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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 (IEC 61000-3-3:2013 + IEC 61000-3-3:2013/A1:2017)

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 61000-3-3:2013 +A1:2019 sisaldab Euroopa standardi EN 61000-3-3:2013 ingliskeelset teksti ja selle muudatuse A1:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 61000-3-3 :2013+A1:2019 consists of the English text of the European standard EN 61000-3-3:2013 and its amendment A1:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.08.2013, muudatus A1 02.08.2019	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. Date of Availability of the European standard is 23.08.2013, for A1 02.08.2019.
Sellesse standardisse on muudatus A1 sisse viidud ja tehtud muudatused tähistatud püstkriipsuga lehe välisveerisel. Standard on kättesaadav Eesti Standardikeskusest.	The amendment A1 has been incorporated into this standard and changes have been marked by a vertical line on the outer row of the page. The standard is available from the Estonian Centre for Standardisation.

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ICS 33.100.10

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EUROOPA STANDARD
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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61000-3-3 + A1

August 2013, August 2019

ICS 33.100.10

Supersedes EN 61000-3-3:2008

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 + IEC 61000-3-3:2013/A1:2017)

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
+ IEC 61000-3-3:2013/A1:2017)

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
+ IEC 61000-3-3:2013/A1:2017)

This European Standard was approved by CENELEC on 2013-06-18. Amendment A1 was approved by CENELEC on 2017-06-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendment the status of a national standard without any alteration.

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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.

IEC 61000-3-3:2013/A1 European foreword

The text of document 77A/952/FDIS, future IEC 61000-3-3:2013/A1, 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/A1:2019.

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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)	2020-02-02
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2022-08-02

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For the relationship with EU Directives see informative Annexes ZZA and ZZB, which are an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61000-3-3:2013/A1:2017 was approved by CENELEC as a European Standard without any modification.

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 8
4 Assessment of voltage changes, voltage fluctuations and flicker 10
4.1 Assessment of a relative voltage change, $d(t)$ 10
4.2 Assessment of the short-term flicker value, P_{st} 11
4.2.1 General 11
4.2.2 Flickermeter 11
4.2.3 Simulation method 11
4.2.4 Analytical method 11
4.2.5 Use of P_{st} = 1 curve 12
4.3 Assessment of long-term flicker value, P_{lt} 12
5 Limits 12
6 Test conditions 13
6.1 General 13
6.2 Measurement uncertainty 14
6.3 Test supply voltage 14
6.4 Reference impedance 15
6.5 Observation period 15
6.6 General test conditions 15
Annex A (normative) Application of limits and type test conditions for specific equipment 19
Annex B (normative) Test conditions and procedures for measuring d_{max} voltage changes caused by manual switching 27
Annex C (informative) Determination of steady state voltage and voltage change characteristics, as defined in IEC 61000-4-15:2010 28
Annex D (informative) Input relative voltage fluctuation ΔV/V for P_{st} = 1,0 at output [IEC/TR 61000-3-7:2008] 33
Annex ZA (normative) Normative references to international publications with their corresponding European publications 34
Annex ZZ (informative) Coverage of Essential Requirements of EU Directives 35
Annex ZZA (informative Relationship between this European standard and the essential requirements of Directive 2014/30/EU [2014 OJ L96] aimed to be covered 36
Annex ZZB (informative) Relationship between this European standard and the essential requirements of Directive 2014/53/EU [2014 OJ L153] aimed to be covered and the standardisation request M/536 37
Bibliography 34

Figure 1 – Reference network for single-phase and three-phase supplies derived from a three-phase, four-wire supply 16
Figure 2 – Curve for P_{st} = 1 for rectangular equidistant voltage changes 17
Figure 3 – Shape factors F for double-step and ramp-voltage characteristics 17
Figure 4 – Shape factors F for rectangular and triangular voltage characteristics 18

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Figure 5 – Shape factor F for motor-start voltage characteristics having various front times 18
Figure C.1 – Evaluation of $U_{hp}(t)$ 32

Table 1 – Assessment method 11
Table A.1 – Test conditions for hotplates 19
Table A.2 – Electrode parameters 24
Table A.3 – Frequency factor R related to repetition rate "r" 25
Table C.1 – Test specification for d_c – d_{max} – $t_{d(t)} > 3{,}3$ % (from Table 12 of IEC 61000-4-15: 2010) 31
Table C.2 – Test specification for d_c – d_{max} – $t_{d(t)} > 3{,}3$ % (from Table 13 of IEC 61000-4-15: 2010) 31
Table D.1 – Input relative voltage fluctuation ΔV/V for P_{st} = 1,0 at output 33

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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

FOREWORD

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International Standard IEC 61000-3-3 has been prepared by subcommittee 77A: EMC – Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

This standard forms part 3-3 of IEC 61000 series of standards. It has the status of a product family standard.

This third edition cancels and replaces the second edition published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) This edition takes account of the changes made in IEC 61000-4-15:2010.

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

FDIS	Report on voting
77A/809/FDIS	77A/816/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 the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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 (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.

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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

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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.

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