

# INTERNATIONAL STANDARD

**Coaxial communication cables –  
Part 10-1: Blank detail specification for semi-rigid cables with  
polytetrafluoroethylene (PTFE) dielectric**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## COAXIAL COMMUNICATION CABLES –

**Part 10-1: Blank detail specification for semi-rigid cables  
with polytetrafluoroethylene (PTFE) dielectric**

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International Standard IEC 61196-10-1 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/1214/FDIS	46A/1233/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.

This publication is to be used in conjunction with IEC 61196-1:2005 and IEC 61196-10:2014.

A list of all parts in the 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 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- withdrawn,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.

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

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## COAXIAL COMMUNICATION CABLES –

### Part 10-1: Blank detail specification for semi-rigid cables with polytetrafluoroethylene (PTFE) dielectric

#### 1 Scope

This part of IEC 61196 applies to coaxial communication cables described in IEC 61196-10. It specifies the requirements for semi-rigid radio frequency and coaxial cables with solid dielectric and semi-airspace dielectric. These cables are intended for use in microwave and wireless equipment or other signal transmission equipment or units at frequencies above 500 MHz.

This part of IEC 61196 is to be read in conjunction with IEC 61196-1 and IEC 61196-10. The blank detail specification determines the layout and style for detail. Detail specifications, based on the blank detail specification, may be prepared by a national organization, a manufacturer or a user.

#### 2 Normative references

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

IEC 61196-1:2005, *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

IEC 61196-10:2014, *Coaxial communication cables – Part 10: Sectional specification for semi-rigid cables with polytetrafluoroethylene (PTFE) dielectric*

NOTE Documents which are needed to achieve the tests according to Clause 4, item [9] or item [10], respectively, are listed in IEC 61196-10.

#### 3 Guidance for the preparation of detail specifications

The detail specification shall be written in accordance with the layout of the blank detail specification, which forms part of this standard.

NOTE 1 When a characteristic does not apply, then NA (for not applicable) is entered in the appropriate space.

NOTE 2 When a characteristic applies but a specific value is not considered necessary, then NS (for not specified) is entered.

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

- [1] Name and address of the organization that has prepared the document
- [2] IEC document number and date of issue
- [3] Address of the organization from which the document is available
- [4] Related documents
- [5] Any other references to the cable, national reference, trade name, etc.
- [6] Complete description of the cable

- [7] Cable construction
- [8] Engineering information
- [9] Parameter to be verified
- [10] Reference to the relevant subclause of the sectional specification
- [11] Minimum requirements, the values entered shall meet as a minimum the requirements of sectional specification IEC 61196-10
- [12] Remarks

#### 4 Blank detail specification

Title	
<b>[1] Prepared by:</b>	<b>[2] Document No.:</b> <b>Issue:</b> <b>Date:</b>
<b>[3] Available from:</b>	<b>[4] Generic specification</b> IEC 61196-1 <b>Sectional specification</b> IEC 61196-10
<b>[5] Additional references:</b>	
<b>[6] Cable description:</b> a) Cable variant b) Material of inner conductor c) Material of dielectric d) Outer conductor e) Material of sheath (if any)	
<b>[7] Cable construction:</b> a) Inner conductor Material Diameter (mm) nominal Tolerance (mm): ± ... b) Dielectric Material Diameter (mm) nominal Tolerance (mm): ± ... c) Outer conductor Material Diameter (mm) nominal Tolerance (mm): ± ... d) Sheath (if any) Material Minimum thickness (mm) Diameter (mm) Tolerance (mm): ± ...	

<b>[8] Engineering information (reference only):</b>			
a) Operating temperature range b) Installation temperature range c) Storage temperature range d) Maximum operating frequency e) Nominal characteristic impedance f) Maximum continue working voltage g) Minimum bending radius (static state) h) Minimum bending radius (dynamic state) i) Nominal weight j) Power rating			
<b>[9] Parameter</b>	<b>[10] Subclause of IEC 61196-10:2014</b>	<b>[11] Value</b>	<b>[12] Remarks</b>
<b>Electrical characteristics</b>	7.2		
Continuity	7.2.1	pass	
Conductor direct current resistance	7.2.2	$\leq \dots \Omega/\text{km}$	
Withstand voltage of dielectric	7.2.3	$\geq \dots \text{ kV r.m.s.}$	40 Hz to 60 Hz
Withstand voltage of sheath	7.2.4	$\geq \dots \text{ kV r.m.s.}$	40 Hz to 60 Hz
Insulation resistance	7.2.5	$\geq \dots \text{ M}\Omega \cdot \text{ km}$	$\geq 5\,000 \text{ M}\Omega \cdot \text{ km}$ according to IEC 61196-10
Capacitance	7.2.6	Frequency: $\leq \text{ pF/m}$	
Mean characteristic impedance	7.2.7	$(\dots \pm \dots) \Omega$	200 MHz
Regularity of impedance	7.2.8	Test procedure: Regularity $\geq 40 \text{ dB}$ resp. $\leq 1 \% ^a$	
Relative propagation velocity (velocity ratio)	7.2.9	Frequency: $(\dots \pm \dots) \%$	
Return loss	7.2.10	at $\dots \text{ MHz} \geq \dots \text{ dB}$	If necessary, refer to a table or graph at the end of the detail specification
Attenuation	7.2.11	at $\dots \text{ MHz} \leq \dots \text{ dB}/100 \text{ m}$	If necessary, refer to a table or graph at the end of the detail specification
Attenuation stability	7.2.12		
Intermodulation (IM3)	7.2.13	$\geq \dots \text{ dBm}$	$f_1 = \dots \text{ MHz} ^a$ $f_2 = \dots \text{ MHz} ^a$ Input power: W ... Only applicable to 50 $\Omega$ cable variants
<b>Environmental characteristics</b>	7.3		
Dimensional stability	7.3.1	ns	See IEC 61196-10
Heat behaviour	7.3.2	ns	See IEC 61196-10

Ageing	7.3.3	NS	See IEC 61196-10
Solderability	7.3.4	NS	See IEC 61196-10
Resistance to soldering	7.3.5	NS	See IEC 61196-10
<b>Mechanical characteristics</b>	7.4		
Visual examination	7.4.1	NS	See IEC 61196-10
Dimensional examination	7.4.2		
Ovality of dielectric	7.4.3	≤ ... %	≤ 7 % according to IEC 61196-10
Eccentricity of dielectric	7.4.4	≤ ... %	≤ 10 % according to IEC 61196-10
Ovality of sheath	7.4.5	≤ ... %	≤ 7 % according to IEC 61196-10
Adhesion testing	7.4.6	≥ ... N	
Bendability (single bend) <sup>b</sup>	7.4.7	1 cycle No cracks or longitudinal splits in outer conductor Transmission characteristics shall remain within specified tolerances	
Thermal cycling	7.4.8	Low temperature ... °C min. High temperature ... °C max. Rate of temperature change ... s Number of cycles Duration of cycle Details of sample placement	
<b>Quality assessment</b>	Annex A	NS	See IEC 61196-10
NS: not specified, i.e. the appropriate requirement in the sectional specification shall apply.			
<sup>a</sup> Mark NA, if not applicable			
<sup>b</sup> Frequencies are not always fixed frequencies and can be a swept over a range.			

**Annex A**  
(normative)

**Maximum attenuation**

Frequency specified MHz	Maximum attenuation: dB/100 m at 20 °C
-	-
-	-
-	-
200	-
-	-
-	-
-	-
800	-
-	-
1 000	-
-	-
-	-

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