IEC 61196-1-206

Edition 2.0 2017-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Coaxial communication cables –
Part 1-206: Environmental test methods – Climatic sequence

Câbles coaxiaux de communication –
Partie 1-206: Méthodes d'essai d'environnement – Séquence climatique

IEC 61196-1-206:2017-11(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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FOREWORD

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International Standard IEC 61196-1-206 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.

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 changes with respect to the previous edition: it utilizes the test method of IEC 60068-2-61: *Environmental Testing – Part 2-61: Test methods – Test Z/ABDM: Climatic sequence,* which replaces the thermal cycle test.

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

FDIS	Report on voting
46A/1338/FDIS	46A/1349/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

COAXIAL COMMUNICATION CABLES –

Part 1-206: Environmental test methods – Climatic sequence

1 Scope

This part of IEC 61196 specifies the method of test to determine the stability of transmission performance of a finished RF coaxial cable when subjected to a set of temperatures, temperature changes, and humidity stresses that would accelerate exposures observed in storage and transportation.

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 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-61, *Environmental testing – Part 2-61: Test methods – Test Z/ABDM: Climatic sequence*

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 61196-1 apply.

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

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

4 Test sample

The length of the cable under test (CUT) shall be of sufficient length as indicated in the sectional or the detail specification to achieve the desired accuracy.

In order to gain reproducible values, it may be necessary for the CUT to be brought into the climatic chamber as a loose coil or on a reel, depending on the installation practice.

The ends of the cable shall be terminated with a suitable connector to enable the specified RF transmission performance.

5 Test equipment

The equipment for the test method is as follows:

a) appropriate transmission measuring apparatus for determination of changes in transmission performance;

b) temperature chamber of producing the required hot and cold exposures;

c) humidity chamber.

6 Test procedure

6.1 General

Test method 1 of IEC 60068-2-61 shall be used.

The method consists of exposing the specimen to an environmental sequence of hot, humidity, cold, and humidity.

6.2 Initial measurement

The CUT shall be visually inspected and then evaluated for the specified RF transmission parameters.

The test should be done at standard atmospheric conditions.

6.3 Climatic exposure

6.3.1 General

This method contains four steps.

6.3.2 Step 1: Dry heat

a) The specimen shall be exposed to the dry heat test at the upper temperature limit of the cable but not less than 70 °C for 16 hours.

b) After exposure, the CUT shall be removed from the chamber and allowed to recover for 1 hour to 2 hours in standard atmospheric conditions, unless the CUTS have a large thermal time constant which may need a longer period.

c) Step 2 shall proceed within 72 hours of completion of step 1.

6.3.3 Step 2: Damp heat

a) The CUT shall be exposed to one cycle of the damp heat cyclic test of IEC 60068-2-30. The upper temperature shall be 55 °C.

b) After exposure, the CUT shall be removed from the chamber and allowed to recover for 1 hour to 2 hour in standard atmospheric conditions, unless the CUTS have a large thermal time constant which may need a longer period.

c) Immediately after recovery, the CUT shall be subjected to step 3.

6.3.4 Step 3: Cold

a) The CUT shall be exposed to the cold test Ab of IEC 60068-2-1.

b) The duration of the test should be 16 hours.

c) After exposure, the CUT shall be removed from the chamber and allowed to recover for 1 hour to 2 hours in standard atmospheric conditions, unless the CUTS have a large thermal time constant which may need a longer period.

d) Step 4 shall proceed within 72 hours of completion of step 3.

6.3.5 Step 4: Damp heat

a) The conditions of step 2 shall be repeated as determined by the climatic category rating of the product

  i) Climatic category -/-/21 shall be 1 cycle

  ii) Climatic category -/-/56 shall be 5 cycles

b) After exposure, the CUT shall be removed from the chamber and allowed to recover for 1 hour to 2 hours in standard atmospheric conditions, unless the CUT has a large thermal time constant which may need a longer period.

6.4 Final measurements

The CUT shall be visually inspected and then evaluated for the specified RF transmission parameters.

7 Test report

The test report shall include:

a) the cable model designation;

b) the cable sample length;

c) the connectors used;

d) the winding diameter including number of windings;

e) the type of measurement equipment used;

f) the recovery time used;

g) the number of cycles for step 2 in the humidity test;

h) the temperatures used in the dry heat and cold exposure tests;

i) the pass/fail criteria;

j) the test results.

8 Requirements

The pass/fail criteria shall be given in the relevant detailed specification.