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P.48

TELEPHONE TRANSMISSION QUALITY TRANSMISSION STANDARDS

SPECIFICATION FOR AN INTERMEDIATE REFERENCE SYSTEM

ITU-T Recommendation P.48

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation P.48 was published in Volume V of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation P.48

SPECIFICATION FOR AN INTERMEDIATE REFERENCE SYSTEM

*(Geneva, 1976; amended at Geneva, 1980,
Malaga-Torremolinos, 1984, Melbourne, 1988)*

Summary

This Recommendation intends to specify the intermediate reference system (IRS) to be used for defining loudness ratings. The description should be sufficient to enable equipment having the required characteristics to be reproduced in different laboratories and maintained to standardized performance.

1 Design objectives

The chief requirements to be satisfied for an intermediate reference system to be used for tests carried out on handset telephones¹⁾ are as follows:

- a) the circuit must be stable and specifiable in its electrical and electro-acoustic performance. The calibration of the equipment should be traceable to national standards;
- b) the circuit components that are seen and touched by the subjects should be similar in appearance and “feel” to normal types of subscribers' equipment;
- c) the sending and receiving parts should have frequency bandwidths and response shapes standardized to represent commercial telephone circuits;
- d) the system should include a junction which should provide facilities for the insertion of loss, and other circuit elements such as filters or equalizers;
- e) the system should be capable of being set up and maintained with relatively simple test equipment.

Note – The requirements of a) to d) have been met in the initial design of the IRS by basing the sending and receiving frequency responses on the mean characteristics of a large number of commercial telephone circuits and confining the bandwidths to the nominal range 300-3400 Hz.

Since the detailed design of an IRS may vary between different Administrations, the following specification defines only those essential characteristics required to ensure standardization of the performance of the IRS.

The principles of the IRS are described and its nominal sensitivities are given in §§ 2, 3, 4 and 5 below; requirements concerning stability, tolerances, noise limits, crosstalk and distortion are dealt with in §§ 6 to 9 below. Some information concerning secondary characteristics is given in § 10 below.

Certain information concerning installation and maintenance are given in [1].

2 Use of the IRS

The basic elements of the IRS comprise:

- a) the sending part,
- b) the receiving part,
- c) the junction.

¹⁾ For other types of telephone, e.g. headset or loudspeaking telephone, a different IRS will be required. The IRS is specified for the range 100-5000 Hz. The nominal range 300-3400 Hz specified is intended to be consistent with the nominal 4 kHz spacing of FDM systems, and should not be interpreted as restricting improvements in transmission quality which might be obtained by extending the transmitted frequency bandwidth.