

Elektromagnetiline ühilduvus. Osa 3-12: Piirväärtused.
Avalikesse madalpingevõrkudesse ühendatud
seadmetest genereeritud vooluharmooniliste
piirväärtused sisendvoolu korral üle 16 A, kuid mitte üle
75 A faasi kohta

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61000-3-12:2011 sisaldab Euroopa standardi EN 61000-3-12:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.12.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.12.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 61000-3-12:2011 consists of the English text of the European standard EN 61000-3-12:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.12.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 16.12.2011.

The standard is available from Estonian standardisation organisation.

ICS 33.100.10

elektromagnetiline ühilduvus, madalpinge, piiratud ühendus, vooluharmonilised

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English version

**Electromagnetic compatibility (EMC) -
Part 3-12: Limits -
Limits for harmonic currents produced by equipment connected to public
low-voltage systems with input current $> 16\text{ A}$ and $\leq 75\text{ A}$ per phase
(IEC 61000-3-12:2011)**

Compatibilité électromagnétique (CEM) -
Partie 3-12: Limites -
Limites pour les courants harmoniques
produits par les appareils connectés aux
réseaux publics basse tension ayant un
courant appelé $> 16\text{ A}$ et $\leq 75\text{ A}$ par phase
(CEI 61000-3-12:2011)

Elektromagnetische Verträglichkeit (EMV)
-
Teil 3-12: Grenzwerte für
Oberschwingungsströme, verursacht von
Geräten und Einrichtungen mit einem
Eingangsstrom $> 16\text{ A}$ und $\leq 75\text{ A}$ je Leiter,
die zum Anschluss an öffentliche
Niederspannungsnetze vorgesehen sind.
(IEC 61000-3-12:2011)

This European Standard was approved by CENELEC on 2011-06-16. 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 77A/740/FDIS, future edition 2 of IEC 61000-3-12, prepared by SC 77A, "Low frequency phenomena", of IEC TC 77, "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-3-12:2011.

The following dates are 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) 2012-06-16
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2014-06-16

This European Standard supersedes EN 61000-3-12:2005.

The significant technical changes with respect to EN 61000-3-12:2005 are listed below:

- the reference fundamental current I_1 is replaced by the reference current I_{ref} for the calculation of emission limits;
- a new table of current emission limits (Table 5) is added;
- a new annex (Annex A) is added to define test conditions for some types of equipment;
- former Annexes B (Approximate interpolation formulas) and D (Information on the PWHF factor) are deleted.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives EMC (2004/108/EC) and RTTE (1999/5/EC).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61000-3-12:2011 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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 60038	-	IEC standard voltages	EN 60038	-
IEC 60050-161 + A1 + A2	1990 1997 1998	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 61000-2-2	-	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	-
IEC 61000-2-4	-	Electromagnetic compatibility (EMC) - Part 2-4: Environment - Compatibility levels in industrial plants for low-frequency conducted disturbances	EN 61000-2-4	-
IEC 61000-3-2	-	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN 61000-3-2	-
IEC 61000-4-7	-	Electromagnetic compatibility (EMC) - Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	EN 61000-4-7	-

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements of Annex I, Article 1(a) of the EU Directive 2004/108/EC, and essential requirements of Article 3.1(b) (emission only) of the EU Directive 1999/5/EC.

Compliance with this standard provides presumption of conformity with the specified essential requirements of the Directives concerned.

NOTE Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

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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
(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

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 specifications or 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: IEC 61000-6-1).

This International Standard is a Product Family Standard.

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

1 Scope

This part of IEC 61000 deals with the limitation of harmonic currents injected into the public supply system. The limits given in this International Standard are applicable to electrical and electronic equipment with a rated input current exceeding 16 A and up to and including 75 A per phase, intended to be connected to public low-voltage a.c. distribution systems of the following types:

- nominal voltage up to 240 V, single-phase, two or three wires;
- nominal voltage up to 690 V, three-phase, three or four wires;
- nominal frequency 50 Hz or 60 Hz.

Other distribution systems are excluded. The limits given in this edition apply to equipment when connected to 230/400 V, 50 Hz systems. See also Clause 5.

NOTE 1 The limits for the other systems will be added in a future edition of this standard.

NOTE 2 Equipment with a rated input current exceeding 75 A per phase should be considered in the harmonic current requirements for installations. See IEC/TR 61000-3-6 and future IEC/TR 61000-3-14.

This standard applies to equipment intended to be connected to low-voltage systems interfacing with the public supply at the low-voltage level. It does not apply to equipment intended to be connected only to private low-voltage systems interfacing with the public supply only at the medium- or high-voltage level.

NOTE 3 The scope of this standard is limited to equipment connected to public low voltage systems because emissions from equipment installed in private low voltage systems can be controlled in aggregate at the MV point of common coupling using procedures defined in IEC/TR 61000-3-6 and/or by means of contractual agreements between the distribution network operator and the customer. It is expected that operators of private systems will manage the EMC environment in a manner that ensures compliance with the provisions given in IEC/TR 61000-3-6 and/or the contractual agreements.

NOTE 4 If the equipment is intended to be connected only to private systems, the manufacturer should make this very clear in the product documentation.

NOTE 5 Professional equipment with input current ≤ 16 A per phase and that does not comply with the requirements and limits of standard IEC 61000-3-2 may be permitted to be connected to certain types of low voltage supplies, in the same way as equipment with input current >16 A per phase and that does not comply with the requirements and limits of the present standard (see Annex C).

NOTE 6 The limits in this standard are not applicable to stand-alone harmonic filters.

This standard defines:

- a) requirements and emission limits for equipment;
- b) methods for type tests and simulations.

Tests according to this International Standard are type tests of complete pieces of equipment.

Conformity with this standard can also be determined by validated simulations.

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 60038, *IEC standard voltages*

IEC 60050(161):1990, *International Electrotechnical Vocabulary – Chapter 161: Electro-magnetic compatibility*

Amendment 1 (1997)

Amendment 2 (1998)

IEC 61000-2-2, *Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*

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

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

IEC 61000-4-7, *Electromagnetic compatibility (EMC) – Part 4-7: Testing and measurement techniques – General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto*

3 Terms and definitions

For the purposes of this document, the definitions given in IEC 60050(161) and the following definitions apply.

3.1

total harmonic current

THC

total r.m.s. value of the harmonic current components of orders 2 to 40

$$THC = \sqrt{\sum_{h=2}^{40} I_h^2}$$

3.2

partial weighted harmonic current

PWHC

total r.m.s. value of a selected group of higher order harmonic current components (in this International Standard from order 14 to order 40), weighted with the harmonic order h

$$PWHC = \sqrt{\sum_{h=14}^{40} h \cdot I_h^2}$$

NOTE The partial weighted harmonic current is employed in order to ensure that the effects of the higher order harmonic currents on the results are reduced sufficiently and individual limits need not be specified.