

**Elektromagnetiline ühilduvus. Osa 3-3: Piirväärtused.
Pingemuutuste, pingekõikumiste ja väreluse piiramine
mittetinglike ühendustega seadmetele avalikes
madalpingelistes toitesüsteemides tunnusvooluga kuni 16
A faasi kohta**

**Electromagnetic compatibility (EMC) - Part 3-3: Limits -
Limitation of voltage changes, voltage fluctuations and
flicker in public low-voltage supply systems, for
equipment with rated current ≤ 16 A per phase and not
subject to conditional connection**

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
See Eesti standard EVS-EN 61000-3-3:2013 sisaldab Euroopa standardi EN 61000-3-3:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 61000-3-3:2013 consists of the English text of the European standard EN 61000-3-3:2013.
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English version

**Electromagnetic compatibility (EMC) -
Part 3-3: Limits -**

**Limitation of voltage changes, voltage fluctuations and flicker in public
low-voltage supply systems, for equipment with rated current ≤ 16 A per
phase and not subject to conditional connection
(IEC 61000-3-3:2013)**

Compatibilité électromagnétique (CEM) -
Partie 3-3: Limites -
Limitation des variations de tension, des
fluctuations de tension et du papillotement
dans les réseaux publics d'alimentation
basse tension, pour les matériels ayant un
courant assigné ≤ 16 A par phase et non
soumis à un raccordement conditionnel
(CEI 61000-3-3:2013)

Elektromagnetische Verträglichkeit
(EMV) -
Teil 3-3: Grenzwerte -
Begrenzung von Spannungsänderungen,
Spannungsschwankungen und Flicker in
öffentlichen Niederspannungs-
Versorgungsnetzen für Geräte mit einem
Bemessungsstrom ≤ 16 A je Leiter, die
keiner Sonderanschlussbedingung
unterliegen
(IEC 61000-3-3:2013)

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CENELEC

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

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Foreword

The text of document 77A/809/FDIS, future edition 3 of IEC 61000-3-3, prepared by SC 77A, "EMC - Low frequency phenomena", of IEC TC 77, "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-3-3:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-03-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-06-18

This document supersedes EN 61000-3-3:2008.

EN 61000-3-3:2013 includes the following significant technical changes with respect to EN 61000-3-3:2008:

This edition takes account of the changes made in EN 61000-4-15:2011.

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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 61000-3-3:2013 was approved by CENELEC as a European Standard without any modification.

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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 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 9: Miscellaneous

Each part is further subdivided into sections which are to be published either as International Standards or as Technical Reports.

These standards and reports will be published in chronological order and numbered accordingly.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

1 Scope

This part of IEC 61000 is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

It specifies limits of voltage changes which may be produced by an equipment tested under specified conditions and gives guidance on methods of assessment.

This part of IEC 61000 is applicable to electrical and electronic equipment having an input current equal to or less than 16 A per phase, intended to be connected to public low-voltage distribution systems of between 220 V and 250 V line to neutral at 50 Hz, and not subject to conditional connection.

Equipment which does not comply with the limits of this part of IEC 61000 when tested with the reference impedance Z_{ref} of 6.4, and which therefore cannot be declared compliant with this part, may be retested or evaluated to show conformity with IEC 61000-3-11. Part 3-11 is applicable to equipment with rated input current ≤ 75 A per phase and subject to conditional connection.

The tests according to this part are type tests. Particular test conditions are given in Annex A and the test circuit is shown in Figure 1.

NOTE 1 The limits in this standard relate to the voltage changes experienced by consumers connected at the interface between the public supply low-voltage network and the equipment user's installation. Consequently, if the actual impedance of the supply at the supply terminals of equipment connected within the equipment user's installation exceeds the test impedance, it is possible that supply disturbance exceeding the limits could occur.

NOTE 2 The limits in this standard are based mainly on the subjective severity of flicker imposed on the light from 230 V 60 W coiled-coil filament lamps by fluctuations of the supply voltage. For systems with nominal voltage less than 220 V line to neutral and/or frequency of 60 Hz, the limits and reference circuit values are under consideration.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC/TR 60725, *Consideration of reference impedances and public supply impedances for use in determining disturbance characteristics of electrical equipment having a rated current ≤ 75 A per phase*

IEC 60974-1, *Arc welding equipment – Part 1: Welding power sources*

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

IEC 61000-3-11, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤ 75 A and subject to conditional connection*

IEC 61000-4-15:2010, *Electromagnetic compatibility (EMC) – Part 4-15: Testing and measurement techniques – Flickermeter – Functional and design specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

flicker

impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or spectral distribution fluctuates with time

[SOURCE: IEC 60050-161:1990, 161-08-13]

3.2

voltage change characteristic

$d(t)$

time function of the relative r.m.s. voltage change evaluated as a single value for each successive half period between zero-crossings of the source voltage, except during time intervals in which the voltage is in a steady-state condition for at least 1 s

Note 1 to entry: For detailed information about the evaluation of a voltage change characteristic and the definition of a steady state condition see Annex C and IEC 61000-4-15:2010.

3.3

d_c

maximum steady state voltage change during an observation period

Note 1 to entry: For detailed information about the calculation of d_c see Annex C and IEC 61000-4-15:2010.

3.4

$d_{\max}$

maximum absolute voltage change during an observation period

Note 1 to entry: For detailed information about the calculation of $d_{\max}$ see Annex C and IEC 61000-4-15:2010.

3.5

$T_{\max}$

maximum time duration during the observation period that the voltage deviation $d(t)$ exceeds the limit for d_c

Note 1 to entry: During a voltage change characteristic the time duration $T_{\max}$ is accumulated until a new steady state condition is established.

Note 2 to entry: The $T_{\max}$ limit evaluation in this standard is generally intended to evaluate the inrush current pattern of the equipment under test. Thus, as soon as a new steady state condition is established, the $T_{\max}$ evaluation is ended. When a new voltage change occurs that exceeds the limit for d_c , a new $T_{\max}$ evaluation is started. The maximum duration that $d(t)$ exceeds the limit for d_c for any of the individual $T_{\max}$ evaluations during the observation period, is used for the comparison against the $T_{\max}$ limit, and is reported for the test.

3.6

nominal test voltage

U_n

nominal test voltage used to calculate percentages for the various directly measured parameters