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I.S. EN 61000-4-14:1999

Electromagnetic compatibility (EMC) -- Part 4-14: Testing and measurement techniques - Voltage fluctuation immunity test (IEC 61000-4-14:1999 (EQV))

I.S. EN 61000-4-14:1999

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61000-4-14/A2

August 2009

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English version

**Electromagnetic compatibility (EMC) -
Part 4-14: Testing and measurement techniques -
Voltage fluctuation immunity test for equipment
with input current not exceeding 16 A per phase
(IEC 61000-4-14:1999/A2:2009)**

Compatibilité électromagnétique (CEM) -
Partie 4-14: Techniques d'essai
et de mesure -
Essai d'immunité aux fluctuations
de tension pour le matériel
dont le courant d'entrée
est inférieur ou égal à 16 A par phase
(CEI 61000-4-14:1999/A2:2009)

Elektromagnetische
Verträglichkeit (EMV) -
Teil 4-14: Prüf- und Messverfahren -
Prüfung der Störfestigkeit
von Geräten und Einrichtungen
mit einem Eingangsstrom
bis einschließlich 16 A je Leiter
gegen Spannungsschwankungen
(IEC 61000-4-14:1999/A2:2009)

This amendment A2 modifies the European Standard EN 61000-4-14:1999; it was approved by CENELEC on 2009-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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This amendment 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.

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CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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EN 61000-4-14:1999/A2:2009

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Foreword

The text of document 77A/669/CDV, future amendment 2 to IEC 61000-4-14:1999, 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 amendment A2 to EN 61000-4-14:1999 on 2009-07-01.

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Endorsement notice

The text of amendment 2:2009 to the International Standard IEC 61000-4-14:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

EUROPEAN STANDARD

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**Electromagnetic compatibility (EMC)
Part 4-14: Testing and measurement techniques –
Voltage fluctuation immunity test
(IEC 61000-4-14:1999/A1:2001)**

Compatibilité électromagnétique (CEM)
Partie 4-14: Techniques d'essai
et de mesure –
Essai d'immunité aux fluctuations
de tension
(CEI 61000-4-14:1999/A1:2001)

Elektromagnetische Verträglichkeit (EMV)
Teil 4-14: Prüf- und Meßverfahren -
Prüfung der Störfestigkeit
gegen Spannungsschwankungen
(IEC 61000-4-14:1999/A1:2001)

This amendment A1 modifies the European Standard EN 61000-4-14:1999; it was approved by CENELEC on 2004-05-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
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Central Secretariat: rue de Stassart 35, B - 1050 Brussels

I.S. EN 61000-4-14:1999

EN 61000-4-14:1999/A1:2004

- 2 -

Foreword

The text of amendment 1:2001 to the International Standard IEC 61000-4-14:1999, prepared by SC 77B, High frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 61000-4-14:1999 on 2004-05-01.

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with the amendment have to be withdrawn (dow) 2007-05-01

Endorsement notice

The text of amendment A1:2001 to the International standard IEC 61000-4-14:1999 was approved by CENELEC as an amendment to the European Standard without modification.

EUROPEAN STANDARD

EN 61000-4-14

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English version

**Electromagnetic compatibility (EMC)
Part 4-14: Testing and measurement techniques
Voltage fluctuation immunity test
(IEC 61000-4-14:1999)**

**Compatibilité électromagnétique (CEM)
Partie 4-14: Techniques d'essai et de
mesure - Essai d'immunité aux
fluctuations de tension
(CEI 61000-4-14:1999)**

**Elektromagnetische
Verträglichkeit (EMV)
Teil 4-14: Prüf- und Meßverfahren -
Prüfung der Störfestigkeit gegen
Spannungsschwankungen
(IEC 61000-4-14:1999)**

This European Standard was approved by CENELEC on 1999-04-01. 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.

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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

I.S. EN 61000-4-14:1999

Page 2
EN 61000-4-14:1999

Foreword

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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-04-01

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 annex A informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61000-4-14:1999 was approved by CENELEC as a European Standard without any modification.

In the official version, Bibliography, the following notes have to be added for the standards indicated:

- IEC 61000-2-2 NOTE: Harmonized as ENV 61000-2-2:1993 (modified).
 - IEC 61000-4-1 NOTE: Harmonized as EN 61000-4-1:1994 (not modified).
 - IEC 61000-4-11 NOTE: Harmonized as EN 61000-4-11:1994 (not modified).
-

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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
IEC 61000-2-4 + corr. August	1994 1994	Electromagnetic compatibility (EMC) Part 2: Environment Section 4: Compatibility levels in industrial plants for low-frequency conducted disturbances	EN 61000-2-4	1994

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-14: Testing and measurement techniques – Voltage fluctuation immunity test for equipment with input current not exceeding 16 A per phase

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 61000-4-14 has been prepared by subcommittee 77A: Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

This standard forms part 4-14 of IEC 61000 series. It has the status of basic EMC publication in accordance with IEC Guide 107.

This consolidated version of IEC 61000-4-14 consists of the first edition (1999) [documents 77A/263/FDIS and 77A/268/RVD], its amendment 1 (2001) [documents 77B/291+293/FDIS and 77B/298+300/RVD] and its amendment 2 (2009) [documents 77A/669/CDV and 77A/685/RVC].

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 1.2.

I.S. EN 61000-4-14:1999

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+A2:2009

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result 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.

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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 these limits 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, or as technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example 61000-6-1).

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-14: Testing and measurement techniques – Voltage fluctuation immunity test for equipment with input current not exceeding 16 A per phase

1 Scope

This part of IEC 61000 is a basic electromagnetic compatibility (EMC) publication. It considers immunity tests for electrical and/or electronic equipment in their electromagnetic environment. Only conducted phenomena are considered, including immunity tests for equipment connected to public and industrial power supply networks.

This part aims to establish a reference for evaluating the immunity of electric and electronic equipment when subjected to positive and negative low amplitude voltage fluctuations.

The voltage fluctuations considered by this standard do not include flicker, which is a physiological phenomenon due to lighting luminance fluctuations.

This standard applies to electrical and/or electronic equipment that have a rated input current up to 16 A per phase. It does not apply to electrical and/or electronic equipment connected to d.c. or a.c. 400 Hz distribution networks. Tests concerning these networks will be covered by other IEC standards.

The immunity test levels required for a specific electromagnetic environment, together with the performance criteria, are indicated in the product, product family or generic standards as applicable. However, most product groups do not have a history of being susceptible to voltage fluctuations. Consequently, testing for these phenomena is often not required.

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

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

IEC 61000-2-4, *Electromagnetic compatibility (EMC) – Part 2: Environment – Section 4: Compatibility levels in industrial plants for low-frequency conducted disturbances*

3 General

3.1 Effects of voltage fluctuations

Electrical and electronic equipment may be affected by voltage fluctuations. Examples of these effects include the following:

- degradation of performances in equipment using storage devices (e.g. capacitors);
- loss of function in control systems;

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