

# INTERNATIONAL STANDARD

Coaxial communication cables –  
Part 1-113: Electrical test methods – Test for attenuation constant



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## COAXIAL COMMUNICATION CABLES –

**Part 1-113: Electrical test methods –  
Test for attenuation constant**

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International Standard IEC 61196-1-113 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/937/FDIS	46A/938/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.

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 maintenance result 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- withdrawn,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 1-113: Electrical test methods – Test for attenuation constant

#### 1 Scope

This part of IEC 61196 applies to coaxial communications cables. It specifies a test method for determining the attenuation constant of coaxial cables for use in communications systems. The test is applicable preferably at frequencies  $\geq 5$  MHz but also for lower frequencies if the magnitude of the complex characteristic impedance is approximately equal to the nominal characteristic impedance of the specimen or if a form fitting function is applied.

#### 2 Normative references

The normative references given in IEC 61196-1 (2005) constitute provisions of this part of IEC 61196.

#### 3 Attenuation constant

The attenuation constant is defined as

$$\alpha = 10 \cdot \log_{10} \left( \frac{P_1}{P_2} \right) \cdot \frac{100}{l} \text{ in dB/100 m} \quad (1)$$

where

$\alpha$  is the attenuation constant in dB/100 m (frequency dependent);

$P_1$  is the output power of a source where the load impedance and the source impedance are equal and of the same value as the nominal value of the specimen;

$P_2$  is the output power measured when the specimen is inserted into the test system, where the load impedance and the source impedance are equal and of the same value as the nominal value of the specimen;

$l$  is the physical length of the specimen in metres (m).

#### 4 Test method

##### 4.1 Equipment

The following equipment is used:

- a vector network analyser (VNA) capable of performing S21 measurements;
- an impedance matching adapter to match the nominal characteristic impedance of the specimen to the impedance of the VNA.