IEC 61196-8-1

Edition 1.0 2012-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Coaxial communication cables – Part 8-1: Blank detail specification for semi-flexible cables with polytetrafluoroethylene (PTFE) dielectric

Câbles coaxiaux de communication – Partie 8-1: Spécification particulière cadre pour câbles semi-flexibles avec diélectrique en polytétrafluoroéthylène (PTFE)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COAXIAL COMMUNICATION CABLES –

Part 8-1: Blank detail specification for semi-flexible cables with polytetrafluoroethylene (PTFE) dielectric

FOREWORD

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International Standard IEC 61196-8 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/1060/FDIS	46A/1074/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 read in conjunction with IEC 61196-1 and IEC 61196-8.

A list of all the 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- withdrawn,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.

COAXIAL COMMUNICATION CABLES –

Part 8-1: Blank detail specification for semi-flexible cables with polytetrafluoroethylene (PTFE) dielectric

1 Scope

This part of IEC 61196 applies to coaxial communications cables described in IEC 61196-8. It specifies the requirements for semi-flexible radio frequency and coaxial cables with polytetrafluoroethylene (PTFE) dielectric. These cables are for use in microwave and wireless equipments or other signal transmission equipments or units at frequencies from 500 MHz up to 18 GHz.

This blank detail specification is to be read in conjunction with IEC 61196-1 and IEC 61196-8. 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, *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

IEC 61196-1-1, *Coaxial communication cables – Part 1-1: Capability approval for coaxial cables*

IEC 61196-1-100 (all parts), *Coaxial communication cables – Part 1-1XX: Electrical test methods*

IEC 61196-1-200 (all parts), *Coaxial communication cables – Part 1-2XX: Environmental test methods*

IEC 61196-1-300 (all parts), *Coaxial communication cables – Part 1-3XX: Mechanical test methods*

IEC 61196-8, *Coaxial communication cables – Part 8: Sectional specification for semi-flexible cables with polytetrafluoroethylene (PTFE) dielectric*[1]

IEC 62037-1, *Passive r.f. and microwave devices, intermodulation level measurement – Part 1: General requirements and measuring methods*[2]

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[1] To be published.

[2] To be published.

IEC 62037-4, *Passive r.f. and microwave devices, intermodulation level measurement – Part 4: Measurement of passive intermodulation in coaxial cables*[3]

IEC 62153 (all parts), *Metallic communication cables test methods*

IEC 62230, *Electric cables, Spark-test method*

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) should be entered in the appropriate space.

When a characteristic applies but a specific value is not considered necessary, then NS (for not specified) should be 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] Description of the cable

[7] Details of the cable construction

[8] Engineering information of the cable, provided by the manufacturer

[9] List of the finished cable characteristics. They are separated into electrical, environmental and mechanical characteristics

[10] Reference to the relevant subclause of the sectional specification IEC 61196-8

[11] Minimum requirements, the values entered shall meet as a minimum the requirements of sectional specification IEC 61196-8

[12] Relevant remarks

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3 To be published.

4 Blank detail specification

Title

[1] Prepared by:

[2] Document No.:

Issue:

Date:

[3] Available from:

[4] Generic specification IEC 61196-1

Sectional specification IEC 61196-8

[5] Additional references:

IEC 61196-1-1, IEC 61196-1-1XX, IEC 61196-1-2XX, IEC 61196-1-3XX, IEC 62153 series, IEC 62037-4, IEC 62230

[6] Cable description:

a) Cable variant

b) Inner conductor

c) Dielectric

d) Outer conductor

e) Sheath (if any)

[7] Cable construction

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): ±…

[8] Engineering information (reference only)

a) Operating temperature range

b) Maximum operating frequency

c) Nominal characteristic impedance

d) Maximum continue working voltage

e) Minimum bending radius (static state)

f) Minimum bending radius (dynamic state)

g) Nominal weight

h) Power rating

[9] Parameter	[10] Subclause	[11] Value	[12] Remarks
Electrical characteristics	7.1		
Conductor direct current resistance	7.1.1	≤ … Ω/m	
Capacitance	7.1.2	≤ … pF/m	
Withstand voltage of dielectric	7.1.3	… kV rms	
Withstand voltage of sheath	7.1.4	… kV rms	
Mean characteristic impedance	7.1.5	…Ω ±…Ω	
Regularity of impedance	7.1.6		
Relative propagation velocity (velocity ratio)	7.1.7	…% to … %	
Return loss	7.1.8	at … MHz ≥ … dB	Length of specimen: m If necessary, refer to a table or graph at the end of the detail specification
Attenuation	7.1.9	at … MHz ≤ dB/100 m	If necessary, refer to a table or graph at the end of the detail specification
Intermodulation (IM3)	7.1.10	≤ - … dBm	f1 = … MHz [a] f2 = … MHz [a] Input power: W Only applicable to 50 Ω cable variants
Screening attenuation	7.1.11	≥ … dB	≥ 100 dB (after multiple bending) according IEC 61196-8-1
Insulation resistance	7.1.12	≥ … MΩ • km	≥ 10^4 MΩ • km according to IEC 61196-8
Environmental characteristics	7.2		
Cold bend performance	7.2.1	NS	See IEC 61196-8
Resistance soldering	7.2.2	NS	See IEC 61196-8
Ageing	7.2.3	NS	See IEC 61196-8
Mechanical characteristics	7.3		
Visual examination	7.3.1	NS	See IEC 61196-8
Ovality of dielectric	7.3.2	≤ …%	
Ovality of the sheath	7.3.3	≤ …%	
Eccentricity of dielectric	7.3.4	≤ …%	
Adhesion testing	7.3.5	≥… N	
Bending	7.3.6	As specified in the relevant detailed specification	a) Procedure 2 to be used b) Test mandrel diameter: mm c) Number of cycles: 2 d) Number of turns: 1 e) Test temperature: 20 °C ± 5 °C
Repeated bending	7.3.7	As specified in the relevant detailed specification	a) Angle of displacement: …° b) Number of cycles: … c) Mass of the weight: …kg d) Bending radius R: …mm e) Test temperature: 20 °C ± 5 °C
Tensile strength of cable	7.3.8	≥ … N	

[9] Parameter	[10] Subclause	[11] Value	[12] Remarks
(longitudinal pull)			
Pinhole of the finished cable	7.3.9	≤ 10 pinholes	Length of the specimen:1 m

[a] Frequencies are not always fixed frequencies, and can be a swept over a range. The test procedures for swept and fixed frequencies are described in Annex B of IEC 62037-1, edition 1.

N.S: for not specified, i.e. the appropriate requirement in the sectional specification shall apply.

N.A: for not applicable.