

SLOVENSKI STANDARD

SIST EN 61000-4-15:2001

01-marec-2001

Nadomešča:

SIST EN 60868:2001

SIST EN 60868-0:2001

**Elektromagnetna združljivost (EMC) - 4-15. del: Preskusne in merilne tehnike -
Flikermeter - Specifikacije funkcij in zasnove (IEC 61000-4-15:1997)**

Electromagnetic compatibility (EMC) - Part 4-15: Testing and measurement techniques -
Flickermeter - Functional and design specifications

iTeh STANDARD PREVIEW

Elektromagnetische Verträglichkeit (EMV) - Teil 4-15: Prüf- und Messverfahren -
Flickermeter - Funktionsbeschreibung und Auslegungsspezifikation

[SIST EN 61000-4-15:2001](https://standards.iteh.ai/standards/sist/21176dc-0317-4126-baf562bb96e4e38/sist-en-61000-4-15-2001)

Compatibilité électromagnétique (CEM) - Partie 4-15: Techniques d'essai et de mesure -
Flickermètre - Spécifications fonctionnelles et de conception

Ta slovenski standard je istoveten z: EN 61000-4-15:1998

ICS:

33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
-----------	--	---

SIST EN 61000-4-15:2001 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61000-4-15:2001

<https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-567b696e4e3f/sist-en-61000-4-15-2001>

EUROPEAN STANDARD

EN 61000-4-15

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 1998

ICS 33.100

Descriptors: Electromagnetic compatibility, tests, type testing: tests, measuring techniques, measuring instruments, flicker meters, design, performance evaluation, specifications

English version

Electromagnetic compatibility (EMC)
Part 4: Testing and measurement techniques
Section 15: Flickermeter - Functional and design specifications
(IEC 61000-4-15:1997)

Compatibilité électromagnétique (CEM)
 Partie 4: Techniques d'essai et de
 mesure
 Section 15: Flickermètre - Spécifications
 fonctionnelles et de conception
 (CEI 61000-4-15:1997)

Elektromagnetische
 Verträglichkeit (EMV)
 Teil 4: Prüf- und Meßverfahren
 Hauptabschnitt 15: Flickermeter
 Funktionsbeschreibung und
 Auslegungsspezifikation
 (IEC 61000-4-15:1997)

[SIST EN 61000-4-15:2001](https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-567b696e4e3f/sist-en-61000-4-15-2001)

<https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-567b696e4e3f/sist-en-61000-4-15-2001>

This European Standard was approved by CENELEC on 1998-04-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Foreword

The text of document 77A/180/FDIS, future edition 1 of IEC 61000-4-15, 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 EN 61000-4-15 on 1998-04-01.

The following dates were 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) 1999-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-01-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61000-4-15:1997 was approved by CENELEC as a European Standard without any modification.

(standards.iteh.ai)

SIST EN 61000-4-15:2001

<https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-567b696e4e3f/sist-en-61000-4-15-2001>

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 60068-2-1	1990	Environmental testing Part 2: Tests - Tests A: Cold	EN 60068-2-1	1993
IEC 60068-2-2	1974	Part 2: Tests - Test B: Dry heat	EN 60068-2-2 ¹⁾	1993
IEC 60068-2-3	1969	Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2 ²⁾	1987
IEC 60068-2-14	1984	Part 2: Tests - Test N: Change of temperature	HD 323.2.14 S2 ³⁾	1987
IEC 61000-3-3	1994	Electromagnetic compatibility (EMC) Part 3: Limits Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16 A	EN 61000-3-3 + corr. July	1995 1997
IEC 61000-4-2	1995	Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	1995
IEC 61000-4-3 (mod)	1995	Part 4: Testing and measurement techniques Section 3: Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	1996
IEC 61000-4-4	1995	Section 4: Electrical fast transient/burst immunity test	EN 61000-4-4	1995
IEC 61000-4-5	1995	Section 5: Surge immunity test	EN 61000-4-5	1995

1) EN 60068-2-2 includes supplement A:1976 to IEC 60068-2-2.

2) HD 323.2.3 S2 includes A1:1984 to IEC 60068-2-3.

3) HD 323.2.14 S2 includes A1:1986 to IEC 60068-2-14.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-6	1996	Section 6: Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	1996
IEC 61000-4-8	1993	Section 8: Power frequency magnetic field immunity test	EN 61000-4-8	1993
IEC 61000-4-9	1993	Section 9: Pulse magnetic field immunity test	EN 61000-4-9	1993
IEC 61000-4-11	1994	Section 11: Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	1994
IEC 61000-4-12	1995	Section 12: Oscillatory waves immunity test Basic EMC publication	EN 61000-4-12	1995
IEC 61010-1 (mod)	1990	Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements	EN 61010-1 ⁴⁾	1993
IEC 61326-1	1997	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 1: General requirements	EN 61326-1 + corr. January 1998	1997 1998
IEC 61326-10	⁵⁾	Part 10: Particular requirements for equipment used in industrial locations	-	-

<https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-567b696e4e3f/sist-en-61000-4-15-2001>
 (standards.iteh.ai)

4) EN 61010-1 includes A1:1992 to IEC 61010-1.

5) To be published.

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

61000-4-15

Première édition
First edition
1997-11

PUBLICATION FONDAMENTALE EN CEM
BASIC EMC PUBLICATION

Compatibilité électromagnétique (CEM) –

Partie 4:

Techniques d'essai et de mesure –

Section 15: Flickermètre – Spécifications

fonctionnelles et de conception

(standards.iteh.ai)

Electromagnetic compatibility (EMC) –

<https://standards.iteh.ai/catalog/standards/sist/d21b76d6-0317-412f-abaf-547b696e4e3f/sist-en-61000-4-15-2001>

Part 4:

Testing and measurement techniques –

Section 15: Flickermeter – Functional and design specifications

© IEC 1997 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland
IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

S

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

	Page
FOREWORD	5
INTRODUCTION	7
Clause	
1 Scope and object	9
2 Normative references	9
3 Description of the instrument.....	11
3.1 General	11
3.2 Block 1 – Input voltage adaptor and calibration checking circuit.....	13
3.3 Block 2 – Square law demodulator	13
3.4 Blocks 3 and 4 – Weighting filters, squaring and smoothing.....	13
3.5 Block 5 – On-line statistical analysis.....	13
3.6 Outputs.....	15
4 Specification	17
4.1 Analogue response	17
4.2 Input transformer	19
4.3 Voltage adaptor	21
4.4 Internal generator for calibration checking.....	21
4.5 Squaring demodulator.....	23
4.6 Weighting filters.....	23
4.7 Overall response from input to output of block 3.....	23
4.8 Range selector.....	23
4.9 Squaring multiplier and sliding mean filter.....	25
4.10 General statistical analysis procedure	25
4.11 Temperature and humidity operating range of the instrument.....	27
5 Performance testing.....	27
6 Type test and calibration specifications	29
6.1 General	29
6.2 Insulation and electromagnetic compatibility tests (provisional).....	29
6.3 Climatic tests.....	31
Figures	
1 Functional diagram of UIE flickermeter	37
2 Basic illustration of the time-at-level method.....	39
Annex A – Techniques to improve accuracy of flicker evaluation	41

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –**Part 4: Testing and measurement techniques –
Section 15: Flickermeter – Functional and
design specifications**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61000-4-15 has been prepared by subcommittee 77A: Low-frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms section 15 of part 4 of the IEC 61000 series. It has the status of a basic EMC publication in accordance with IEC guide 107.

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

FDIS	Report on voting
77A/180/FDIS	77A/190/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.

Annex A forms an integral part of this standard.

INTRODUCTION

IEC 61000-4 is a part of the IEC 61000 series, according to the following structure:

- Part 1: General
 - General consideration (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 sections which are to be published either as International Standards or as technical reports.

These sections of IEC 61000-4 will be published in chronological order and numbered accordingly.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4: Testing and measurement techniques – Section 15: Flickermeter – Functional and design specifications

1 Scope and object

This section of IEC 61000-4 gives a functional and design specification for flicker measuring apparatus intended to indicate the correct flicker perception level for all practical voltage fluctuation waveforms. Information is presented to enable such an instrument to be constructed. A method is given for the evaluation of flicker severity on the basis of the output of flickermeters complying with this standard.

This section is based on specifications prepared by the “Disturbances” working group of the International Union for Electroheat (UIE) and published in 1992. Consequently the flickermeter specifications in this section relate only to measurements of 230 V, 50 Hz inputs; specifications for other voltages and other frequencies are under consideration.

The object of this section is to provide basic information for the design and the instrumentation of an analogue or digital flicker measuring apparatus. It does not give tolerance limit values of flicker severity.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 61000-4. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 61000-4 are encouraged to investigate the possibility of applying the most recent edition of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60068-2-1:1990, *Environmental testing – Part 2: Tests – Tests A: Cold*

IEC 60068-2-2:1974, *Environmental testing – Part 2: Tests – Tests B: Dry heat*

IEC 60068-2-3:1969, *Environmental testing – Part 2: Tests – Test Ca: Damp heat, steady state*

IEC 60068-2-14:1984, *Environmental testing – Part 2: Tests – Test N: Change of temperature*

IEC 61000-3-3:1994, *Electromagnetic compatibility (EMC) – Part 3: Limits – Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A*