SLOVENSKI STANDARD
SIST EN 61000-4-16:1999

01-april-1999

Elektromagnetna združljivost (EMC) – 4-16. del: Preskušanje in merilne tehnike - Preskušanje odpornosti proti prevajanim motnjam skupne zvrsti v frekvenčnem območju od 0 Hz do 150 kHz (IEC 61004-16:1998)

Electromagnetic compatibility (EMC) -- Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz (IEC 61004-16:1998)

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Elektromagnetische Verträglichkeit (EMV) -- Teil 4-16: Prüf- und Meßverfahren - Prüfung der Störfestigkeit gegen leitungsgeführte, asymetrische Störgrößen im Frequenzbereich von 0 Hz bis 150 kHz

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Compatibilité électromagnétique (CEM) -- Partie 4-16: Techniques d'essai et de mesure - Essai d'immunité aux perturbations conduites en mode commun dans la gamme de fréquences de 0 Hz à 150 kHz

Ta slovenski standard je istoveten z: **EN 61000-4-16:1998**

ICS:

33.100.20 Imunost Immunity

SIST EN 61000-4-16:1999 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61000-4-16

February 1998

ICS 33.100

Descriptors: Electromagnetic compatibility, electric equipment, electronic equipment, radio disturbances, direct current, tests, measurements

English version

Electromagnetic compatibility (EMC) Part 4-16: Testing and measurement techniques Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz (IEC 61000-4-16:1998)

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Compatibilité électromagnétique (CEM)
Partie 4-16: Techniques d'essai et de mesure - Essai d'immunité aux perturbations conduites en mode commun dans la gamme de fréquences de 0 Hz à 150 kHz
(CEI 61000-4-16:1998)

Elektromagnetische Verträglichkeit (EMV)
Teil 4-16: Prüf- und Meßverfahren
Prüfung der Störfestigkeit gegen leitungsgeführte, asymetrische Störgrößen im Frequenzbereich von 0 Hz bis 150 kHz
(IEC 61000-4-16:1998)

This European Standard was approved by CENELEC on 1998-01-01. 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.

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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

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Ref. No. EN 61000-4-16:1998 E

Foreword

The text of document 77A/201/FDIS, future edition 1 of IEC 61000-4-16, prepared by SC 77A, Low-frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61000-4-16 on 1998-01-01.

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) 1998-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A, B and C are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61000-4-16:1998 was approved by CENELEC as a European Standard without any modification.

In the official version, for annex C, Bibliography, the following note has to be added for the standard indicated:

IEC 61000-4-6 NOTE: Harmonized as EN 61000-4-6:1996 (not modified).

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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(161)	1990	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic compatibility		-
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1[1]	1994

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1) EN 60068-1:1988 includes the corrigendum October 1988 and A1:1992 to IEC 60068-1.

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61000-4-16

Première édition
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Compatibilité électromagnétique (CEM) –

Partie 4-16: Techniques d'essai et de mesure – Essai d'immunité aux perturbations conduites en mode commun dans la gamme de fréquences de 0 Hz à 150 kHz

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Electromagnetic compatibility (EMC) –

Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz

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 reports or guides and they are accepted by the National Committees in that sense.

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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.

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International Standard IEC 61000-4-16 has been prepared by subcommittee 77A: Low-frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms part 4-16 of IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107.

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

FDIS	Report on voting
77A/201/FDIS	77A/221/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.

Annexes A, B and C are for information only.

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INTRODUCTION

This standard is part of the IEC 61000 series, 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

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Part 5: Installation and mitigation guidelines

Installation guidelines
Mitigation methods and devices

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Part 6: Generic standards

Part 9: Miscellaneous

Some parts are further subdivided into sections which are to be published either as international standards or as technical reports.

This part is an international standard which gives immunity requirements and test procedures related to conducted, common mode disturbances in the range d.c. to 150 kHz.

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ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz

1 Scope

This part of IEC 61000 relates to the immunity requirements and test methods for electrical and electronic equipment to conducted, common mode disturbances in the range d.c. to 150 kHz.

The object of this standard is to establish a common and reproducible basis for testing electrical and electronic equipment with the application of common mode disturbances to power supply, control, signal and communication ports.

This standard defines

– test voltage and current waveform;

– range of test levels;

– test equipment;

– test set-up;

– test procedures.

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For some types of ports, for example ports intended to be used with highly balanced lines, additional test provisions may be established by product committee specifications.

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The test is intended to demonstrate the immunity of electrical and electronic equipment when subjected to conducted, common mode disturbances such as those originating from power line currents and return leakage currents in the earthing/grounding system.

The disturbances produced by 400 Hz mains systems are not included in the scope of this standard.

Actual interference due to these disturbance phenomena is relatively rare, except in industrial plants. Product Committees should therefore consider whether there is a justification for applying this standard in their Product/Product Family standards (see also clause 3).

This test is not relevant for equipment ports intended to be connected to short cables, having a length less than 20 m or less.

The immunity to harmonics and interharmonics, including mains signalling, on a.c. power ports (in differential mode) is not included in the scope of this standard and is covered by IEC 61000-4-13.

The immunity to conducted disturbances generated by intentional radio-frequency transmitters is not included in the scope of this standard and is covered by IEC 61000-4-6.

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Some ITU-T Recommendations, e.g. K17, K20 and K21, establish similar methods for testing the resistibility of equipment; however, they are dedicated to telecommunication ports and deal with power induction at frequency of the a.c. mains or electric railways.

Product Committees are advised to consider the Recommendations above, as far as applicable, in preparing their product standards.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61000. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 61000 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(161): 1990, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*

IEC 60068-1: 1988, *Environmental testing – Part 1: General and guidance*

3 General

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The conducted, common mode disturbances in the frequency range d.c. to 150 kHz may influence the reliable operation of equipment and systems installed in residential areas, industrial areas and electrical plants.

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Only those ports of an EUT which are likely to be subjected to the disturbances dealt with by this standard shall be considered for the application of its requirements.

The disturbances are typically generated by

- the power distribution system, with its fundamental frequency, significant harmonics and interharmonics;
- power electronic equipment (e.g. power convertors), which may inject disturbances into the ground conductors and earthing system (through stray capacitance or filters), or generate disturbances in signal and control lines by induction.

At the mains frequency, and harmonics of the mains frequency, the disturbances are usually generated by the power distribution system (fault and leakage currents in the ground and earthing systems).

At frequencies above the range of harmonics of the mains frequency (up to 150 kHz) the disturbances are usually generated by power electronic equipment, which is often found in industrial and electrical plants.

The coupling of the source of disturbances with the power supply, signal, control and communication cables, transfer these disturbances to the ports of the equipment under test.

Because the coupling mechanisms defined above cannot be completely eliminated, it is necessary for equipment to have adequate immunity to the disturbances.