भारतीय मानक **IS/IEC 61196-1-104 : 2015**

Indian Standard

समाक्ष संचार केबल

भाग 1 विद्युत परीक्षण पद्धतियाँ

अनुभाग 104 तापमान बनाम केबल की धारिता की स्थिरता के लिए परीक्षण

(पहला पुनरीक्षण)

Coaxial Communication Cables

Part 1 Electrical Test Methods

Section 104 Test for the Stability of the Capacitance of Cable Versus Temperature

(First Revision)

ICS 33.120.10

भारतीय मानक ब्यूरो
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Wires, Cables, Waveguides & Accessories Sectional Committee, LITD 06

NATIONAL FOREWORD

This Indian Standard (Part 1/Sec 104) (First Revision) which is identical to IEC 61196-1-104 : 2015 'Coaxial communication cables — Part 1-104: Electrical test methods — Test for the stability of the capacitance of cable versus temperature' issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on the recommendations of the Wires, Cables, Waveguides & Accessories Sectional Committee and approval of the Electronics and Information Technology Division Council.

This standard was first published in 2012 and was identical to IEC 61196-1-104 : 2005. This revision of this standard has been brought out to align it with the latest version of IEC 61196-1-104 : 2015.

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

a) Subclause **4.2**, requirements for the test sample; and

b) Change in the title of Part 1-104.

The text of IEC standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'; and

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to the following International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is listed below along with its degree of equivalence for the edition indicated. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International Standards	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60050 (All Parts) International Electrotechnical Vocabulary	IS 1885 (All Parts) Electrotechnical vocabulary	Technically Equivalent
IEC 61196-1 Coaxial communication cables — Part 1: Generic specification — General, definitions and requirements	IS/IEC 61196-1 : 2005 Coaxial communication cables: Part 1 Generic specification — General, definitions and requirements	Identical
IEC 61196-1-103 Coaxial communication cables — Part 1-103: Electrical test methods — Test for capacitance of cable	IS/IEC 61196-1-103 : 2005 Coaxial communication cables: Part 1-103 electrical test methods — Test for capacitance of cable	Identical

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

CONTENTS

Indian Standard

COAXIAL COMMUNICATION CABLES

PART 1 ELECTRICAL TEST METHODS

SECTION 104 TEST FOR THE STABILITY OF THE CAPACITANCE OF CABLE VERSUS TEMPERATURE

1 Scope

This part of IEC 61196 applies to coaxial communications cables. It specifies test methods for determining the capacitance stability of the cable when subjected to temperature change.

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*

IEC 61196-1-103, *Coaxial communication cables – Part 1-103: Electrical test methods – Test for capacitance of cable*

3 Terms and definitions

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

4 Test method

4.1 Equipment

An environmental chamber of size and dimension capable of performing the test described herein is required.

The capacitance equipment shall be in accordance with IEC 61196-1-103.

4.2 Test sample

The test sample shall be in accordance with IEC 61196-1-103

4.3 Procedure

The capacitance shall be measured in accordance with IEC 61196-1-103.

The cable under test (CUT) shall be subjected to the applicable temperature cycle shown in Table 1 for a total of three cycles unless otherwise stated in the relevant sectional or detail specification.

The capacitance of the CUT shall be measured initially and after each step at the actual test temperature.

Table 1 – Temperature cycling

Step	Foamed PE dielectric type Temperature ºC	PE dielectric type Temperature ºC	PTFE dielectric type Temperature ºC	Time hours
initial	20 ± 2	20 ± 2	20 ± 2	2 minimum
1	+65 ± 2	+75 ± 2	+250 ± 5	2 minimum
2	+20 ± 2	+20 ± 2	+20 ± 2	2 minimum
3	-40 ± 2	-40 ± 2	-55 ± 2	2 minimum
4	+20 ± 2	+20 ± 2	+20 ± 2	2 minimum

For other dielectric materials the test temperatures and testing hours shall be stated in the relevant sectional or detail specification.

5 Expression of test results

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 sample in metres.

6 Test report

The test report shall record the test conditions given below at each temperature step:

- temperatures,
- number of cycles, if different from three,
- sample length,
- test frequency,
- cable capacitance at each step

and record the deviation from the initial value in pF/m for each temperature step as stated in the relevant sectional or detail specification.

7 Requirements

The deviation of the capacitance from the initial value in pF/m for each temperature step of the CUT shall comply with the requirements of the relevant detailed specification.

Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

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Amendments Issued Since Publication

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