

INTERNATIONAL STANDARD

Coaxial communication cables – Part 6-1: Blank detail specification for CATV drop cables



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COAXIAL COMMUNICATION CABLES –

Part 6-1: Blank detail specification for CATV drop cables

FOREWORD

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International Standard IEC 61196-6-1 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.

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

FDIS	Report on voting
46A/917/FDIS	46A/926/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.

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

A list of all parts of IEC 61196 series, published under the general title *Coaxial communication cables*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

COAXIAL COMMUNICATION CABLES –

Part 6-1: Blank detail specification for CATV drop cables

1 Scope

This blank detail specification applies to CATV cables. It specifies the requirements for drop cables for use in cabled television distribution networks operating at temperatures between -40°C and +70°C and in the frequency range from 5 MHz to 1000 MHz or from 5 MHz to 3 000 MHz as described in IEC 61196-6 and is to be read in conjunction with IEC 61196-1 and IEC 61196-6.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61196-1: *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

IEC 61196-6, *Coaxial communication cables – Part 6: Sectional specification for CATV drop cables*

IEC 62153-4-4, *Metallic communication cable test methods – Part 4-4: Electromagnetic compatibility (EMC) – Shielded screening attenuation, test method for measuring of the screening attenuation "a_s" up to and above 3 GHz.*

3 Guidance for preparation of a detail specification

The detail specification shall be written in accordance with the layout of the pro-forma blank detail specification that forms part of this standard.

NOTE When a characteristic does not apply, in accordance with IEC 61196-6, then NA (for not Applicable) shall be entered in the appropriate space.

When a characteristic applies but a specific value is considered not necessary, then NS (for Not Specified) shall be entered in the appropriate space.

When NS is used, the appropriate requirement in the sectional specification shall apply.

The numbers shown in brackets on this and the following pages correspond to the following items of required information, which should be entered in the spaces provided.

- [1] Name and address of the manufacturer of the cable.
- [2] IEC document number and date of issue.
- [3] Related IEC documents.
- [4] Product type/model of cable
- [5] Any other reference standards (International, National, etc.) to the cable.
- [6] Parameter or characteristic of the cable.
- [7] Reference to the relevant subclause of the sectional specification
- [8] Manufacturer specification of the cable
- [9] Minimum requirements defined within the generic or sectional specification
- [10] Manufacturer to insert any additional test parameters, methods, specifications, etc.

4 Blank detail specification

[1] Manufacturer and address:	[2] Issue: CEI/IEC 61196-6-1 Date :		
	[3] Generic specification: IEC 61196-1 Sectional specification: IEC 61196-6		
[4] Product type/model:	[5] Additional references:		
[6] Parameter or characteristic Cable construction (dimensions in mm)	[7] IEC 61196-6 subclause	[8] Manufacturer specification	[9] Minimum requirement
Inner conductor	4.2		
Material	4.2.1		NS
Diameter	4.2.2		NS
Tolerance	4.2.2		± 0,03 mm
Dielectric	4.3		
Material	4.3		NS
Diameter	4.3		NS
Tolerance	4.3		± 0,15 mm
Outer conductor	4.4		
Type and construction	4.4		NS
Material	4.4		NS
Diameter	4.4		NS
Tolerance	4.4		± 0,20 mm
Sheath or jacket	4.5		NS
Material	4.5		NS
Thickness	4.5		NS
Diameter	4.5		NS
Tolerance	4.5		± 0,25 mm
Integral messenger	4.5		
Material	4.5		NS
Diameter	4.5		NS
Minimum tensile strength (kgf)	4.5		NS
Elongation	4.5		NS
Corrosion Properties	4.5		NS
Additional information			
Overall dimension (width) of cable	4.6		NS
Standard ratings and characteristics	5.0		NS
Cable identification and markings	6.0		As defined in 6.1.1 of IEC 61196-6
NS: Not specified NA: Not applicable			

[6] Parameter or characteristic	[7] IEC 61196-6 subclause	[8] Manufacturer specification	[9] Minimum requirement
Completed cable tests			
Electrical testing of finished cable	7.1		
Conductor resistance: Inner conductor Outer conductor Loop (outer + inner)	7.1.1.1		NS
Insulation resistance	7.1.1.2		$\geq 10^4$ M Ω x km
Withstand voltage of dielectric	7.1.1.3		2 kV d.c. or 1,5 kV a.c. for 1 min <small>note 1</small>
Withstand voltage of sheath	7.1.1.4		3,5 kV d.c. or 2,5 kV a.c. for 1 min <small>note 1</small>
Current carrying capacity	7.1.1.5		NS
Spark Test	7.1.1.6		2,5 kV a.c. or 3,75 kV d.c., or pulse , or 3,5 kV h.f.
High-frequency electrical and transmission measurements	7.1.2		
Operational frequency			5 MHz to 1 000 MHz or 5 MHz to 3 000 MHz
Characteristic impedance	7.1.2.1		$75 \pm 3 \Omega$
Relative propagation velocity (velocity ratio)	7.1.2.2		NS
Return loss (uniformity of impedance)	7.1.2.3		5 MHz to 1000 MHz: ≥ 20 dB; 1000 MHz to 2000MHz: ≥ 18 dB; 2000 MHz to 3000 MHz ≥ 16 dB The measurement inaccuracy $\Delta a_{r,f}$ shall be < 1 dB.
Attenuation constant, α	7.1.2.4		$\alpha = a + \sqrt{f} + b \cdot f + c$ or for copper clad conductors $\alpha = a + \sqrt{f} + b \cdot f + c + d / \sqrt{f}$ $a = ______$, $b = ______$, $c = ______$ and if applicable $d = ______$ Refer to Annex A for discrete values at 200 and 800 MHz
Regularity of impedance	7.1.2.5		≥ 40 dB resp ≤ 1 %
Transfer impedance after flex <small>note 2</small>	7.1.2.6		Screening class "C"
Screening attenuation after flex <small>note 2</small> according to test procedure	7.1.2.7		Screening class "C" IEC 62153-4-4 (triaxial method)
Screening class <small>note 2</small>	7.1.2.6 and 7.1.2.7		See IEC 61196-6, Table 2
NS: Not specified NA: Not applicable			

[6] Parameter or characteristic	[7] IEC 61196-6 subclause	[8] Manufacturer specification	[9] Minimum requirement
Completed cable tests			
Environmental testing of finished cable	7.2		
Cold bend	7.2.1		Test Method Method B mandrel diameter is Test temperature is... No physical damages of conductors, dielectric and sheaths
Water penetration	7.2.2		NS
Climatic sequence	7.2.3		See IEC 61196-6, Table 3
Damp heat (steady state)	7.2.4		See IEC 61196-6, Table 3
Ultraviolet stability of sheath or jacket	7.2.5		a) No visual cracks b) magnitude of change in elongation ≤ 20 % after 720 h c) magnitude of change in tensile strength ≤ 20 % after 720 h
Thermal ageing	7.2.6		Transmission characteristics shall remain within the specified limits
Mechanical characteristics of finished cable	7.3		
Ovality of dielectric	7.3.1		$\leq 7\%$
Ovality of sheath	7.3.2		$\leq 7\%$
Eccentricity of dielectric	7.3.3		$\leq 10\%$
Eccentricity of sheath	7.3.4		$\leq 10\%$
Carbon black content, where applicable	7.3.5		$\geq 2\%$
Tensile strength and elongation of the copper or copper-clad metals	7.3.6		Shall be in accordance with IEC 61196-1, 4.4.1.1
Torsion test for copper-clad metals	7.3.7		Shall be in accordance with IEC 61196-1-310 if applicable
Adhesion testing: inner conductor to dielectric	7.3.8		See IEC 61196-6, Table 4
Bending	7.3.9		NS
Tensile strength of cable (longitudinal pull)	7.3.10		NS
Crush resistance of cable	7.3.11		See IEC 61196-6, Table 4
Abrasion resistance	7.3.12		NS
NOTE 1 Figures provided are the default values. Other values may be specified			
NOTE 2 Flexure test method be performed per IEC 61196-1-314, 8.3.2, procedure 2			
Radius of pulleys: 10 X diameter of cable,			
Tension: As defined in 7.3.10 of this standard,			
Speed: ≤ 1 m/s,			
Number of cycles: 3			

NS: Not specified NA: Not applicable
[10] Additional tests, methods, and other information

Annex A
(normative)

Maximum attenuation

Frequency specified in MHz	Maximum Attenuation: dB/100m at 20°C
—	—
—	—
—	—
200	—
—	—
—	—
—	—
800	—
—	—
2400	—

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