.2.3. Text deleted.

4.2.4. Text deleted

5. Electrical network connection methods (speech apparatus).

NOTE. For physical network connection methods, see B.1 and B.2 of BS 6305: 1992.

For incoming call detection the requirements of 6.4 of BS 6317: 1992 apply with the following exceptions. When the apparatus is in the loudspeaking mode, in 6.4.3. of BS 6317: 1992, where alternative (b) is adopted, that is, where disabling of the ringing detector is by means other than series disconnection of the ringing circuit, in item (2) of alternative (b) the impedance shall continue to meet the requirements of 6.2 of this Part of this standard in place of 4.1.3. of BS 6305: 1992 and in item (4) of alternative (b), the speech transmission characteristics