
**Mechanical vibration — Guidelines for the
measurement, reporting and evaluation of
vibration with regard to habitability on
passenger and merchant ships**

*Vibrations mécaniques — Lignes directrices pour le mesurage,
l'établissement de rapports et l'évaluation des vibrations affectant
l'habitabilité à bord des navires de commerce et des paquebots*



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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.

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.

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

International Standard ISO 6954 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*.

This second edition cancels and replaces the first edition (ISO 6954:1984), which has been technically revised.

Annexes A, B and C of this International Standard are for information only.

Introduction

Shipboard vibration that interferes with duties or reduces comfort is objectionable and often results in adverse comments from crew and passengers.

This International Standard gives the guidelines for evaluating the habitability of different areas on a ship. The habitability is evaluated by the overall frequency-weighted r.m.s. vibration values from 1 Hz to 80 Hz.

This International Standard also contains instrumentation requirements, measurement procedures, analysis specifications and assessment guidelines for the evaluation of ship vibration with respect to habitability.

Vibration data acquired in accordance with this International Standard are also useful for

- comparison with ship specifications,
- comparison with other vessels, and
- further development and improvement of vibration standards.

It is recommended that the classification to be applied to the various areas of a ship be agreed between the interested parties (e.g. shipbuilder and shipowner) prior to any assessment of the habitability.

Mechanical vibration — Guidelines for the measurement, reporting and evaluation of vibration with regard to habitability on passenger and merchant ships

1 Scope

This International Standard contains guidelines for the evaluation of vibration with regard to habitability on a passenger or merchant ship, as well as requirements for the instrumentation and the method of measurement in normally occupied spaces.

Assessment of low-frequency ship motion which may result in motion sickness is covered by other International Standards.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 2631-1:1997, *Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 1: General requirements*.

ISO 2631-2, *Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz)*.

ISO 8041, *Human response to vibration — Measuring instrumentation*.

3 Instrumentation

3.1 General requirements

Measurements in accordance with this International Standard may be carried out using different types of measuring and recording equipment, e.g. instruments of analog, digital, spectral or time-based type. The measuring instrumentation shall meet the requirements of ISO 8041.

It is acceptable to use instruments manufactured in accordance with ISO 8041 that have frequency indications above 80 Hz provided that the filter characteristics comply with ISO 2631-2 (see annex A).

The compliance of the instrumentation system with the requirements of ISO 8041 shall be verified at least every second year. The date of the last verification shall be recorded.

3.2 Calibration

Each channel of the instrumentation shall be checked after installation to ensure proper functioning. Calibration of the instrumentation shall be checked before and after the measurements.