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INTERNATIONAL STANDARD

Coaxial communication cables – Part 11-1: Blank detail specification for semi-rigid cables with polyethylene (PE) dielectric

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FOREWORD

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International Standard IEC 61196-11-1 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/1281/FDIS	46A/1292/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 parts in the IEC 61196 series, under the general title: *Coaxial communication cables*, can be found on the IEC website.

This part of IEC 61196 should be read in conjunction with IEC 61196-1:2005 and IEC 61196-11:2016.

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 website 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- withdrawn,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 11-1: Blank detail specification for semi-rigid cables with polyethylene (PE) dielectric

1 Scope

This part of IEC 61196 applies to semi-rigid coaxial communication cables with polyethylene (PE) dielectric and tubular outer conductor. These cables are intended for use in microwave and wireless equipments or other signal transmission equipments or units at frequencies above 500 MHz.

This part of IEC 61196 determines the layout and style for detail specification. 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 61196-11:2016, *Coaxial communication cables – Part 11: Sectional specification for semi-rigid cables with polyethylene (PE) dielectric*

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.

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

When a characteristic applies but a specific value is not considered necessary, then ns (for not specified) is entered in the appropriate space.

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 or characteristic

[10] Reference to the relevant subclause of the sectional specification

[11] Minimum requirements, the values entered shall meet as a minimum the requirements of the sectional specification

[12] Remarks

4 Blank detail specification

Title					
[1]	**Prepared by:**		**[2]**	**Document No.:** **Issue:** **Date:**	
[3]	**Available from:**		**[4]**	**Generic specification** **Sectional specification**	IEC 61196-1 IEC 61196-11
[5]	**Additional references:** References to the different test procedures of Column 10 are given in IEC 61196-11.				
[6]	**Cable description:** a) Cable variant b) Material of inner conductor c) Material of dielectric d) Outer conductor e) Material of sheath (if any)				
[7]	**Cable construction** a) **Inner conductor** Material: Construction: For corrugated inner conductor: Peak diameter and tolerance (mm): Root diameter and tolerance (mm): Pitch and tolerance (mm): For others: Diameter and tolerance (mm): b) **Dielectric** Material: PE Construction: Diameter (mm) nominal: Tolerance (mm) tube: ±... (for cable with smooth tube outer conductor) c) **Outer conductor** Material: Construction: For corrugated outer conductor: Peak diameter and tolerance (mm): Root diameter and tolerance (mm): Pitch and tolerance (mm): For smooth tube outer conductor: Diameter and tolerance (mm): d) **Sheath (if any)** Material: Minimum thickness (mm): Diameter (mm): Tolerance (mm): ± ...				

[8]	**Engineering information (reference only)** a) Operating temperature range: b) Maximum operating frequency: c) Nominal characteristic impedance: d) Relative propagation velocity (velocity ratio): e) Maximum continue working voltage: f) Minimum bending radius (static state): g) Minimum bending radius (dynamic state): h) Nominal weight: i) RMS power: j) Peak power:

[9] Parameter	[10] IEC 61196-11:2016 Subclause	[11] Value	[12] Remarks
Electrical characteristics	7.2		
Continuity	7.2.1		
Inner and outer conductor direct current resistance	7.2.2	≤ … Ω/km	
Withstand voltage of dielectric	7.2.3	≥ … kV rms	40 Hz ~ 60 Hz
Withstand voltage of sheath (or spark test)	7.2.4	≥ … kV rms	40 Hz ~ 60 Hz
Insulation resistance	7.2.5	≥ … MΩ · km	≥ 5 000 MΩ·km according to IEC 61196-11
Capacitance	7.2.6	Frequency: ± … pF/m	
Mean characteristic impedance	7.2.7	50 Ω ± … Ω	200 MHz
Regularity of impedance	7.2.8		
Return loss	7.2.9	….GHz to GHz ≥ … dB	If necessary, refer to a table or graph at the end of the detail specification
Attenuation	7.2.10	at … GHz ≤ … dB/100 m at 20 °C	If necessary, refer to a table or graph at the end of the detail specification
High temperature cable aging [a]	7.2.11	See 7.3.1	
Passive Intermodulation	7.2.12	≤ … dBm	f_1 = … MHz [b] f_2 = … MHz [b] Input power: 20 W The intermodulation order should be specified in accordance with the detail specification. The mechanical stress method in IEC 62037-4 should be specified in accordance with the detail specification.
RMS power [a]	7.2.13	≥ … W	
Peak power [a]	7.2.14	≥ … W	
Transfer impedance	7.2.15	≤…mΩ/m frequency: … MHz to … MHz	
Screening attenuation	7.2.16	≥…dB	
Environmental characteristics	7.3		
Ageing	7.3.1		See IEC 61196-11
Cold bend performance	7.3.2	Temperature at bend …°C	See IEC 61196-11
Water penetration [a]	7.3.3		See IEC 61196-11
Climatic sequence – Method 1[a]	7.3.4		See IEC 61196-11
Environmental stress cracking	7.3.5		See IEC 61196-11
Ultraviolet stability of the sheath	7.3.6		See IEC 61196-11

[9] Parameter	[10] IEC 61196-11:2016 Subclause	[11] Value	[12] Remarks
Mechanical characteristics	7.4		
Visual examination	7.4.1		See IEC 61196-11
Dimensional examination	7.4.2		
Ovality of inner conductor	7.4.3	≤ %	≤ 7 % according to IEC 61196-11
Eccentricity of dielectric	7.4.4	≤ %	≤ 7 % according to IEC 61196-11
Adhesion testing	7.4.5	≥... N	
Cable bending	7.4.6		See IEC 61196-11
Tensile strength of cable (longitudinal pull)	7.4.7	Force ....N	See IEC 61196-11
Crush resistance of cable	7.4.8	Force ....N	See IEC 61196-11
Fire performance requirement	7.5		
Flame propagation[a]	7.5.1		When required, according to the detail specification
Halogen acid gas emission[a]	7.5.2		When required, according to the detail specification
Toxic gas emission[a]	7.5.3		When required, according to the detail specification
Smoke density[a]	7.5.4		When required, according to the detail specification

[a] When required.

[b] Frequencies are not always fixed frequencies, and can be a swept over a range.