

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Radio frequency cables –
Part 0-1: Guidelines to the design of detail specifications – Coaxial cables**

**Câbles pour fréquences radioélectriques –
Partie 0-1: Lignes directrices pour la conception des spécifications particulières
– Câbles coaxiaux**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO FREQUENCY CABLES –**Part 0-1: Guidelines to the design of detail specifications –
Coaxial cables**

FOREWORD

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International standard IEC 60096-0-1 has been prepared by subcommittee 46A: Coaxial cables, of IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This third edition cancels and replaces the second edition published in 1990 and its Amendment 1 (2000). It constitutes a technical revision.

The significant changes with respect to the previous edition are as follows:

- tables of material constants and factors and have been updated, different equations have been updated and corrected;
- a subclause dealing with the calculation of "Current carrying capacity of coaxial cables" has been added as Subclause 7.7.

The text of this standard is based on the following documents:

FDIS	Report on voting
46A/1043/FDIS	46A/1064/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

A list of all the parts in the IEC 60096 series, published under the general title *Radio frequency cables*, can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

RADIO FREQUENCY CABLES –

Part 0-1: Guidelines to the design of detail specifications – Coaxial cables

1 Scope

This part of IEC 60096 provides guidance for the design of radio frequency coaxial cables with braid, metallic tapes or tubular outer conductors.

2 Normative references

Void.

3 Symbols and numbering

3.1 Register of symbols used

Symbol	Designation	Unit
α	Total attenuation per unit length, 20 °C	dB/100 m
α_T	Total attenuation per unit length, $T \neq 20$ °C	dB/100 m
α_x	Attenuation due to element x, 20 °C	dB/100 m
β_x	Braid angle of element x	° (degree)
γ_x	Density of the material of element x	g/cm ³
δ_x	Loss angle of the material of element x	rad
ε_x	Relative dielectric permittivity of the material of element x	–
χ_x	Conductivity of the material of element x, 20 °C	m/Ωmm ²
σ_x	Thermal resistivity of the material of element x	K·m/W
B_x	Braid coverage concerning element x	–
c_0	Velocity of propagation in free space	m/s
C	Dielectric diameter	mm
C_x	Capacitance of element x, per unit length	pF/m
d_x	Diameter of individual wires of element x	mm
D_x	Outer diameter of element x	mm
D_{xe}	Electrical effective diameter of element x	mm
D_{xm}	Mean diameter of element x	mm
D	Sheath diameter	mm
D_s	Outer conductor diameter	mm
d	Center conductor diameter	mm
E_2	Maximum permissible voltage gradient of dielectric (peak value)	kV/mm
ε	Surface emissivity (sheathed=0,95, bare=0,35)	–
f	Frequency	MHz
h_x	Coating thickness concerning element x	mm
I	Current carrying capacity (Amperes)	–
k_x, k_{xy}	Calculation factors according to Tables 1 and 2	–
L_x	Braid lay length concerning element x	mm