SLOVENSKI STANDARD
oSIST prEN IEC 60068-2-30:2024

01-junij-2024

Okoljski preskusi - 2-30. del: Preskusi - Preskus db: Vlažna toplota, ciklična (12 h + 12-urni cikel)

Environmental testing - Part 2-30: Tests - Test db: Damp heat, cyclic (12 h + 12 h cycle)

Umgebungseinflüsse - Teil 2-30: Prüfverfahren - Prüfung Db: Feuchte Wärme, zyklisch (12 + 12 Stunden)

Essais d'environnement - Partie 2-30: Essais - Essai db: Essai cyclique de chaleur humide (cycle de 12 h + 12 h)

Ta slovenski standard je istoveten z: **prEN IEC 60068-2-30:2024**

ICS:

19.040	Preskušanje v zvezi z okoljem	Environmental testing

oSIST prEN IEC 60068-2-30:2024 **en**

104/1048/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 60068-2-30 ED4	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2024-04-19	**2024-07-12**
SUPERSEDES DOCUMENTS:	
104/1018/CD, 104/1029B/CC	

IEC TC 104 : ENVIRONMENTAL CONDITIONS, CLASSIFICATION AND METHODS OF TEST

SECRETARIAT:	SECRETARY:
Sweden	Mr Henrik Lagerström
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING
Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

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

PROPOSED STABILITY DATE: 2031

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

International Standard IEC 60068-2-30 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This fourth edition cancels and replaces the third edition, published in 2005 and constitutes a technical revision.

The major changes with regard to the previous edition concern:

a) revision of the requirements for the test chamber;
b) revision of the temperature tolerances of the test;
c) updating of the figures for clarification purposes;
d) revision of the limits of the temperature and relative humidity during conditioning;
e) revision of the intermediate measurements;
f) revision of standardized requirements for the test report.

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

FDIS	Report on voting
104/369/FDIS	104/374/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.

This standard forms Part 2-30 of IEC 60068 which consists of the following major parts, under the general title *Environmental testing*:

Part 1: General and guidance;

Part 2: Tests;

Part 3: Supporting documentation and guidance;

Part 4: Information for specification writers;

Part 5: Guide to drafting of test methods.

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.

ENVIRONMENTAL TESTING –

Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)

1 Scope

This document specifies a test procedure to determine the suitability of components, equipment, or other articles for use, transportation, and storage under conditions of high humidity combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen. This test method can also be used to validate the packaging of specimen for transportation and storage.

This document does only in exceptional cases apply to specimens that are energized throughout the test.

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 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-67, *Environmental testing – Part 2-67: Tests – Test Cy: Damp heat, steady state, accelerated test primarily intended for components*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-1 apply.

No terms and definitions are listed in this document.

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 General description

This test comprises one or more temperature cycles in which the relative humidity is maintained at a high level.

Two variants of the cycle are given which are identical except for the cooling period; during this part of the cycle, Variant 2 allows wider limits of relative humidity and the temperature change rate.

The conditioning temperature and the number of cycles (see Clause 6) determine the test severity.

Test profiles illustrating the procedure are shown in Figure 3 to Figure 5.

NOTE For small, low mass specimens, it can be difficult to produce condensation on the surface of the specimen using this procedure; considering an alternative test such as Test Z/AD (IEC 60068-2-38) can be helpful.

5 Description of test chamber

The test chamber shall be so constructed that:

a) the temperature in the can be varied cyclically between 22 °C to 28 °C and the appropriate high conditioning temperature in a period specified in 7.4 as well as Figure 3 to Figure 5, as applicable;

b) the relative humidity in the working space can be maintained within the limits of Variant 1 or Variant 2 or both as given in 7.4 as well as in Figure 3 to Figure 5, as applicable;

c) the conditions prevailing at any point in the working space are uniform and are as similar as possible to those prevailing in the immediate vicinity of suitably located temperature- and humidity-sensing devices; the air in the chamber will therefore be continuously stirred at a rate necessary to maintain the specified conditions of temperature and humidity;

d) the specimen under test is not subjected to radiant heat from the chamber conditioning processes;

e) the water used for the chamber humidity system complies with the limits given in IEC 60068-2-67;

f) any water is continuously drained from the chamber and not used again unless it has been re-purified;

g) the materials used in the construction do not cause any significant corrosion of the specimen, or degradation of the quality of the humidifying water;

h) injected moisture, when applicable, is not directly applied to the specimen but injected remotely from the specimen.

NOTE All temperatures and humidity values measured refer to the control sensor of the test chamber.

Precautions should be taken to ensure that no condensed water from the walls and roof of the test chamber can fall on the specimen. The specimen should not significantly impede the air flow.

Where no specific mounting is prescribed, the thermal conduction of the mounting shall be low, so that for all practical purposes the specimen is thermally isolated.

6 Severities

The combination of the test variant, the conditioning temperature and the number of cycles define the severity of this test.

The severity shall be chosen from the methods given in Table 1:

Table 1 - Severities of Test Db

Method	Variant	High conditioning temperature	Number of cycles
I	1	38 °C to 42 °C	2, 6, 12, 21, 56
II		53 °C to 57 °C	1, 2, 6
III	2	38 °C to 42 °C	2, 6, 12, 21, 56
IV		53 °C to 57 °C	1, 2, 6

7 Testing procedure

7.1 General

The specimens shall be introduced into the chamber either in the unpacked, switched-off, ready-for-use state, or as otherwise specified in the relevant specification.

This test standard does not apply to specimens that are energized during the complete test, except in exceptional cases. Specimens can be energized during the constant phases of the tests. Measurements on energized specimens are typically carried out during constant phases of the test unless specified otherwise (see 7.5).

Where no specific mounting is prescribed, the thermal conduction of the mounting shall be low, so that for all practical purposes the specimen is thermally isolated.

The dimensions, properties and/or electrical loading of the specimens under test shall not appreciably influence conditions within the test chamber.

The temperature and relative humidity limits given in this document are intended to take into account errors in the measurement, slow changes of temperature, and temperature variations of the working space.

NOTE 1 For further information on the working space, see IEC 60068-3-6.

The temperature and relative humidity refer to the control sensor of the test chamber, if not specified otherwise

The limits stated in this document do not take measurement uncertainty into consideration.

NOTE 2 The limits are valid for an empty test space during stabilized temperature/humidity conditions of the test. In some conditions, where the specimen has a negligible impact on the chamber control, the limits can still be valid for the chamber with specimen(s). For further information on the operation of a test chamber with specimens, see IEC 60068-3-7 and IEC 60068-3-11.

NOTE 3 To maintain the relative humidity within the required limits, it can be necessary to keep the temperature difference between any two points in the working space at any moment within narrower limits.

The dimensions of the specimen shall be such that it is entirely within the working space of the test chamber. The specimen shall not be placed directly on the floor of the test chamber.

7.2 Preconditioning

The temperature of the specimens shall be stabilized between 22 °C and 28 °C.

This shall be achieved by either placing the specimens in a separate test chamber before introducing it into the test chamber or adjusting the temperature of the test chamber accordingly to stay within the specified limits (22 °C to 28 °C) after the introduction of the specimens and maintaining them at this level until the specimens attain temperature stability. A representative point (or points) on the specimen can be used for this measurement.

During the stabilization of temperature by either method, the relative humidity shall be within the limits specified for standard atmospheric conditions for measurement and test (see IEC 60068-1), 25 % RH to 75 % RH (see Figure 1)

Following stabilization, with the specimens in the test chamber, the relative humidity shall be increased to not less than 95 % RH at a test chamber temperature of 22 °C to 28 °C in a time not exceeding 1 h.

After the stabilization of the relative humidity in the test chamber the first test cycle begins.