
**Mechanical vibration and shock —
Vibration and shock in buildings
with sensitive equipment —**

**Part 2:
Classification**

*Vibrations et chocs mécaniques — Vibrations et chocs dans les bâtiments
abritant des équipements sensibles —*

Partie 2: Classification



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed every three years with a view to deciding whether it can be transformed into an International Standard.

Attention is drawn to the possibility that some of the elements of this part of ISO/TR 10811 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 10811-2 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, Subcommittee SC 2, *Measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles and structures*.

ISO/TS 10811 consists of the following parts, under the general title *Mechanical vibration and shock — Vibration and shock in buildings with sensitive equipment*:

- *Part 1: Measurement and evaluation*
- *Part 2: Classification*

Annex A of this part of ISO/TS 10811 is for information only.

Introduction

This part of ISO/TS 10811 provides a simplified means of classifying site measurement data using a simplified spectrum which is characterized by three numbers. The basic idea for the classification is to fit a simplified constant displacement/constant velocity/constant acceleration spectrum to the measured one. The simplified spectrum will then be characterized by three numbers: one velocity r.m.s. value and two transition frequencies.

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Mechanical vibration and shock — Vibration and shock in buildings with sensitive equipment —

Part 2: Classification

1 Scope

This part of ISO/TS 10811 defines a method for the classification of shock and vibration in buildings from measurements in accordance with ISO/TS 10811-1. A classification system of environmental vibration conditions should serve as guidelines for designers, manufacturers and users of equipment sensitive to shock and vibration, and for building constructors.

The types of shock and vibration considered are those transmitted from floors, tables, walls, ceilings or isolation systems into an equipment unit. They can be generated by the following:

- a) external sources, for example traffic (by road, rail or air), or building and construction activities such as blasting, piling and vibratory compaction; the vibration response to sonic booms and acoustical excitations is also included, as well as weather-induced vibration;
- b) equipment for indoor use, such as punch presses, forging hammers, rotary equipment (air compressors, air conditioner systems, etc.) and heavy equipment transported or operated inside a building;
- c) human activities in connection with the service or operation of the equipment, for example, people walking, especially on raised floors.

The frequency range of interest is normally 2 Hz to 200 Hz. Normally the dominant frequencies are less than 100 Hz because they represent the response of the elements in the building.

This part of ISO/TS 10811 deals only with vibration from a maximum amplitude point of view. The concept of vibration dose (for example as for estimation of fatigue life) is not treated.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/TS 10811. 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 ISO/TS 10811 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.

ISO/TS 10811-1, *Mechanical vibration and shock — Vibration and shock in buildings with sensitive equipment — Part 1: Measurement and evaluation*.

IEC 61260, *Electroacoustics — Octave-band and fractional-octave-band filters*.