

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

Coaxial communication cables –  
Part 1-100: Electrical test methods – General requirements  
(standards.iteh.ai)

Câbles coaxiaux de communication –  
Partie 1-100: Méthodes d'essais électriques – Exigences générales

<https://standards.iteh.ai/catalog/standards/sis/5076552-0c50-41b9-91c5-426f525b619b/iec-61196-1-100-2015>





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IEC 61196-1-100

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**COAXIAL COMMUNICATION CABLES –****Part 1-100: Electrical test methods –  
General requirements**

## FOREWORD

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International Standard IEC 61196-1-100 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.

This second edition cancels and replaces the edition published in 2005. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- a) ambient conditions are specified more in detail;
- b) the list of related standards of the IEC 61196 series was moved to Annex A.

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

FDIS	Report on voting
46A/1231/FDIS	46A1235/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 standard is intended to be read in conjunction with IEC 61196-1. It is based on the second edition (2005) of that standard.

A list of all parts of the IEC 61196 series, 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- withdrawn,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.

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## COAXIAL COMMUNICATION CABLES –

### Part 1-100: Electrical test methods – General requirements

#### 1 Scope

This part of IEC 61196 gives the general requirements and conditions for electrical tests to be performed on coaxial communication cables and applies to the IEC 61196-1-1xx series, which specifies electrical test methods for coaxial communication cables.

Further test details (for example, temperature, duration) and/or test requirements are given in the relevant cable standard.

#### 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 61196-1-100:2015](https://standards.iteh.ai/catalog/standards/sist/307c535e-6c30-4113-91e3-426f525b619b/iec-61196-1-100-2015)

#### 3 Terms and definitions

<https://standards.iteh.ai/catalog/standards/sist/307c535e-6c30-4113-91e3-426f525b619b/iec-61196-1-100-2015>

For the purposes of this document, the terms and definitions given in IEC 61196-1 apply.

#### 4 Sample

##### 4.1 Cable under test (CUT)

Unless otherwise specified in the relevant test method, the length of the CUT shall be selected to take into account the dynamic range of the measuring equipment and the frequency range specified to yield the required level of accuracy. The length should be measured with an accuracy better than 1 % unless otherwise stated in the relevant cable specification.

##### 4.2 Pre-conditioning

The CUT shall be pre-conditioned at a constant ambient temperature for such a time as to allow the specimen temperature to stabilize according to 6.1.

#### 5 Tests

The tests required and performance characteristics applicable to each type of cable are given in the relevant cable standard.

## 6 Test conditions

### 6.1 Ambient conditions

Tests shall be made at:

- temperature: 15 °C to 35 °C,
- relative humidity: 25 % to 75 % (no condensation),
- air pressure: 86 kPa to 106 kPa,

unless otherwise specified.

### 6.2 Tolerance on temperature values

Unless otherwise specified in the relevant specification, the tolerance on temperature shall be  $\pm 2$  °C.

### 6.3 Frequency range and stability for frequency-related measurements

The required frequency range is specified in the relevant sectional specification.

The sweep shall be linear or logarithmic such that:

$$f_{\text{step}} = (f_{\text{stop}} - f_{\text{start}})/(n-1) \text{ for the linear sweep} \quad (1)$$

and

$$K = \left( \frac{f_{\text{stop}}}{f_{\text{start}}} \right)^{\frac{1}{n-1}} \text{ for the logarithmic sweep} \quad (2)$$

where

$f_{\text{start}}$  is the lowest specified frequency;

$f_{\text{stop}}$  is the highest specified frequency;

$f_{\text{step}}$  is the linear frequency increment, constant over the whole specified frequency range;

$n$  is the number of frequency points;

$K$  is the logarithmic frequency increment.

Unless otherwise specified, the minimum number of frequency points shall be 200 per decade.

## 7 Test report

The test report shall include the measurements results and the actual measuring conditions with their maximum deviations.



## Annex A (informative)

### Electrical test methods of the IEC 61196-1-1xx series

IEC 61196-1-1xx series consists of the following documents:

IEC 61196-1-100	General requirements
IEC 61196-1-101	Test for conductor d.c. resistance of cable
IEC 61196-1-102	Test for insulation resistance of cable dielectric
IEC 61196-1-103	Test for capacitance of cable
IEC 61196-1-104	Test for capacitance stability of cable
IEC 61196-1-105	Test for withstand voltage of cable dielectric
IEC 61196-1-106	Test for withstand voltage of cable sheath
IEC 61196-1-107	Test for cable microphony charge level (mechanically induced noise)
IEC 61196-1-108	Test for characteristic impedance, phase and group delay, electrical length and propagation velocity
IEC 61196-1-110	Continuity <sup>1</sup>
IEC 61196-1-111	Stability of phase test methods
IEC 61196-1-112	Test for return loss (uniformity of impedance)
IEC 61196-1-113	Test for attenuation constant
IEC 61196-1-114	Inductance <sup>2</sup>
IEC 61196-1-115	Test for regularity of impedance (pulse/step function return loss)
IEC 61196-1-116	Characteristic Impedance with TDR <sup>3</sup>
IEC 61196-1-119	RF power rating
IEC 61196-1-122	Test for cross-talk between coaxial cables

Publication dates, stability dates and further information can be found on the IEC web site [www.iec.ch](http://www.iec.ch)

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<sup>1</sup> Under consideration.

<sup>2</sup> Under consideration.

<sup>3</sup> Under consideration.

## Bibliography

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org/>)

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