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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Semiconductor devices – Measurement and evaluation methods of kinetic energy harvesting devices under practical vibration environment – Part 1: Arbitrary and random mechanical vibrations

Dispositifs à semiconducteurs – Methodes de mesure et d'evaluation des dispositifs de captage d'énergie cinétique dans un environnement de vibrations concret – Partie 1: Vibrations mécaniques arbitraires et aléatoires

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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Part 1: Arbitrary and random mechanical vibrations

FOREWORD

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

FDIS	Report on voting
47/2548/FDIS	47/2568/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 63150 series, published under the general title *Semiconductor devices – Measurement and evaluation methods of kinetic energy harvesting devices under practical vibration environment*, 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 "http://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- withdrawn,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.

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SEMICONDUCTOR DEVICES – MEASUREMENT AND EVALUATION METHODS OF KINETIC ENERGY HARVESTING DEVICES UNDER PRACTICAL VIBRATION ENVIRONMENT –

Part 1: Arbitrary and random mechanical vibrations

1 Scope

This part of IEC 63150 specifies terms and definitions, and test methods for kinetic energy harvesting devices for one-dimensional mechanical vibrations to determine the characteristic parameters under a practical vibration environment. Such vibration energy harvesting devices often have their own non-linear mechanisms to efficiently capture vibration energy in a broadband frequency range.

This document is applicable to vibration energy harvesting devices with different power generation principles (such as electromagnetic, piezoelectric, electrostatic, etc.) and with different non-linear behaviour to the external mechanical excitation.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological 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

3.1
kinetic energy harvesting device
device to generate electrical energy from kinetic energy

3.2
rated frequency
frequency given in the specification

3.3
sinusoidal vibration
vibration with a sinusoidal acceleration waveform with a given frequency

3.4
random vibration
non-deterministic vibration with broadband frequency spectra with a constant root-mean-square (RMS) acceleration spectral density of which frequency range is specified

Note 1 to entry: See Annex B.