

INTERNATIONAL STANDARD

**Classification of environmental conditions -
Part 3-7: Classification of groups of environmental parameters and their
severities - Portable and non-stationary use**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC 60721-3-7 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test. It is an International Standard.

This third edition cancels and replaces the second edition published in 1995 and Amendment 1:1996. This edition constitutes a technical revision.

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

- a) most classes have been replaced by completely new classes based on the use of new information obtained from referenced Technical Reports;
- b) Table 1 through to Table 5 have been updated;
- c) the content of the five informative annexes has either been incorporated into the main body of the document or deleted.

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

Draft	Report on voting
104/1139/FDIS	104/1155/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60721 series, published under the general title *Classification of environmental conditions*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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1 Scope

This part of IEC 60721 classifies the groups of environmental parameters and their severities to which products are subject to during portable and non-stationary use. This includes periods of transfer, down time, maintenance and repair.

The environmental conditions encompassed by these groups include the environmental conditions occurring

- at locations where the product can be placed or used temporarily, and
- during the transfer of products between different locations.

The conditions of portable and non-stationary use to which products can be exposed include land-based and offshore, weatherprotected, and non-weatherprotected locations. The conditions also include those occurring during transfer between locations.

The environmental conditions specified in this document are applicable to products which are frequently moved from place to place, particularly when the transfer time can be a significant proportion of the product's lifetime. During such transfer, the product is unlikely to have any special packaging.

The environmental conditions specified in this document do not consider the use profile of the product, i.e., whether the product is used only during a temporary stationary state, during the state of transfer or arbitrary.

Accidental incidents such as fire, explosion and other unforeseen incidents are not included. However, it can be important to take their occurrence into account in special cases.

Micro-climates occurring within a product are not included.

Classification for stationary use, storage and transportation environmental conditions are given in other subparts of the IEC 60721-3 series.

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 60721-1, *Classification of environmental conditions - Part 1: Environmental parameters and their severities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60721-1 and the following apply.

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

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

3.1**portable and non-stationary use**

not permanently mounted on any one structure or placed at a fixed site and which may be operated either when stationary or been transferred between locations

3.2**weatherprotected**

protected from the influences of meteorological conditions

3.3**non-weatherprotected**

not protected from the influences of meteorological conditions

4 General

A product can be subjected to a range of environmental conditions during its lifetime. These conditions have been separated into classes described in IEC 60721-3-0. The classes given can be used for defining the maximum short-term environmental stresses on a product. However, they do not provide information regarding the long-term or total lifetime environmental stresses a product can experience. This means that no reliability or lifetime assessment is possible based on these classes alone. Refer to IEC 60721-2-1, IEC 60721-2-2, IEC 60721-2-3, IEC 60721-2-4 and IEC 60721-2-5 and applicable technical reports (IEC TR 62130 as well as IEC TR 62131-3, IEC TR 62131-4, IEC TR 62131-5 and IEC TR 62131-8) for further information on actual environmental conditions.

A product can be simultaneously exposed to a number of environmental parameters. For example, solar radiation and temperature, temperature and humidity, as well as vibration and temperature change. Combinations of the environmental parameters given can increase the stress effect on a product. Therefore, combined conditions should be considered in the design and evaluation of a product.

Products should be designed to survive and operate in different environments. Basically, they will be affected by environmental influences in two ways:

- by the effects of short-term extreme environmental conditions which can directly cause malfunction or destroy the product;
- by the effect of long-term subjection to non-extreme environmental stresses which can slowly degrade the product and finally cause malfunction or destruction of the product.

Short-term extreme environmental conditions can occur at any time in a product's life. A product can be unaffected by an extreme condition when it is new but fail when it is subjected to the same condition after being used for a long period of time due to the effect of ageing. The order in which the environmental conditions are applied can affect the results of an evaluation.

It is important for the product specification, when referring to a certain class in the IEC 60721-3 series, to define whether the product is required to be capable of operating or only to survive without permanent damage when being exposed to the conditions described by the class.