



INTERNATIONAL TELECOMMUNICATION UNION

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STANDARDIZATION SECTOR
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G.623

TRANSMISSION MEDIA CHARACTERISTICS

CHARACTERISTICS OF 2.6/9.5 mm COAXIAL CABLE PAIRS

ITU-T Recommendation G.623

(Extract from the *Blue Book*)

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NOTES

1 ITU-T Recommendation G.623 was published in Fascicle III.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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Recommendation G.623

CHARACTERISTICS OF 2.6/9.5 mm COAXIAL CABLE PAIRS

(former Recommendation G.331; further amended)

1 Pair characteristics

It is necessary to have throughout the international network types of coaxial pairs having the same electrical characteristics, in order to enable transmission systems to operate on any cable meeting the specifications of this Recommendation. The use of these pairs is defined by Tables 1/G.623 and 2/G.623 given in the introduction to § 6.2.

1.1 Electrical characteristics of the coaxial pair

1.1.1 Characteristic impedance

The characteristic impedance of the coaxial pair follows a well-defined law depending on frequency given by:

$$Z = 74.4 \left[1 + \frac{0.0123}{\sqrt{f}} (1 - j) \right] \Omega$$

where f is the frequency measured in MHz¹⁾. There is therefore no point in specifying values at all frequencies.

The figure of 74.4 Ω (impedance at infinite frequency) is subject to a tolerance of $\pm 1 \Omega$.

1.1.2 Attenuation coefficient

The nominal attenuation coefficient of the coaxial pair at a frequency of 60 MHz and a temperature of 10 °C should be within the limits of 18.00 ± 0.3 dB/km²⁾.

The rate of the variation of the attenuation with frequency, for a nominal value of 18.00 dB/km at 60 MHz, is indicated in Table 1/G.623.

TABLE 1/G.623

Nominal attenuation coefficient at various frequencies

Frequency (MHz)	0.06	0.3	1	4	12	20	40	60	150	300
Attenuation (dB/km)	0.59	1.27	2.32	4.62	8.01	10.35	14.67	18.00	28.6	40.7

1) This formula is equivalent to $Z = 74.4 + (0.92 / \sqrt{f})(1 - j)\Omega$. If this latter formula is used, a correcting factor should be applied to the tolerance indicated in the text.

2) For internal reasons, some Administrations considered it advantageous to use pairs of larger dimensions, with smaller attenuation, making it possible to use longer repeater sections (2 km). Cables manufactured by assembly of these pairs may be regarded as meeting the requirements of this Recommendation for 60-MHz systems provided the electrical characteristics of the repeater sections built up with these cables comply with this Recommendation and provided the line equipments are exactly the same as those used with the cables referred to in this Recommendation. The French Administration's 3.7/13.5-mm pairs described in [1] fall within this category.