IEC 61204-3

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Low-voltage power supplies, d.c. output – Part 3: Electromagnetic compatibility (EMC)

Alimentations basse tension, sortie continue – Partie 3: Compatibilité électromagnétique (CEM)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE POWER SUPPLIES, D.C. OUTPUT –

Part 3: Electromagnetic compatibility (EMC)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61204-3 has been prepared by subcommittee 22E: Stabilized power supplies, of IEC technical committee 22: Power electronic systems and equipment.

IEC 61204-3 has the status of a product family standard.

This second edition cancels and replaces the first edition, published in 2000. It constitutes a technical revision.

The main changes with respect to the previous edition are listed below.

- Update of the scope to align with IEC 61204-7.
- Update of the normative references to the latest editions.
- Change of the definitions of environments to align with the latest editions of the applicable normative references.
- Revision of the applicability of tests to different power supply technologies.

- Revision of the emission limits and requirements to align with the latest editions of the applicable normative references.
- Revision of the immunity limits and requirements to align with the latest editions of the applicable normative references.
- Clarification of the different classes of PSU.

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

FDIS	Report on voting
22E/129/FDIS	22E/130/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61240 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 publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

LOW-VOLTAGE POWER SUPPLIES, D.C. OUTPUT –

Part 3: electromagnetic compatibility (EMC)

1 Scope and object

1.1 Scope

1.1.1 Equipment covered by this standard

This part of IEC 61204 specifies electromagnetic compatibility (EMC) requirements for power supply units (PSUs) providing d.c. output(s) with or without auxiliary a.c. output(s), operating from a.c. or d.c. source voltages up to 600 V a.c. or 1 000 V d.c. (see exceptions under 1.1.3.)

NOTE Ringing generators used in telecoms applications are covered by this standard.

This product standard covers both stand alone and component power supply units as defined in this standard. It covers PSU units for use in or with IT equipment normally covered by IEC 60950-1:2001[1] and/or IEC 60950-1:2005; PSU units for use in or with measurement, control and laboratory equipment normally covered by IEC 61010-1; PSU units for use in or with medical equipment – normally covered by IEC 60601-1; PSU units for use in or with audio, video and similar electronic apparatus – normally covered by IEC 60065. It also covers d.c. power and distribution equipment and d.c./d.c. converters.

Where no standard exist, use of this standard for other applications is not precluded.

1.1.2 Additional requirements

Requirements additional to those specified in this standard may be necessary for

– PSUs intended for operation in special environments (for example, extremes of temperature; excessive dust, moisture or vibration; flammable gases; and corrosive or explosive atmospheres);

– PSUs intended to be used in vehicles, on board ships or aircraft, or in tropical countries;

– PSUs intended for use where ingress of water is possible.

NOTE Attention is drawn to the fact that authorities in some countries impose additional requirements for health, environmental and similar reasons.

1.1.3 Exclusions

This standard does not apply to

– motor-generator sets;

– uninterruptible power supplies (UPS) to IEC 62040-1-1;

– PSUs covered by IEC 61558-1 (i.e. power supply units incorporating safety isolating transformers providing SELV or PELV output(s) in accordance with IEC 60364-4-41 and PSUs for use with household and other consumer products, except those covered by IEC 60065 and IEC 60950-1:2001 and/or IEC 60950-1:2005;

– transformers covered by IEC 61558-1;

– step-down converters covered by IEC 60146-1-1;

– PSUs and converters for use with or in products covered by IEC 61347-2-2.

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[1] This publication has been withdrawn and replaced by the second edition issued in 2005.

1.1.4 Types of power supply

Two types of power supplies are covered by this standard:

a) stand alone (or end-product) power supplies

Power supplies intended for free-standing operation (individual apparatus).

This part of IEC 61204 is applicable to PSUs developed as a unit with a direct function and sold on the market as a stand-alone unit.

b) component power supplies

These can be divided into two categories:

1) **component power supplies considered as equivalent to stand alone power supplies (apparatus).**

   This part of IEC 61204 is applicable to this category of component PSUs. These PSUs are considered to be apparatus with respect to their EMC requirements, for example those PSUs intended for use in installations or sold to the general public, cases where no further EMC tests are anticipated. This does not include PSUs sold as spares for repair which have been tested as part of an overall equipment.

2) **component power supplies intended for a professional installer**

   This part of IEC 61204 is applicable to this category of power supplies only as an aid to specify relevant EMC requirements in order that various end-product standards may be met.

   These are component power supplies that are intended for incorporation into a final product by a professional installer. These products may be sold to a professional installer or placed on the market for specialized distribution and use. In neither case do they perform in themselves a direct function for the user of an end-product. Further EMC tests of the assembly are assumed.

NOTE After incorporation into a final product, the emission values can be altered (e.g. because of modified earth connections).

1.2 Object

The object of this part of IEC 61204 is to define EMC limits and test methods for PSUs. It includes limits for electromagnetic emissions which may cause interference to other electronic equipment (e.g. radio receivers, measuring and computer devices), as well as electromagnetic immunity limits for continuous and transient conducted and radiated disturbances including electrostatic discharges.

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

To comply with this part of IEC 61204, no additional EMC tests are required or necessary beyond those stated here.

2 Normative references

The following referenced documents are indispensable for the application 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 60050-131, *International Electrotechnical Vocabulary (IEV) – Part 131: Circuit theory*