

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Environmental testing –  
Part 2-39: Tests – Tests and guidance: Combined temperature or temperature  
and humidity with low air pressure tests**

**Essais d'environnement –  
Partie 2-39: Essais – Essais et lignes directrices: Essais combinés de  
température ou de température et d'humidité à basse pression atmosphérique**



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

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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ICS 19.040

ISBN 978-2-8322-2897-5

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ENVIRONMENTAL TESTING –

**Part 2-39: Tests –  
Tests and guidance: Combined temperature or  
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## FOREWORD

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International Standard IEC 60068-2-39 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This second edition cancels and replaces the first edition published in 1976 and constitutes a technical revision.

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

- a) preferred severities of the IEC 60068 series;
- b) combined temperature, humidity and low air pressure

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

FDIS	Report on voting
104/657/FDIS	104/661/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 parts in the IEC 60068 series, published under the general title *Environmental testing*, 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- withdrawn,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.

## INTRODUCTION

Equipment and components are required to function without significant reduction in performance when subjected to different environmental parameters. The combination of temperature, humidity and low air pressure may have certain effects on components and gaskets, for example.

The type and severity of the environmental parameters depend on the operational, transport and storage environments to which the equipment and components are subjected. The environmental effects on the performance of equipment in the tropics and subtropics are totally different from those in arctic regions. Individual environmental parameters cause a variety of different and overlapping effects on the equipment and components.

The manufacturer attempts to ensure, and the user expects, that equipment and components will survive the environments to which they will be subjected throughout their useful life. This expectation can be assessed by exposure of the specimen to a range of simulated environmental parameters controlled in the laboratory. The severity of the environmental parameters is often increased to obtain meaningful results in a relatively short period of time. This allows assessment of the likely effects of applied environmental conditions.

## ENVIRONMENTAL TESTING –

### Part 2-39: Tests – Tests and guidance: Combined temperature or temperature and humidity with low air pressure tests

#### 1 Scope and object

This part of IEC 60068 provides a description of test methods and guidance for testing of equipment or components under combined temperature or temperature and humidity with low air pressure tests.

The object of combined testing is to investigate to what extent the equipment or components are affected by combined temperature or temperature and humidity with low air pressure tests.

The method of combined tests detects electrical, mechanical or other physical variations.

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

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

#### 3 Terms and definitions

None.

#### 4 Testing

##### 4.1 General

All values of test parameters such as cold, dry heat, low air pressure, humidity, exposure time and conditions such as state of operation and so on, should be selected from the IEC 60068-2 series or the relevant specification.

The duration of exposure shall be measured from the time when temperature stability of the specimen has been reached under conditions of low air pressure. Temperature stability shall be according to IEC 60068-1.

It should preferably be tested with low air velocity.

##### 4.2 Preferred combinations

Preferred combinations of temperature, low air pressure and duration shall be selected from Table 1.