SLOVENSKI STANDARD

SIST EN 61204-3:2002

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Low-voltage power supplies, d.c. output – Part 3: Electromagnetic compatibility (EMC) (IEC 61204-3:2000)

ICS 29.200; 33.100.01

Referenčna številka
SIST EN 61204-3:2002(en)

EUROPEAN STANDARD **EN 61204-3**

NORME EUROPÉENNE

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ICS 29.200;33.100

English version

Low voltage power supplies, d.c. output
Part 3: Electromagnetic compatibility (EMC)
(IEC 61204-3:2000)

Alimentations basse tension,
sortie continue
Partie 3: Compatibilité électromagnétique
(CEM)
(CEI 61204-3:2000)

Stromversorgungsgeräte für
Niederspannung mit Gleichstromausgang
Teil 3: Elektromagnetische Verträglichkeit
(EMV)
(IEC 61204-3:2000)

This European Standard was approved by CENELEC on 2000-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61204-3:2000 E

Foreword

The text of document 22E/75/FDIS, future edition 1 of IEC 61204-3, prepared by SC 22E, Stabilized power supplies, of IEC TC 22, Power electronics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61204-3 on 2000-11-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2001-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2003-11-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, F and ZA are normative and annexes B, C, D, E, G, H and I are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61204-3:2000 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60050-121	1998	International Electrotechnical Vocabulary Part 121: Electromagnetism	-	-
IEC 60050-131	1978	Chapter 131: Electric and magnetic circuits	-	-
IEC 60050-151	1978	Chapter 151: Electrical and magnetic devices	-	-
IEC 60050-161	1990	Chapter 161: Electromagnetic compatibility	-	-
IEC 60050-551	1998	Part 551: Power electronics	-	-
IEC 60146-1-1	1991	Semiconductor convertors - General requirements and line commutated convertors Part 1-1: Specifications of basic requirements	EN 60146-1-1	1993
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 61204 (mod)	1993	Low-voltage power supply devices, d.c. output - Performance characteristics and safety requirements	EN 61204	1995
IEC 61000-3-2 (mod)	2000	Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	EN 61000-3-2	2000
IEC 61000-3-3	1994	Part 3-3: Limits - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16 A	EN 61000-3-3 + corr. July	1995 1997
IEC 61000-4-2	1995	Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	1995
A1	1998		A1	1998

Publication	Year	Title	EN/HD	Year
IEC 61000-4-3 (mod)	1995	Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	1996
IEC 61000-4-4	1995	Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	1995
IEC 61000-4-5	1995	Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	1995
IEC 61000-4-6	1996	Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	1996
IEC 61000-4-11	1994	Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	1994
CISPR 11 (mod)	1997	Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011	1998
CISPR 14-1	2000	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus Part 1: Emission	EN 55014-1	2000
CISPR 16-1	1999	Specification for radio disturbance and immunity measuring apparatus and methods Part 1: Radio disturbance and immunity measuring apparatus	-	-
CISPR 22 (mod)	1997	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022 + corr. August	1998 1999
ISO/IEC Guide 25	1990	General requirements for the competence of calibration and testing laboratories	-	-

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
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Première édition
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Alimentations basse tension, sortie continue –

Partie 3:
Compatibilité électromagnétique (CEM)

Low-voltage power supplies, d.c. output –

Part 3:
Electromagnetic compatibility (EMC)

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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Part 3: Electromagnetic compatibility (EMC)

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights. International Standard IEC 61204-3 has been prepared by subcommittee 22E: Stabilized power supplies, of IEC technical committee 22: Power electronics.

International Standard IEC 61204-3 has been prepared by subcommittee 22E: Stabilized power supplies, of IEC technical committee 22: Power electronics.

IEC 61204-3 cancels and replaces IEC 60478-3 published in 1989.

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

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

FDIS	Report on voting
22E/75/FDIS	22E/78/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 ISO/IEC Directives, Part 3.

Annexes A and F form an integral part of this standard.

Annexes B, C, D, E, G, H and I are for information only.

The contents of the corrigendum of December 2000 have been included in this copy.

IEC 61204 consists of the following parts, under the general title: *Low voltage power supplies, d.c. output*

Part 1: Terms and definitions [1)]

Part 2: Performance characteristics [1)]

Part 3: Electromagnetic compatibility (EMC)

Part 4: Tests other than EMC [1)]

Part 5: Measurement of the magnetic component of the reactive near field [1)]

Part 6: Requirements for low-voltage power supplies of assessed performance [2)]

Part 7: Safety requirements [1)]

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

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

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1) Under consideration.

2) To be published.

LOW VOLTAGE POWER SUPPLIES, DC OUTPUT –

Part 3: Electromagnetic compatibility (EMC)

1 Scope and object

This part of IEC 61204 specifies electromagnetic compatibility (EMC) requirements for power supply units (PSUs) providing d.c. output(s) up to 200 V at a power level of up to 30 kW, operating from a.c. or d.c. source voltages of up to 600 V.

The devices are for free-standing operation or for use in other equipment when used with adequate electrical and mechanical protection.

For certain specialized industrial PSUs, for example in the chemical and metallurgical industry, other product EMC standards may exist. In this case these standards can be used as an alternative.

Since many PSUs are used as components of larger units which are covered by different EMC standards, a classification of power supplies and the applicability of the relevant EMC standards is given in items a) and b) below. Further guidelines on classification are given in annex A.

a) 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 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 assembler/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 assembler. These products may be sold to a professional assembler 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).

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 normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61204. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61204 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

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

IEC 60051(131), *International Electrotechnical Vocabulary (IEV) – Chapter 131: Electric and magnetic circuits*

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

IEC 60050(161), *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*

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

IEC 60146-1-1, *Semiconductor convertors – General requirements and line commutated convertors – Part 1-1: Specifications of basic requirements*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements, tests*

IEC 61204, *Low-voltage power supply devices, d.c. output – Performance characteristics and safety requirements* (future IEC 61204-2)

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

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* There is a consolidated edition 1.2 (1998) that includes IEC 61000-3-2 (1995), and its amendment 1 (1997) and its amendment 2 (1998).