SLOVENSKI STANDARD
SIST EN 55016-2-2:2011

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Specifikacija za merilne naprave in metode za merjenje radijskih motenj in odpornosti - 2-2. del: Metode za merjenje radijskih motenj in odpornosti - Merjenje moči motenj (CISPR 16-2-2:2010)

Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power

Anforderungen an Geräte und Einrichtungen sowie Festlegung der Verfahren zur Messung der hochfrequenten Störaussendung (Funkstörungen) und Störfestigkeit - Teil 2-2: Verfahren zur Messung der hochfrequenten Störaussendung (Funkstörungen) und Störfestigkeit - Messung der Störleistung

Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques - Partie 2-2: Méthodes de mesure des perturbations et de l'immunité - Mesure de la puissance perturbatrice

Ta slovenski standard je istoveten z: **EN 55016-2-2:2011**

ICS:

17.220.20	Merjenje električnih in magnetnih veličin	Measurement of electrical and magnetic quantities
33.100.20	Imunost	Immunity

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 55016-2-2

April 2011

ICS 33.100.10; 33.100.20

Supersedes EN 55016-2-2:2004 + A1:2005 + A2:2005

English version

Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power

(CISPR 16-2-2:2010)

Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques - Partie 2-2: Méthodes de mesure des perturbations et de l'immunité - Mesure de la puissance perturbatrice (CISPR 16-2-2:2010)

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This European Standard was approved by CENELEC on 2011-01-02. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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 CISPR/A/877/CDV, future edition 2 of CISPR 16-2-2, prepared by CISPR SC A, Radio-interference measurements and statistical methods, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 55016-2-2 on 2011-01-02.

This European Standard supersedes EN 55016-2-2:2004 + A1:2005 + A2:2005.

This EN 55016-2-2:2011 includes the following significant technical changes with respect to EN 55016-2-2:2004 + A1:2005 + A2:2005: provisions for the use of spectrum analyzers for compliance measurements (Annex D) and the use of FFT-based test instrumentation (Clauses 3, 6 and 8) are now included.

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.

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)	2011-10-02
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-02

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard CISPR 16-2-2:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

[1] CISPR 13	NOTE	Harmonized as EN 55013.
[2] CISPR 14-1:2005	NOTE	Harmonized as EN 55014-1:2006 (not modified).
[3] CISPR 16-2-1:2008	NOTE	Harmonized as EN 55016-2-1:2009 (not modified).

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.

Publication	Year	Title	EN/HD	Year
CISPR 16-1-1	2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN 55016-1-1	2010
CISPR 16-1-3	2004	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power	EN 55016-1-3	2006
CISPR 16-1-4	-[1)]	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements	EN 55016-1-4	2010[2)]
CISPR 16-4-2	-[1)]	Specification for radio disturbance and immunity measuring apparatus and methods - Part 4-2: Uncertainties, statistics and limit modelling - Uncertainty in EMC measurements	EN 55016-4-2	2004[2)]
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-

[1)] Undated reference.

[2)] Valid edition at date of issue.

CISPR 16-2-2

Edition 2.0 2010-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE
COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES

BASIC EMC PUBLICATION
PUBLICATION FONDAMENTALE EN CEM

Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-2: Methods of measurement of disturbances and immunity – Measurement of disturbance power

Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Partie 2-2: Méthodes de mesure des perturbations et de l'immunité – Mesure de la puissance perturbatrice

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INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard CISPR 16-2-2 has been prepared by CISPR subcommittee A: Radio-interference measurements and statistical methods, in cooperation with CISPR subcommittee D: Electromagnetic disturbances related to electric/electronic equipment on vehicles and internal combustion engine powered devices.

This second edition cancels and replaces the first edition (2003), its Amendment 1 (2004) and Amendment 2 (2005). It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition: provisions for the use of spectrum analyzers for compliance measurements (Annex D) and the use of FFT-based test instrumentation (Clauses 3, 6 and 8) are now included.

It has the status of a basic EMC publication in accordance with IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications.*

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

CDV	Report on voting
CISPR/A/877/CDV	CISPR/A/896/RVC

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 of the CISPR 16 series can be found on the IEC website under the general title *Specification for radio disturbance and immunity measuring apparatus and methods.*

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.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY MEASURING APPARATUS AND METHODS –

Part 2-2: Methods of measurement of disturbances and immunity – Measurement of disturbance power

1 Scope

This part of CISPR 16 specifies the methods of measurement of disturbance power using the absorbing clamp in the frequency range 30 MHz to 1 000 MHz.

NOTE In accordance with IEC Guide 107, CISPR 16-2-2 is a basic EMC publication for use by product committees of the IEC. As stated in Guide 107, product committees are responsible for determining the applicability of the EMC standard. CISPR and its sub-committees are prepared to co-operate with product committees in the determination of the value of particular EMC tests for specific products.

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.

CISPR 16-1-1:2010, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

CISPR 16-1-3:2004, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-3: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Disturbance power*

CISPR 16-1-4, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Antennas and test sites for radiated disturbance measurements*

CISPR 16-4-2, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements*

IEC 60050-161:1990, *International Electrotechnical Vocabulary (IEV) – Part 161: Electromagnetic compatibility*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-161, as well as the following apply.

3.1
absorbing clamp measurement method
ACMM
method for measurement of disturbance power of an equipment under test (EUT) by using an absorbing clamp device that is clamped around the lead(s) of the EUT

3.2
absorbing clamp test site
ACTS
test site that is validated to perform disturbance power measurements by using the absorbing clamp measurement method (ACMM)

3.3
ancillary equipment
transducers (e.g. current and voltage probes and artificial networks) connected to a measuring receiver or (test) signal generator and used in the disturbance signal transfer between the EUT and the measuring or test equipment

3.4
clamp factor
CF
F_C
ratio of the disturbance power of an EUT to the received voltage at the output of the absorbing clamp

NOTE The clamp factor is a transducer factor of the absorbing clamp.

3.5
clamp reference point
CRP
indication on the outside of the absorbing clamp that is related to the longitudinal position of the front edge of the current transformer within the clamp and is used to define the horizontal position of the clamp during the measurement

3.6
coaxial cable
cable containing one or more coaxial lines, typically used for a matched connection of ancillary equipment to the measuring equipment or (test-)signal generator providing a specified characteristic impedance and a specified maximum allowable cable transfer impedance

3.7
common mode (asymmetrical) disturbance voltage
RF voltage between the artificial midpoint of a two-conductor line and reference ground, or in case of a bundle of lines, the effective RF disturbance voltage of the whole bundle (vector sum of the unsymmetrical voltages) against the reference ground measured with a clamp (current transformer) at a defined terminating impedance

NOTE See also IEC 60050-161, 161-04-09.

3.8
common mode current
the vector sum of the currents flowing through two or more conductors at a specified cross-section of a "mathematical" plane intersected by these conductors

3.9
continuous disturbance
RF disturbance with a duration of more than 200 ms at the IF-output of a measuring receiver, which causes a deflection on the meter of a measuring receiver in quasi-peak detection mode which does not decrease immediately

[IEC 60050-161, 161-02-11, modified]

3.10
discontinuous disturbance
for counted clicks, disturbance with a duration of less than 200 ms at the IF-output of a measuring receiver, which causes a transient deflection on the meter of a measuring receiver in quasi-peak detection mode

NOTE For impulsive disturbance, see IEC 60050-161, 161-02-08.

3.11
(electromagnetic) emission
the phenomenon by which electromagnetic energy emanates from a source

[IEC 60050-161, 161-01-08]

3.12
emission limit (from a disturbing source)
the specified maximum emission level of a source of electromagnetic disturbance

[IEC 60050-161, 161-03-12]

3.13
EUT
equipment (devices, appliances and systems) subjected to EMC (emission) compliance tests

3.14
lead under test
LUT
lead, associated with an EUT, that is the subject of an emission or an immunity test

NOTE In general, an EUT may have one or more leads that are used for interconnections to the mains supply, or other networks, or for interconnection to auxiliary equipment. These leads are generally electrical cables such as mains cables, coaxial cables, data bus cables, etc.

3.15
measurement
process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity

[2.1 of ISO/IEC Guide 99] [6][1]

3.16
measurement, scan and sweep times

3.16.1
measurement time
T_m
effective, coherent time for a measurement result at a single frequency (in some areas also called dwell time)

– for the peak detector, the effective time to detect the maximum of the signal envelope,
– for the quasi-peak detector, the effective time to measure the maximum of the weighted envelope,
– for the average detector, the effective time to average the signal envelope,
– for the r.m.s. detector, the effective time to determine the r.m.s. of the signal envelope

1 Numbers in square brackets refer to the Bibliography.