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Application of capacitors, resistors, inductors and complete filter units for electromagnetic interference suppression - General rules and safety requirements

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC 60940 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) new title to change the document from “guidance” into “general rules and safety requirements;
b) new content added (Clause 5 to Clause 9);
c) the previous edition is partly contained in Clause 4.

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

Draft	Report on voting
40/ 3300/FDIS	40/ 3314/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/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

1 Scope

This document establishes general rules and safety requirements on the application of capacitors, resistors, inductors, and complete filter units for electromagnetic interference suppression which will be connected to an AC mains or other supply (DC or AC) with a nominal voltage not exceeding 1 000 V AC having a nominal frequency not exceeding 400 Hz, or 1 500 V DC.

It facilitates drafters of product safety standards and other stakeholders such as designers, manufacturers, service providers, policy makers and regulators to consider safety aspects for the intended use and the reasonably foreseeable misuse of these components in its products and systems and apply risk reduction measures to achieve a tolerable risk level.

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 60384-14, *Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests*
IEC 60664-1:2020/AMD1:2025

IEC 60939-3:2024, *Passive filter units for electromagnetic interference suppression - Part 3: Passive filter units for which safety tests are appropriate*

IEC 61140:2016, *Protection against electric shock - Common aspects for installation and equipment*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

IEC Guide 116, *Guidelines for safety related risk assessment and risk reduction for low voltage equipment*

CISPR 17, *Methods of measurement of the suppression characteristics of passive EMC filtering devices*

ISO/IEC Guide 51, *Safety aspects - Guidelines for their inclusion in standards*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC Guide 51, IEC Guide 104, IEC Guide 116, IEC 60664-1:2020 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
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