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INTERNATIONAL STANDARD

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

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FOREWORD

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IEC 61196-1-113 has been prepared by subcommittee 46A: Coaxial cables, of IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories. It is an International Standard.

This third edition cancels and replaces the second edition published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) add Clause 3 "Terms and definitions";
b) add Clause 4 "Test environment";
c) add Clause 5 "Preconditioning";
d) add Subclause 7.1 "General";

e) add detail test methods including 7.2 "long cable methods" and 7.3 "double-cable method";

f) add "Annex A Stability of attenuation constant at different temperatures";

g) add "Annex B Test examples of stability of attenuation constants at different temperature".

The text of this International Standard is based on the following documents:

Draft	Report on voting
46A/1688/FDIS	46A/1693/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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 ≥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 test sample (TS) or if a form fitting function is applied.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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: General specification – General, definitions and requirements*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
attenuation constant
real part of the propagation coefficient, defined as

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

where

α is the attenuation constant of the cable, dB/100 m;

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 test sample (TS), W;

P_2 is the output power measured when the test sample (TS) 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 test sample (TS), W;

l is the physical length of the test sample (TS), m.