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INTERNATIONAL STANDARD

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Electromagnetic compatibility (EMC) – Part 4-41: Testing and measurement techniques – Broadband radiated immunity tests

Compatibilité électromagnétique (CEM) – Partie 4-41: Techniques d'essai et de mesure – Essais d'immunité aux rayonnements à large bande



IEC 61000-4-41:2024-11 (en-fr)



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Compatibilité électromagnétique (CEM) – Partie 4-41: Techniques d'essai et de mesure – Essais d'immunité aux rayonnements à large bande

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-41: Testing and measurement techniques – Broadband radiated immunity tests

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IEC 61000-4-41 has been prepared by subcommittee 77B: High frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility. It is an International Standard.

It forms Part 4-41 of IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107.

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

Draft	Report on voting
77B/892/FDIS	77B/895/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.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

This part is an international standard which gives immunity requirements and test procedures related to radiated disturbances generated by broadband signals.

Modern digital communication signals operate on multiple frequencies such as orthogonal frequency division multiplexing (OFDM) and use bandwidths ranging from tens of MHz to hundreds of MHz, all while employing in-band time division duplexing (TDD) or frequency division duplexing (FDD) transmission technology, or both. Such broadband signals can cause a performance degradation or malfunction of other equipment, or both. In this document, the disturbance is not a frequency sweep of a narrowband signal but a broadband signal with coexisting multiple frequencies which is stepped through the desired frequency range.

Examples of broadband signals are LTE signals and 5G mobile communication signals.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-41: Testing and measurement techniques – Broadband radiated immunity tests

1 Scope

This part of IEC 61000 relates to broadband radiated disturbances generated by, for example, communication devices or services, transmitters or industrial electromagnetic sources or any other devices capable of generating such a signal.

The object of this document is to establish a common reference for evaluating the immunity of electrical and electronic equipment when subjected to broadband radiated electromagnetic fields.

This document specifies testing in the frequency ranges above 80 MHz, limited only by the capabilities of commercially available test instrumentation.

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 61000-4-3:2020, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61000-4-3 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/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1.1
auxiliary equipment
AE
equipment necessary to provide the equipment under test (EUT) with the signals required for normal operation and equipment to verify the performance of the EUT

3.1.2
equivalent carrier electric field strength
electric field strength at carrier frequency equivalent to the square root of the cumulative electric field power (E^2) caused by the radiation of broadband signal

Note 1 to entry: Equivalent carrier electric field strength is expressed in V/m.