



IEC 61000-3-3

Edition 3.2 2021-03  
CONSOLIDATED VERSION

# INTERNATIONAL STANDARD



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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  $\leq 16$  A  
per phase and not subject to conditional connection**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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# REDLINE VERSION



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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.....	14
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 .....	29
Annex C (informative) Determination of steady state voltage and voltage change characteristics, as defined in IEC 61000-4-15:2010 .....	30
Annex D (informative) Input relative voltage fluctuation $\Delta V/V$ for $P_{st} = 1,0$ at output [IEC/TR 61000-3-7:2008] .....	35
Bibliography.....	36
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
Figure 5 – Shape factor $F$ for motor-start voltage characteristics having various front times.....	18
Figure C.1 – Evaluation of $U_{hp}(t)$ .....	34
Table 1 – Assessment method .....	11
Table A.1 – Test conditions for hotplates .....	19
Table A.2 – Electrode parameters .....	25

Table A.3 – Frequency factor $R$ related to repetition rate " $r$ " .....	26
Table C.1 – Test specification for $d_C - d_{\max} - t_{d(t)} > 3,3 \%$ (from Table 12 of IEC 61000-4-15: 2010).....	33
Table C.2 – Test specification for $d_C - d_{\max} - t_{d(t)} > 3,3 \%$ (from Table 13 of IEC 61000-4-15: 2010).....	33
Table D.1 – Input relative voltage fluctuation $\Delta V/V$ for $P_{St} = 1,0$ at output .....	35

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**This consolidated version of the official IEC Standard and its amendments has been prepared for user convenience.**

**IEC 61000-3-3 edition 3.2 contains the third edition (2013-05) [documents 77A/809/FDIS and 77A/816/RVD], its amendment 1 (2017-05) [documents 77A/952/FDIS and 77A/960/RVD] and its amendment 2 (2021-03) [documents 77A/1075/CDV and 77A/1093/RVC] and its corrigendum (2022-01).**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

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.

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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.

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.

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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.

### INTRODUCTION to the corrigendum

During the final editing of the text for IEC 61000-3-3:2013/AMD2:2021 (Edition 3), a mistake occurred and the sentence “Plt shall not be evaluated” is not displayed as a separate paragraph. As a result, this could lead to a wrong interpretation of the text and to wrong Pass/Fail results. This corrigendum is needed to clarify that the text “Plt shall not be evaluated” applies to all equipment in Clause A.16.

## 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 $\leq 16$ 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  $\leq 75$  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  $\leq 75$  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  $\leq 16$  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  $\leq 75$  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*

# FINAL VERSION

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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.....	14
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 .....	29
Annex C (informative) Determination of steady state voltage and voltage change characteristics, as defined in IEC 61000-4-15:2010 .....	30
Annex D (informative) Input relative voltage fluctuation $\Delta V/V$ for $P_{st} = 1,0$ at output [IEC/TR 61000-3-7:2008] .....	35
Bibliography.....	36
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
Figure 5 – Shape factor $F$ for motor-start voltage characteristics having various front times.....	18
Figure C.1 – Evaluation of $U_{hp}(t)$ .....	34
Table 1 – Assessment method .....	11
Table A.1 – Test conditions for hotplates .....	19
Table A.2 – Electrode parameters .....	25

Table A.3 – Frequency factor $R$ related to repetition rate " $r$ " .....	26
Table C.1 – Test specification for $d_C - d_{\max} - t_{d(t)} > 3,3\%$ (from Table 12 of IEC 61000-4-15: 2010).....	33
Table C.2 – Test specification for $d_C - d_{\max} - t_{d(t)} > 3,3\%$ (from Table 13 of IEC 61000-4-15: 2010).....	33
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