

INTERNATIONAL STANDARD

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Semiconductor devices – Semiconductor devices for wireless power transfer and charging –

Part 1: General requirements and specifications

Dispositifs à semiconducteurs – Dispositifs à semiconducteurs pour le transfert de puissance et la charge sans fil –

Partie 1: Exigences et spécifications générales



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 31.080.99

ISBN 978-2-8322-1023-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
SEMICONDUCTOR DEVICES FOR WIRELESS
POWER TRANSFER AND CHARGING –**

Part 1: General requirements and specifications

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

Draft	Report on voting
47/2706/FDIS	47/2723/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all the parts in the IEC 63244 series, published under the general title *Semiconductor devices – Semiconductor devices for wireless power transfer and charging*, 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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INTRODUCTION

The IEC 63244 series is planned to comprise the following parts:

- IEC 63244-1: Semiconductor devices – Semiconductor devices for wireless power transfer and charging – Part 1: General requirements and specifications
- IEC 63244-2: Semiconductor devices – Semiconductor devices for wireless power transfer and charging – Part 2: Far-field based wireless power transfer – Electromagnetic-wave based wireless power transfer
- IEC 63244-3-1: Semiconductor devices – Semiconductor devices for wireless power transfer and charging – Part 3-1: Near-field based wireless power transfer – Magnetic-field based wireless power transfer
- IEC 63244-3-2: Semiconductor devices – Semiconductor devices for wireless power transfer and charging – Part 3-2: Near-field based wireless power transfer – Electric-field based wireless power transfer

The standardization bodies for wireless power transfer and charging technologies is as follow:

- 1) Wireless power consortium (WPC): Wireless power consortium covers MF WPT technology such as inductive WPT and magnetic resonance WPT. WPC has Qi certification process to ensure the safety and quality.
- 2) AirFuel alliance: AirFuel alliance covers NF WPT technology such as resonant mode of magnetic-field based wireless power transfer. And also, AirFuel alliance is working on FF WPT technology such as electromagnetic-wave based wireless power transfer. AirFuel alliance has Rezence certification process for resonant mode of MF WPT to ensure the safety and quality. AirFuel alliance was formed by the merge of Alliance for Wireless Power (A4WP) and Power Matters Alliance (PMA) in 2015.

SEMICONDUCTOR DEVICES – SEMICONDUCTOR DEVICES FOR WIRELESS POWER TRANSFER AND CHARGING –

Part 1: General requirements and specifications

1 Scope

This part of IEC 63244 provides general requirements and specifications of the semiconductor devices for the performance and reliability evaluations of wireless power transfer and charging systems. For the performance evaluations, this part covers various characterization parameters and symbols, general system diagrams, and test setups and test conditions.

This document also describes classifications of the wireless power transfer technologies.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

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IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60749-10, *Semiconductor devices – Mechanical and climatic test methods – Part 10: Mechanical shock*

IEC 61967-2, *Integrated circuits – Measurement of electromagnetic emissions, 150 kHz to 1 GHz – Part 2: Measurement of radiated emissions – TEM cell and wideband TEM cell method*

IEC 61967-4, *Integrated circuits – Measurement of electromagnetic emissions – Part 4: Measurement of conducted emissions – 1 Ω /150 Ω direct coupling method*

IEC 61967-8, *Integrated circuits – Measurement of electromagnetic emissions – Part 8: Measurement of radiated emissions – IC stripline method*

IEC 62132-2, *Integrated circuits – Measurement of electromagnetic immunity – Part 2: Measurement of radiated immunity – TEM cell and wideband TEM cell method*

IEC 62132-4, *Integrated circuits – Measurement of electromagnetic immunity 150 kHz to 1 GHz – Part 4: Direct RF power injection method*