
**Electrodynamic vibration generating
systems — Performance characteristics**

*Systèmes électrodynamiques utilisés pour la génération de
vibrations — Caractéristiques de performance*



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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 2.

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.

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

ISO 5344 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, Subcommittee SC 6, *Vibration and shock generating systems*.

This second edition cancels and replaces the first edition (ISO 5344:1980), which has been technically revised.

Considered responses to all of the proposed substantive changes to ISO 5344:1980 are incorporated in this second edition. Changes favouring the specific design of individual sources were rejected. Regarding endurance testing, a compromise is incorporated, providing a less expensive, but hopefully adequate, assurance of reliability.

Introduction

Users want their equipment to operate for long period without malfunction. A major purpose of this International Standard is to establish procedures to measure performance and to provide ways to ensure the reliability of electrodynamic vibration generation equipment and systems. Some assurance of reliability, but not conclusive, is provided by endurance tests on the vibrator, amplifier and the system as a whole.

If all sources of electrodynamic vibration generation equipment and systems use the same procedures, these procedures define the meanings of the performance statements and reliability statements. Comparisons of the performance and reliability statements of the different sources become useful.

Many of these procedures are suitable for incorporation in a purchase specification to state the acceptance testing to be carried out upon delivery.

Others, particularly those related to endurance testing, are lengthy and expensive, and typically are performed by the source at the end of the product development process, before the start of series production. These procedures typically are used to establish and confirm the rated performance stated in the sales literature. After discussions with the proposed sources, the writer of the purchase specification may propose abbreviated procedures for equipment acceptance testing, or alternatively, may propose to accept written assurances that the full procedures have been performed by the source with mutually satisfactory results.

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Electrodynamic vibration generating systems — Performance characteristics

1 Scope

This International Standard specifies the performance characteristics and performance test conditions for electrodynamic vibration generator systems and provides a list of additional equipment characteristics (see Annex A) that can be declared by the equipment manufacturer. This information can be used by the user or the writer of specifications for equipment for the selection of such a system, taking into account its application.

This International Standard establishes procedures for calculating the system performance of a system comprising an amplifier from one source and a vibrator from a different source. Such a calculated system performance is less precise than performance measured on a system comprising the actual vibrator and amplifier, and a reserve of calculated force is recommended. It can be desirable to specify separately the acquisition of needed vibrator and/or amplifier interface data, particularly if a vibrator or amplifier is to be acquired to add to an existing installation. It can also be desirable to specify the responsibility for the calculation of performance.

This International Standard is applicable to equipment producing sine, random and impulse rectilinear vibration. It is implied that all systems are usable for sine testing at least at a low level, since sine capability is needed for specimen response evaluation and transfer function measurements for random and impulse testing. When random capability is specified, it is implied that some sine capability is also available. Similarly, when impulse capability is specified, it is implied that some sine, but not necessarily random, capability is available.

NOTE Three groups of people are expected to use this International Standard: the supplier of the equipment, the purchaser of the equipment, and the organization that tests the equipment. The supplier of the equipment states that “rated” performance is available, typically as stated in sales literature. The purchaser states the “specified” performance of the equipment that he will accept, typically less than or equal to the rated performance. The test organization “provides” the results of its tests and observations, typically by a written report, which may include the conditions and accuracy of each measurement, and illustrations such as waveforms, performance graphs and tables of values.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 2041:1990, *Vibration and shock — Vocabulary*

ISO 15261, *Vibration and shock generating systems — Vocabulary*