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INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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GENERIC EMC STANDARD

Electromagnetic compatibility (EMC) -
Part 6-3: Generic standards - Emission standard for equipment in residential ~~environments~~ locations

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61000-6-3:2020. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61000-6-3 has been prepared by CISPR subcommittee H: Limits for the protection of radio services. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2020. This edition constitutes a technical revision.

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

a) the addition of magnetic field emission requirements, including the measurement of WPT function;
b) the extension of low-voltage AC mains power requirements to cover the range 9 kHz to 150 kHz;
c) products with a radio function have been added to the scope;
d) limits in a FAR for rack mounted equipment have been added.

The text of this document is based on the following documents:

Draft	Report on voting
CIS/H/547/FDIS	CIS/H/557/RVD

Full information on the voting for the approval of this document 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 has been drafted in accordance with the 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.

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 (insofar 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, technical reports or technical ~~reports/~~specifications~~, some of which have already been~~. These are 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).

1 Scope

This generic EMC emission standard is applicable only if no relevant dedicated product or product family EMC emission standard has been published.

This part of IEC 61000 for emission requirements applies to electrical and electronic equipment intended for use at residential (see 3.1.21) locations. This part of IEC 61000 also applies to electrical and electronic equipment intended for use at other locations that do not fall within the scope of IEC 61000-6-8 or IEC 61000-6-4.

The intention is that all equipment used in the residential, commercial and light-industrial ~~environments~~ locations are covered by IEC 61000-6-3 or IEC 61000-6-8. If there is any doubt the requirements in IEC 61000-6-3 apply.

~~The conducted and radiated emission requirements in the frequency range up to 400 GHz are considered essential and have been selected to provide an adequate level of protection of radio reception in the defined electromagnetic environment.~~ Equipment that have a radio function (3.1.20) are included in the scope of this document. However, the emission requirements in this document are not intended to be applicable to the intentional transmissions from these radio transmitters, their harmonics and their out of band emissions.

Not all disturbance phenomena have been included for testing purposes but only those considered relevant for the equipment intended to operate within the locations included within this document.

~~The emission requirements in this document are not intended to be applicable to the intentional transmissions and their harmonics from a radio transmitter as defined by the ITU.~~

The objectives of this document are:

a) to establish requirements that provide an adequate level of protection of radio reception in the frequency range 9 kHz to 400 GHz;

b) to establish requirements that provide an adequate level of protection against conducted and radiated electromagnetic disturbances emitted by equipment in the scope of this document;

c) to support the reproducibility of measurement and the repeatability of results.

~~NOTE 1 Safety considerations are not covered by this document.~~

NOTE ~~2~~ 1 In special cases, situations will arise where the levels specified in this document will not offer adequate protection; for example, where a sensitive receiver is used in close proximity to an equipment. In these instances, special mitigation measures can be employed.

NOTE ~~3~~2 Disturbances generated in fault conditions of equipment are not covered by this document.

NOTE ~~4~~3 ~~As~~ The requirements in this document are more stringent or equivalent to the requirements specified in IEC 61000-6-4 and IEC 61000-6-8~~, equipment fulfilling the requirements of this document comply with the requirements of IEC 61000-6-4 and IEC 61000-6-8~~.

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 61000-3-2:2018, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*
IEC 61000-3-2:2018/AMD1:2020
IEC 61000-3-2:2018/AMD2:2024

IEC 61000-3-3:2013, *Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection*
IEC 61000-3-3:2013/AMD1:2017
IEC 61000-3-3:2013/AMD2:2021

IEC 61000-3-11:2017, *Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection*

IEC 61000-3-12:2011, *Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase*
IEC 61000-3-12:2011/AMD1:2021

IEC 61000-4-20:~~2010~~2022, *Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides*

CISPR 14-1:~~2016~~2020, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission*

CISPR 16-1-1:2019, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus*

CISPR 16-1-1:2010, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus*[1]
CISPR 16-1-1:2010/AMD1:2010
CISPR 16-1-1:2010/AMD2:2014

CISPR 16-1-2:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Coupling devices for conducted disturbance measurements*
CISPR 16-1-2:2014/AMD1:2017

CISPR 16-1-4:2019, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements*
CISPR 16-1-4:2019/AMD1:2020
CISPR 16-1-4:2019/AMD2:2023

CISPR 16-1-5:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-5: Radio disturbance and immunity measuring apparatus - Antenna calibration sites and reference test sites for 5 MHz to 18 GHz*
CISPR 16-1-5:2014/AMD1:2016

CISPR 16-1-6:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-6: Radio disturbance and immunity measuring apparatus - EMC antenna calibration*
CISPR 16-1-6:2014/AMD1:2017
CISPR 16-1-6:2014/AMD2:2022

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[1] This version has been superseded.

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IEC 60050-601:1985, *International Electrotechnical Vocabulary (IEV) - Part 601: Generation, transmission and distribution of electricity - General*

IEC 61000-2-2:2002, *Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*
IEC 61000-2-2:2002/AMD1:2017
IEC 61000-2-2:2002/AMD2:2018

IEC 61000-6-1, *Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments*

IEC 61000-6-2:2016, *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments*

IEC 61000-6-4, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*

IEC 61000-6-8, *Electromagnetic compatibility (EMC) - Part 6-8: Generic standards - Emission standard for professional equipment in commercial and light-industrial locations*

IEC 61158-1:~~2019~~2023, *Industrial communication networks – Fieldbus specifications – Part 1: Overview and guidance for the IEC 61158 and IEC 61784 series*

IEC 61800-3:2022*, Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods for PDS and machine tools*

IEC 62040-2:2016*, Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements*

IEC PAS 62825:2013, *Methods of measurement and limits for radiated disturbances from plasma display panel TVs in the frequency range 150 kHz to 30 MHz*[4]

IEC TS 62578:2015*, Power electronics systems and equipment - Operation conditions and characteristics of active infeed converter (AIC) applications including design recommendations for their emission values below 150 kHz*

IEC Guide 107, *Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications*

CISPR Guide, *Guidance for users of the CISPR Standards*
(available at
https://assets.iec.ch/further_informations/1298/CISPR%20Guide%202024.pdf?1119T09
[viewed 2025-09-16])

CISPR 11:~~2015~~2024, *Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*

[4] This publication was withdrawn.

CISPR 14-2, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard*

CISPR 15:2018, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*
CISPR 15:2018/AMD1:2024

CISPR 16 (all parts), *Specification for radio disturbance and immunity measuring apparatus and methods*

~~CISPR TR 16-4-3, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-3: Uncertainties, statistics and limit modelling – Statistical considerations in the determination of EMC compliance of mass-produced products*~~

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CENELEC EN 50065-2-3:2003, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors*
CENELEC EN 50065-2-3:2003/AMD1:2005

IEEE Std 1284, *Standard Signaling Method for a Bidirectional Parallel Peripheral Interface for Personal Computers*

IEEE Std 1394, *IEEE Standard for a High-Performance Serial Bus*

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(available at https://search.itu.int/history/HistoryDigitalCollectionDocLibrary/1.44.48.en.101.pdf, [viewed 2025-09-16])

ITU-R SM.1541-6:2015, *Unwanted emissions in the out-of-band domain*

ITU-T Recommendation V.11, *Data communication over the telephone network - Interfaces and voiceband modems - Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s*

ITU-T Recommendation V.28, *Data communication over the telephone network - Electrical characteristics for unbalanced double-current interchange circuits*

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