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Radio-frequency cables - Part 2: Sectional specification for semi-rigid radio-frequency and coaxial cables with polytetrafluoroethylene (PTFE) insulation (IEC 61196-2:1995)

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English version

**Radio-frequency cables**  
**Part 2: Sectional specification for semi-rigid radio-frequency**  
**and coaxial cables with polytetrafluoroethylene (PTFE) insulation**  
**(IEC 61196-2:1995)**

Câbles pour fréquences radioélectriques  
Partie 2: Spécification intermédiaire  
pour câbles coaxiaux et semi-rigides  
pour fréquences radioélectriques  
à isolation polytétrafluoroéthylène  
(CEI 61196-2:1995)

Hochfrequenzkabel  
Teil 2: Rahmenspezifikation für halb-starre  
Hochfrequenz- und Koaxialkabel mit  
Polytetrafluorethylen (PTFE) Isolation  
(IEC 61196-2:1995)

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This European Standard was approved by CENELEC on 2003-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

# CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of the International Standard IEC 61196-2:1995, prepared by SC 46A, Coaxial cables, of IEC TC 46, Cables, wires, waveguides, r.f. connectors, r.f. and microwave passive components and accessories, was submitted to the formal vote and was approved by CENELEC as EN 61196-2 on 2003-10-01.

This European Standard supersedes EN 61196-2:1995.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-10-01

Annexes designated "normative" are part of the body of the standard.  
Annexes designated "informative" are given for information only.  
In this standard, annex ZA is normative and annex A is informative.  
Annex ZA has been added by CENELEC.

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## Endorsement notice

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The text of the International Standard IEC 61196-2:1995 was approved by CENELEC as a European Standard without any modification.

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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60028	1925	International standard of resistance for copper	-	-
IEC 60068-2-20	1979	Basic environmental testing procedures Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 <sup>1)</sup>	1988
IEC 61196-1	1995	Radio-frequency cables Part 1: Generic specification - General definitions, requirements and test methods	-	-

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<sup>1)</sup> HD 323.2.20 S3:1988 is based on IEC 60068-2-20:1979 + A2:1987.

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Deuxième édition  
Second edition  
1995-06

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**Câbles pour fréquences radioélectriques –**

**Partie 2:**

Spécification intermédiaire pour câbles coaxiaux  
et semi-rigides pour fréquences radioélectriques  
à isolation polytétrafluoroéthylène

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**Radio-frequency cables –**

SIST EN 61196-2:2004

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**Part 2:**

Sectional specification for semi-rigid  
radio-frequency and coaxial cables  
with polytetrafluoroethylene (PTFE) insulation

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## RADIO-FREQUENCY CABLES -

**Part 2: Sectional specification for semi-rigid  
radio-frequency and coaxial cables  
with polytetrafluoroethylene (PTFE) insulation**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

International Standard IEC 1196-2 has been prepared by sub-committee 46A: Coaxial cables, of IEC technical committee 46: Cables, wires, waveguides, r.f. connectors and accessories for communication and signalling.

This second edition cancels and replaces the first edition published in 1993 of which it constitutes a minor revision.

IEC 1196-2 constitutes part 2 of a series of publications under the general title: Radio-frequency cables.

Annex A is for information only.

## RADIO-FREQUENCY CABLES –

### Part 2: Sectional specification for semi-rigid radio-frequency and coaxial cables with polytetrafluoroethylene (PTFE) insulation

#### Section 1: General

##### 1.1 Scope and object

This sectional specification specifies requirements for semi-rigid radio frequency and coaxial cables with polytetrafluoroethylene (PTFE) insulation.

It is intended to be used with the generic specification (IEC 1196-1).

The object of this sectional specification is to prescribe recommended ratings and characteristics and to select from the generic specification the appropriate quality assessment procedures, test and measuring methods, and to give general performance requirements for semi-rigid coaxial cables plus complementary test methods. Test severities and requirements prescribed in detail specifications referring to this sectional specification should be of equal or higher performance levels.

[SIST EN 61196-2:2004](https://standards.iteh.ai/catalog/standards/sist/0e32aef7-caf0-4676-9609-e77d8150d987/sist-en-61196-2-2004)

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##### 1.2 Normative references

[e77d8150d987/sist-en-61196-2-2004](https://standards.iteh.ai/catalog/standards/sist/0e32aef7-caf0-4676-9609-e77d8150d987/sist-en-61196-2-2004)

The following normative documents contain provisions which, through reference in this text, constitute provisions of this sectional specification. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this sectional specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 28: 1925, *International Standard of resistance for copper*

IEC 68-2-20: 1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 1196-1: 1995, *Radio-frequency cables – Part 1: Generic specification: General, definitions, requirements and test methods*

##### 1.3 Definitions

For the definitions of general terms used in this specification, reference should be made to the generic specification.

#### 1.4 Information to be given in a detail specification

Detail specifications shall not specify requirements inferior to those in the generic or sectional specification. When more severe requirements are included, they shall be listed in the detail specification and indicated in the test schedules.

Information covered in 1.4.1 to 1.4.4 shall be included in the detail specification and the value quoted shall be selected from the preferred values given in this sectional specification. Examples of detail specifications are given in annex A.

##### 1.4.1 *Outline drawing and dimensions*

There shall be an illustration of the cable as an aid to easy recognition and for comparison of the cable to others. As a minimum requirement, the diameter of the dielectric and the outer diameter of the cable shall be specified. All dimensions and their tolerances which affect interchangeability and termination shall be given in millimetres and tabulated below the drawing.

##### 1.4.2 *Materials*

The detail specification shall specify the materials of both the inner and outer conductors. The insulation shall be of solid polytetrafluoroethylene having a thickness as specified in the detail specification.

##### 1.4.3 *Ratings and characteristics*

The ratings and characteristics shall be in accordance with the relevant clauses of this specification.

##### 1.4.4 *Marking of package*

The package containing the cable shall be clearly marked with the manufacturer's name and the cable IEC type designation.

## Section 2: Ratings and characteristics

The values given in the detail specification shall be selected from the following recommended requirements.

### 2.1 Climatic category

Due to the particular structure of semi-rigid coaxial cables and the associated differential thermal expansion coefficients of materials, rated temperatures are specific for each cable and shall be given in the detail specification.

The operating temperature range is between the limits within which a cable may be operated continuously without any reduction in the basic properties of the cable. This includes the ambient temperature plus the increased temperature due to cable operation.

The temperature range is given as a guideline, since the mechanical, environmental and electrical requirements of the application can affect the operating temperature range. In no case shall the testing temperatures be considered as giving the operating temperature range. Testing is usually carried out under accelerated conditions in an attempt to reveal any faults in the materials used in the construction of the cable assembly.

The maximum power-handling capability, in watts, is the amount of power that a coaxial cable can safely transmit without overheating or developing a dielectric breakdown throughout the usable frequency range. The safe power-handling capabilities are shown on the associated curves. These curves have been derated with an assumption of a VSWR of 2 and an ambient temperature of 25 °C. The curves have also taken into account the effects of a typical system installation, for example bends, clamps and thermally insulated sections.

## 2.2 Recommended ratings

### 2.2.1 Characteristic impedance

Preferred values are 50 Ω or 75 Ω.

### 2.2.2 Tolerance on characteristic impedance

Tolerances on rated characteristic impedances shall be selected from the following values:

$$\pm 0,5 \Omega, \pm 1 \Omega, \pm 1,5 \Omega, \pm 2 \Omega$$

### 2.2.3 Rated temperature

The standard value of rated temperature is 20 °C.

## Section 3: Additional requirements

### 3.1 Design and construction of outer conductor

The outer conductor shall be a smooth and continuous metallic tube, either of copper or light metal alloy.

#### *Copper*

The type used shall be annealed, electrolytically refined with a copper content of at least 99,9 % and an electrical conductivity of at least 100 % according to IEC 28.