

INTERNATIONAL STANDARD

NORME INTERNATIONALE

BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

**Environmental testing –
Part 2-78: Tests – Test Cab: Damp heat, steady state**

**Essais d'environnement –
Partie 2-78: Essais – Essai Cab: Chaleur humide, essai continu**

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ENVIRONMENTAL TESTING –

Part 2-78: Tests – Test Cab: Damp heat, steady state

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60068-2-78 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

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

FDIS	Report on voting
104/207/FDIS	104/214/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 3.

It has the status of a basic safety publication in accordance with IEC Guide 104.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

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- withdrawn;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

ENVIRONMENTAL TESTING –

Part 2-78: Tests – Test Cab: Damp heat, steady state

1 Scope

This part of IEC 60068 provides a test method for determining the suitability of electrotechnical products, components or equipment for transportation, storage and use under conditions of high humidity. The test is primarily intended to permit the observation of the effect of high humidity at constant temperature without condensation on the specimen over a prescribed period.

This test provides a number of preferred severities of high temperature, high humidity and test duration. The test can be applied to both heat-dissipating and non-heat-dissipating specimens.

The test is applicable to small equipment or components as well as large equipment having complex interconnections with test equipment external to the chamber, requiring a set-up time which prevents the use of preheating and the maintenance of specified conditions during the installation period.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60068. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However parties to agreements based on this part of IEC 60068 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

IEC 60068-2-2, *Basic environmental testing procedures – Part 2: Tests – Tests B: Dry heat*

3 General description

In this test, the specimen is introduced into the chamber, both of which are at laboratory temperature.

The conditions in the chamber are adjusted to the severity required according to clause 5 and maintained for the prescribed time.

Because the conditions of temperature and humidity adjacent to a heat-dissipating specimen can be different from the specified test values, the measurement of these parameters is prescribed in the manner used for free air conditions (see 4.4 and 4.6.2 of IEC 60068-1).

4 Test chamber

The chamber and measuring system shall be such that:

- a) sensing devices can be located in the working space to monitor the temperature and humidity. For the testing of heat dissipating specimens, the devices are located at positions as defined in IEC 60068-1;
- b) the temperature and relative humidity in the working space can be maintained at the values and within the tolerances prescribed, taking into account the effect of the specimen under test on chamber conditions. The temperature tolerances given in clause 5 are intended to take account of absolute errors in measurements and slow changes of temperature.

For heat-dissipating specimens, the temperature and relative humidity near the specimen are influenced by the effect of heat-dissipation of the specimen itself and can be different from the values measured in the positions defined in IEC 60068-1;

- c) condensed water is continuously drained from the chamber and not re-used until re-purified;
- d) no condensed water from the walls and roof of the test chamber can fall on the specimens;
- e) water utilized for the maintenance of chamber humidity shall have a resistivity of not less than 0,05 MΩcm;
- f) the specimen under test shall not be subjected to radiant heat from the chamber conditioning devices;
- g) in injection-type chambers, moisture shall be injected remotely from the specimen and without impinging directly on it.

4.1 Testing of heat-dissipating specimens

The volume of the test chamber shall be at least five times the total volume of the specimen under test.

The distance between the specimen and the chamber walls shall be in accordance with appendix A of IEC 60068-2-2. The air speed within the chamber shall be commensurate with achieving the desired conditions.

4.2 Mounting of the specimens

The relevant specification shall prescribe specific mounting structures, which shall replicate or simulate the thermal characteristics applicable in real life conditions. If these conditions are not defined, the mounting device shall have the minimum influence on the heat and humidity exchanges between specimen and surrounding conditions.