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INTERNATIONAL STANDARD

Coaxial communication cables –
Part 1-103: Electrical test methods – Test for capacitance of cable

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FOREWORD

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International Standard IEC 61196-1-103 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 first edition published in 2005. This edition constitutes a technical revision. This edition includes the following significant technical change with respect to the previous edition:

Subclause 4.2, Requirements for the test sample.

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

FDIS	Report on voting
46A/1262A/FDIS	46A/1267/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 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

COAXIAL COMMUNICATION CABLES –

Part 1-103: Electrical test methods – Test for capacitance of cable

1 Scope

This part of IEC 61196 applies to coaxial communications cables. It specifies test methods for determining the capacitance.

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

IEC 61196-1, *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050 and in IEC 61196-1 apply.

4 Test method

4.1 Equipment

The capacitance shall be measured by means of equipment capable of measuring accurately to within <1 % of the values to be determined at a frequency range between 500 Hz and 2 kHz.

4.2 Test sample

The length of the cable under test (CUT) shall be approximately 15 m, except that for cables with solid outer conductors the CUT shall be approximately 3 m known to within ≤ 1 %.

Both ends of the CUT shall be prepared to avoid stray capacitance.

4.3 Procedure

The capacitance shall be measured between the inner and outer conductor. The test shall be carried out on the CUT after a contact and continuity test.

The ambient temperature shall be recorded.

5 Expression of test results

5.1 Expression

The test results should be normalized to the reference length of 1 m.

$$C = \frac{C_{\mathrm{m}}}{L}\left(\mathrm{pF/m}\right)$$

where

C is the capacitance of reference length at measuring temperature;

C_{m} is the measured capacitance value of the CUT in picofarads;

L is the length of the sample in metres.

NOTE Capacitance is usually given in pF/m (picofarads/meter) which is equal to nF/km (nanofarads/kilometer).

6 Test report

The test report shall give the test conditions:

- temperature,
- sample length,
- test frequency,
- measured cable capacitance

and record the calculated values for the reference length of 1 m.

7 Requirements

The capacitance of the CUT shall comply with the requirements of the relevant detailed specification.

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