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Edition 2.0 2022-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Classification of environmental conditions – Part 2-6: Environmental conditions appearing in nature – Earthquake vibration and shock

Classification des conditions d'environnement – Partie 2-6: Conditions d'environnement présentes dans la nature – Vibrations et chocs sismiques



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 2-6: Environmental conditions appearing in nature – Earthquake vibration and shock

FOREWORD

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IEC 60721-2-6 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test. It is an International Standard.

This second edition cancels and replaces the first edition published in 1990. This edition constitutes a technical revision.

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

a) the main aim of this revision is to classify in a limited number of classes the seismic activity level of the zone where the equipment could be installed;
b) the correlation between intensity scales, magnitude scales and peak ground acceleration is deleted due to the scientific uncertainty to define such a correlation in a rigorous way;
c) updated scales are given both for intensity and for magnitude;

d) the earthquake zone map, which was not usable in practice, is replaced by an annex giving information about how to retrieve consistent peak ground acceleration distribution all over the world;

e) with regard to identification of the peak ground seismic acceleration of the zone, where the equipment could be installed, the user is made aware that national standards and laws can apply.

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

Draft	Report on voting
104/946/FDIS	104/952/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.

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.

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/standardsdev/publications.

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

INTRODUCTION

This part of IEC 60721 is one of a series dealing with the following subjects:

– environmental parameters and their severities (IEC 60721-1);
– environmental conditions appearing in nature (IEC 60721-2);
– classification of groups of environmental parameters and their severities (IEC 60721-3).

This part of IEC 60721 is intended to be used as background material when selecting appropriate severities of parameters relating to earthquakes for product application. Severities given in IEC 60721-1 [1][1] should be applied.

More detailed information can be obtained from specialist documentation and from technical literature, some of which is given in the bibliography.

[1] Numbers in square brackets refer to the Bibliography.

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 2-6: Environmental conditions appearing in nature – Earthquake vibration and shock

1 Scope

This part of IEC 60721 deals with environmental conditions appearing in nature related to earthquake vibrations and shocks.

Its object is to define some fundamental properties and quantities for characterization of earthquakes as background material for the severities to which products are liable to be exposed during storage and use. The accelerations given are for ground surface conditions only. Conditions related to structures are referred to but restricted to general case descriptions.

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 60068-3-3:2019, *Environmental testing – Part 3-3: Supporting documentation and guidance – Seismic test methods for equipment*.

ISO 2041, *Mechanical vibration, shock and condition monitoring – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-3-3 and ISO 2041 apply.

ISO and IEC maintain terminology 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 of earthquake

4.1 General

Influences from earthquakes are vibrations which can be modelled as stochastic processes and can affect products and provide stress in many ways.

This Clause 4 is intended to provide information on earthquake behaviour, and on the dynamic performance of products during earthquakes. Numerical values given are typical and illustrative but should not be considered as standard.