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INTERNATIONAL STANDARD

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Semiconductor devices – Micro-electromechanical devices – Part 28: Performance testing method of vibration-driven MEMS electret energy harvesting devices

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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 28: Performance testing method of vibration-driven MEMS electret energy harvesting devices

FOREWORD

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International Standard IEC 62047-28 has been prepared by subcommittee 47F: Micro-electromechanical systems, of IEC technical committee 47: Semiconductor devices.

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

FDIS	Report on voting
47F/266/FDIS	47F/271/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 62047 series, published under the general title *Semiconductor devices – Micro-electromechanical devices*, 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

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- amended.

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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 28: Performance testing method of vibration-driven MEMS electret energy harvesting devices

1 Scope

This part of IEC 62047 specifies terms and definitions, and a performance testing method of vibration driven MEMS electret energy harvesting devices to determine the characteristic parameters for consumer, industry or any application.

This document applies to vibration driven electret energy harvesting devices whose electrodes with a gap below 1 000 μm are covered by dielectric material with trapped charges and are fabricated by MEMS processes such as etching, photolithography or deposition.

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.

3.1
vibration frequency
frequency of the periodic motion of vibration-driven MEMS electret energy harvesting devices

3.2
vibration acceleration
acceleration applied to the vibration-driven MEMS electret energy harvesting devices

3.3
amplitude
maximum displacement in movement of the vibration-driven MEMS electret energy harvesting devices

3.4
vibration direction
direction of vibration applied to the vibration-driven MEMS electret energy harvesting device

4 Vibration testing equipment

4.1 General

Figure 1 provides fundamental configurations consisted of functional blocks or components for vibration testing equipment for MEMS electrets energy harvesting devices at a specified constant frequency and constant acceleration. Details of the functional blocks or components named as the keys are provided in the following 4.2 to 4.5.