INTERNATIONAL TELECOMMUNICATION UNION

ITU-T N.11

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

MAINTENANCE OF INTERNATIONAL SOUND - PROGRAMME AND TELEVISION TRANSMISSION CIRCUITS

ESSENTIAL TRANSMISSION PERFORMANCE OBJECTIVES FOR INTERNATIONAL SOUND - PROGRAMME CENTRES (ISPC)

ITU-T Recommendation N.11

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation N.11 was published in Fascicle IV.3 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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1 Transmission level at interconnection points

Levels at interconnection points must be such that a signal level of 0 dBm0 on the incoming circuit gives rise to a signal level of 0 dBm0 on the outgoing circuit. A nominal relative level of +6 dBr is recommended at interconnection points (see also Figure 3/J.13 [1] and Recommendation J.14, § 1 [2]).

2 Balance with respect to earth

The balance with respect to earth (measured by the method defined in [3]) of nominally balanced apparatus should be at least 60 dB in order to give an adequate suppression against longitudinal interference induced by power supplies, alarm circuits, etc.

3 Access points

There should be a well-defined circuit access point associated with the input to a sound-programme circuit at which the transmission test levels at all frequencies over the band are nominally the same. This access point may be the interconnection point or separated therefrom by distortion-free loss or gain. A well-defined circuit access point should also be associated with the output of a sound-programme circuit.

The nominal relative level at each access point will be chosen by each Administration, bearing in mind the dynamic range of their testing and transmission apparatus.

Measurements on a sound-programme circuit should be made between such circuit access points.

Administrations may also find it convenient to arrange for sound-programme circuit sections to be equipped with similar access points. International sound-programme circuit sections which can be connected to a variety of other circuit sections should always be equipped with such access points.

4 Interconnection of sound-programme circuits

4.1 *Constant voltage technique*

If the modulus of the output impedance of any source is not greater than one hundredth of the modulus of the lowest impedance that can be connected to it (bearing in mind that it is possible to connect two or more loads in parallel) then the change in level due to change of load will be negligibly small (less than 0.1 dB approximately).

4.2 *Impedance matching technique*

If the return loss versus the nominal design resistance of the measuring instruments of the impedance presented by incoming and outgoing circuits to the points where they are interconnected is at least 26 dB over the range 50 Hz to 10 or 15 kHz, the error due to mismatch will be insignificant, assuming that the impedance of testing apparatus has at least 30-dB return loss versus the nominal design resistance, which can be, for example, 600 ohms non-reactive.

4.3 *Digital technique*

The interconnection of digital sound-programme circuits will be made by preference with the aid of a digital interface presenting the following characteristics:

– plesiochronous or synchronous operation

– bit rate of 384 kbit/s, 1544 kbit/s or 2048 kbit/s

– 384 kbit/s to carry either one 15 kHz or two 7 kHz sound-programme signals.

Interface for other bit rates, namely to provide for 15 kHz monophonic and stereophonic circuits with linear coding and for 7 kHz monophonic sound-programme circuits with companded coding are the subject of further study.

References

[1] CCITT Recommendation *Definitions for international sound-programme circuits*, Vol. III, Rec. J.13.

[2] CCITT Recommendation *Relative levels and impedances on an international sound-programme connection*, Vol. III, Rec. J.14.

[3] CCITT Recommendation *Transmission aspects of unbalance about earth* Vol. III, Rec. G.117.