INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.120

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

TRANSMISSION SYSTEMS AND MEDIA

GENERAL CHARACTERISTICS OF NATIONAL SYSTEMS FORMING PART OF INTERNATIONAL CONNECTIONS

TRANSMISSION CHARACTERISTICS OF NATIONAL NETWORKS

ITU-T Recommendation G.120

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation G.120 was published in Fascicle III.1 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 G.120

TRANSMISSION CHARACTERISTICS OF NATIONAL NETWORKS1)

1 Application of CCITT Recommendations on telephone performance to national networks

The different parts of a national network provided by both analogue and digital transmission systems to be used for an international connection should meet the following general recommendations:

1.1 The national sending and receiving systems should satisfy the limits recommended in:

- Recommendation G.121 as regards loudness rating (LR);
- Recommendation G.133 as regards group-delay distortion;
- Recommendation G.122 as regards balance return loss and transmission loss;
- Recommendation G.123 for circuit noise.

Note - Reference should also be made to Recommendations P.12 [2] and G.113.

1.2 Long-distance trunk circuits forming part of the main arteries of the national network should be high-velocity propagation circuits which enable the limits fixed in Recommendation G.114 to be respected. They should conform to Recommendations G.151 and G.152.

Loaded-cable circuits should conform to Recommendation G.124 [3] and carrier circuits to Recommendation G.123.

1.3 National trunk circuits should have characteristics enabling them to conform to Recommendations G.131, G.132 and G.134 as regards the other characteristics of the 4-wire chain constituted by the international telephone circuits and the national trunk extension circuits.

1.4 International centres should satisfy Recommendations Q.45 [4], Q.45 *bis,* Q.551, Q.552 and Q.553.

National automatic 4-wire centres should observe the noise limits specified in Recommendation G.123, § 3.

Manual telephone trunk exchanges should satisfy Recommendation P.22 [5].

Information on the transmission performance of automatic local exchanges is given in the CCITT manual cited in [6].

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1) Former Recommendation P.21 [1].

2 National transmission plan

Every Administration is free to choose whatever method it considers appropriate for specifying transmission performance and to adopt the appropriate limits to ensure satisfactory quality for national calls, it being understood that in addition the Recommendation relating to loudness ratings (LRs) (Recommendation G.121) should be satisfied for international calls.

Note - To meet this twofold condition with respect to national and international calls, each Administration has to draw up a national transmission plan, i.e. it must specify limits for each part of the national network.

The manual cited in [6] contains descriptions of the transmission plans adopted by various countries and also some indications concerning the methods that can be used to establish such a plan.

In particular, Annexes A and B to Recommendation G.111 contain useful information for Administrations who wish to apply the LE method to their national connections.

References

[1] CCITT Recommendation *Application of CCITT Recommendations on telephone performance to national networks,* Red Book, Vols. V and V *bis,* Rec. P.21, ITU, Geneva, 1962 and 1965; amended at Mar del Plata, 1968, to become Rec. P.20 (G.120) *Transmission characteristics of national networks,* White Book, Vol. V (Vol. III), ITU, Geneva, 1969.

[2] CCITT Recommendation *Articulation reference equivalent (AEN),* Yellow Book, Vol. V, Rec. P.12, ITU, Geneva, 1981.

[3] CCITT Recommendation *Characteristics of long-distance loaded-cable circuits liable to carry international calls,* Orange Book, Vol. III, Rec. G.124, ITU, Geneva, 1977.

[4] CCITT Recommendation *Transmission characteristics of an international exchange,* Vol. VI, Rec. Q.45.

[5] CCITT Recommendation *Manual trunk exchanges,* Orange Book, Vol. V, Rec. P.22, ITU, Geneva, 1977.

[6] CCITT manual *Transmission planning of switched telephone networks,* ITU, Geneva, 1976.