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Interested committees:

Title: Draft BS EN 61204-3 Ed.4.0 BS EN 61204-3 Low-voltage switch mode power supplies. Part 3: Electromagnetic compatibility (EMC).

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



22E/289/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER: IEC 61204-3 ED4	
DATE OF CIRCULATION: 2025-03-14	CLOSING DATE FOR COMMENTS: 2025-06-06
SUPERSEDES DOCUMENTS: 22E/264A/RR	

IEC SC 22E : STABILIZED POWER SUPPLIES	
SECRETARIAT: Germany	SECRETARY: Mr Clemens Klemm
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 62A, TC 96	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Electromagnetic Compatibility	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Low-voltage switch mode power supplies - Part 3: Electromagnetic compatibility (EMC)

NOTE FROM TC/SC OFFICERS:

Please also note the information contained in document 22E/287/INF distributed 2025-02-28.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Low-voltage switch mode power supplies - Part 3: Electromagnetic compatibility (EMC) –

FOREWORD

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IEC 61204-3 has been prepared by subcommittee 22E: Stabilized power supplies, of IEC technical committee 22: Power electronic systems and equipment. It is an International Standard.

IEC 61204-3 has the status of an EMC product family standard according to [IEC GUIDE 107 \[1\]](#).

This fourth edition cancels and replaces the third edition published in 2016. This edition constitutes a technical revision.

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

- a) definition of types of power supplies moved from [Clause 1](#) to [Annex A](#) (normative);
- b) emission limits of Annex H (normative) moved into [Clause 6](#);
- c) update of the normative references to the latest editions and usage of dated references;
- d) consideration of the requirements of the generic standard IEC 61000-6-8:2020 (professional equipment in commercial and light-industrial environment);
- e) revision of the emission limits to align with the latest editions of the applicable normative references;
- f) revision of the immunity requirements to align with the latest editions of the applicable normative references;
- g) [Clause 8](#) (power supply family aspects) and [Clause 9](#) (statistical aspects) of the 3rd edition are deleted in the 4th edition
- h) correction of typographical errors.

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

Draft	Report on voting
22E/XX/FDIS	22E/XX/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 of IEC 61204 series, under the general title *Low-voltage power supplies, d.c. output*, 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

Further readings:

IEC 60050-131, *International Electrotechnical Vocabulary (IEV) - Part 131: Circuit theory* [IEC 60050-131 \[2\]](#)

ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories* [ISO/IEC 17025:2017 \[3\]](#)

CENELEC Guide 24, *Electromagnetic Compatibility (EMC) Standardization for Product Committees concerned with apparatus* [\[4\]](#)

Low-voltage switch mode power supplies - Part 3: Electromagnetic compatibility (EMC) –

1 Scope and object

1.1 Scope

This part of IEC 61204 specifies the electromagnetic compatibility (EMC) requirements for power supply units (PSUs) supplied by source voltages up to 1 000 V AC or 1 500 V DC providing AC and/or DC output(s), except inverter output(s) establishing AC mains (see exceptions)

NOTE Power supplies can provide accessory AC mains socket outlets, when such outputs are supplied from the AC mains.

This document covers:

- both stand alone and component power supply units (PSUs) as defined in this document;
- PSUs for use in or with IT equipment normally covered by IEC 62368-1:2023;
- PSUs for use in or with measurement, control and laboratory equipment normally covered by IEC 61010-1:2010;
- PSUs for use in or with medical equipment - normally covered by IEC 60601-1:2005;
- PSUs for use in or with audio, video and similar electronic apparatus - normally covered by IEC 62368-1:2023;
- DC power and distribution equipment and DC/DC converters.
- Ringing generators used in telecoms applications.

This document does not apply to

- motor-generator sets;
- uninterruptible power supplies (UPS) covered by [IEC 62040-1 \[5\]](#);
- PSUs covered by [IEC 61558-1 \[6\]](#) (i.e. power supply units incorporating safety isolating transformers providing SELV or PELV output(s) in accordance with [IEC 60364-4-41 \[7\]](#)) and PSUs for use with household and other consumer products, except those covered by IEC 62368-1:2023;
- transformers covered by [IEC 61558-1 \[6\]](#);
- step-down converters covered by IEC 60146-1-1:2024;
- PSUs and converters intended for DC supplied bulb lamps, halogen lamps or LED lamps covered by [CISPR 15 \[8\]](#).

Where no standard for PSUs not listed above exists, use of this document for other applications is not precluded.

1.2 Object

The object of this part of IEC 62104 is to specify EMC requirements and EMC test methods for PSUs. This includes limits for electromagnetic disturbances which can cause interference to other electronic equipment (e.g. radio receivers, measuring and computer devices), as well as electromagnetic immunity limits against continuous and transient conducted and radiated disturbances including electrostatic discharges.

This part of IEC 61204 defines the minimum electromagnetic compatibility requirements for PSUs.

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 60050-121, *International Electrotechnical Vocabulary (IEV) - Part 121: Electromagnetism*

IEC 60050-151, *International Electrotechnical Vocabulary (IEV) - Part 151: Electrical and magnetic devices*

IEC 60050-161, *International Electrotechnical Vocabulary (IEV) - Part 161: Electromagnetic compatibility*

IEC 60050-551, *International Electrotechnical Vocabulary (IEV) - Part 551: Power electronics*

IEC 60146-1-1:2024, *Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements*

IEC 60601-1:2005, *Medical electrical equipment - Part 1: General requirements for basic safety and essential performance*

IEC 60601-1:2005/AMD1:2012, *Medical electrical equipment - Part 1: General requirements for basic safety and essential performance*

IEC 60601-1:2005/AMD2:2020, *Medical electrical equipment - Part 1: General requirements for basic safety and essential performance*

IEC 61000-3-2:2014, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

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, *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/AMD2:2021, *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 61000-3-12:2011, *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, *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 61000-4-2:2008, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*

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

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

IEC 61000-4-5:2014/AMD1:2017, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

IEC 61000-4-6:2023, *Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test*

IEC 61000-4-11:2020, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-6-1:2016, *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 61000-6-3:2020, *Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments*

IEC 61000-6-4:2018, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*

IEC 61000-6-8:2020, *Electromagnetic compatibility (EMC) - Part 6-8: Generic standards - Emission standard for professional equipment in commercial and light-industrial locations*

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements*

IEC 61010-1:2010/AMD1:2016, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements*

IEC 62368-1:2023, *Audio/video, information and communication technology equipment - Part 1: Safety requirements*

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

CISPR 16-1 (all parts), *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1: Radio disturbance and immunity measuring apparatus*

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 16-1-3:2004, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power*

CISPR 16-1-3:2004/AMD1:2016, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power*

CISPR 16-1-3:2004/AMD2:2020, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power*

CISPR 16-2-1:2014, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements*

CISPR 16-2-2:2010, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power*

CISPR 16-2-3:2016, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements*

CISPR 16-2-3:2016/AMD1:2019, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements*

CISPR 16-2-3:2016/AMD2:2023, *Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-121, IEC 60050-151, IEC 60050-161, IEC 60050-551, IEC 60146-1-1:2024 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 environment

3.1.1 residential environment

environment encompassed by the generic standard IEC 61000-6-3:2020

Note 1 to entry: An indication of the locations included by this environment is given in [Annex G](#).

Note 2 to entry: The generic standard IEC 61000-6-3:2020 covers emission aspects. For immunity aspects the information given in IEC 61000-6-1:2016 is more appropriate.

3.1.2 commercial and light-industrial environment

environment encompassed by the generic standard IEC 61000-6-8:2020

Note 1 to entry: An indication of the locations included by this environment is given in [Annex G](#).

Note 2 to entry: The generic standard IEC 61000-6-8:2020 covers emission aspects. For immunity aspects the information given in IEC 61000-6-1:2016 is more appropriate.

3.1.3 industrial environment

environment encompassed by the generic standard IEC 61000-6-4:2018

Note 1 to entry: An indication of the locations included by this environment is given in [Annex G](#).

Note 2 to entry: The generic standard IEC 61000-6-4:2018 covers emission aspects. For immunity aspects the information given in IEC 61000-6-2:2016 is more appropriate.

3.2 distributed power system

system of localized power converters supplied from a distributed power bus