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**SIST EN 55016-2-1:2005**  
**SIST EN 55016-2-1:2005/A1:2005**

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**Specifikacija za merilne naprave in metode za merjenje radijskih motenj in odpornosti - 2-1. del: Metode za merjenje radijskih motenj in odpornosti - Merjenje motenj po vodnikih**

Specification for radio disturbance and immunity measuring apparatus and methods -- Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements

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Anforderungen an Geräte und Einrichtungen sowie Festlegung der Verfahren zur Messung der hochfrequenten Störaussendung (Funkstörungen) und Störfestigkeit -- Teil 2-1: Verfahren zur Messung der hochfrequenten Störaussendung (Funkstörungen) und Störfestigkeit - Messung der leitungsgeführten Störaussendung

Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques -- Partie 2-1: Méthodes de mesure des perturbations et de l'immunité - Mesures des perturbations conduites

**Ta slovenski standard je istoveten z: EN 55016-2-1:2009**

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**ICS:**

17.220.20	T ^ b}b ^Á ^\ dā} āā	Measurement of electrical and magnetic quantities
33.100.20	Imunost	Immunity

**SIST EN 55016-2-1:2009** en

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English version

**Specification for radio disturbance  
and immunity measuring apparatus and methods -  
Part 2-1: Methods of measurement of disturbances and immunity -  
Conducted disturbance measurements  
(CISPR 16-2-1:2008)**

Spécifications des méthodes  
et des appareils de mesure  
des perturbations radioélectriques  
et de l'immunité aux perturbations  
radioélectriques -  
Partie 2-1: Méthodes de mesure  
des perturbations et de l'immunité  
Mesures des perturbations conduites  
(CISPR 16-2-1:2008)

Anforderungen an Geräte  
und Einrichtungen sowie Festlegung  
der Verfahren zur Messung  
der hochfrequenten Störaussendung  
(Funkstörungen) und Störfestigkeit -  
Teil 2-1: Verfahren zur Messung  
der hochfrequenten Störaussendung  
(Funkstörungen) und Störfestigkeit -  
Messung der leitungsgeführten  
Störaussendung  
(CISPR 16-2-1:2008)

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This European Standard was approved by CENELEC on 2009-03-01. 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, Bulgaria, 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

**Central Secretariat: avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document CISPR/A/798/FDIS, future edition 2 of CISPR 16-2-1, 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 55016-2-1 on 2009-03-01.

This European Standard supersedes EN 55016-2-1:2004 + A1:2005.

EN 55016-2-1:2009 includes significant technical changes with respect to EN 55016-2-1:2004. In general, EN 55016-2-1:2009 aims at reducing compliance uncertainty in correspondence with findings in CISPR 16-4-1. Guidelines are given on:

- resonance-free connection of the AMN to reference ground,
- avoidance of ground loops, and
- avoidance of ambiguities of the test setup of EUT and AMN with respect to the reference ground plane.

In addition, terms are clarified, a new type of ancillary equipment (CVP) is applied, and a clarification for the use of the AAN and AMN on the same EUT is provided.

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) 2009-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-03-01

Annex ZA has been added by CENELEC.  
[SIST EN 55016-2-1:2009  
 http://www.cenelec.eu/catalog/standards/sist/8bba8d21-6c71-479e-a3b0-c37a34419995/sist-en-55016-2-1-2009](http://www.cenelec.eu/catalog/standards/sist/8bba8d21-6c71-479e-a3b0-c37a34419995/sist-en-55016-2-1-2009)

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## Endorsement notice

The text of the International Standard CISPR 16-2-1:2008 was approved by CENELEC as a European Standard without any modification.

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## 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364-4 (mod)	Series	Low-voltage electrical installations - Part 4: Protection for safety	HD 60364-4/ HD 384-4	Series
CISPR 14-1	- <sup>1)</sup>	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	EN 55014-1	2006 <sup>2)</sup>
CISPR 16-1-1	- <sup>1)</sup>	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	2007 <sup>2)</sup>
CISPR 16-1-2	- <sup>1)</sup>	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Conducted disturbances	EN 55016-1-2	2004 <sup>2)</sup>
CISPR/TR 16-3 A1 A2	2003 2005 2006	Specification for radio disturbance and immunity measuring apparatus and methods - Part 3: CISPR technical reports	-	-

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

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CISPR 16-2-1

Edition 2.0 2008-10

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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

**Specification for radio disturbance and immunity measuring apparatus and methods –  
Part 2-1: Methods of measurement of disturbances and immunity – Conducted disturbance measurements**

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**Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques –  
Partie 2-1: Méthodes de mesure des perturbations et de l'immunité – Mesures des perturbations conduites**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION  
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

**SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY  
MEASURING APPARATUS AND METHODS –**

**Part 2-1: Methods of measurement of disturbances and immunity –  
Conducted disturbance measurements**

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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard CISPR 16-2-1 has been prepared by CISPR subcommittee A: Radio interference measurements and statistical methods.

This second edition of CISPR 16-2-1 cancels and replaces the first edition (2003) and its Amendment 1 (2005) and constitutes a technical revision.

This edition includes significant technical changes with respect to the previous edition. In general, this new edition aims at reducing compliance uncertainty in correspondence with findings in CISPR 16-4-1. Guidelines are given on

- resonance-free connection of the AMN to reference ground,
- avoidance of ground loops, and

- avoidance of ambiguities of the test setup of EUT and AMN with respect to the reference ground plane.

In addition, terms are clarified, a new type of ancillary equipment (CVP) is applied, and a clarification for the use of the AAN and AMN on the same EUT is provided.

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

FDIS	Report on Voting
CISPR/A/798/FDIS	CISPR/A/809/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 of CISPR 16 series under the general title *Specification for radio disturbance and immunity measuring apparatus and methods*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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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## SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY MEASURING APPARATUS AND METHODS –

### Part 2-1: Methods of measurement of disturbances and immunity – Conducted disturbance measurements

#### 1 Scope

This part of CISPR 16 is designated a basic standard, which specifies the methods of measurement of disturbance phenomena in general in the frequency range 9 kHz to 18 GHz and especially of conducted disturbance phenomena in the frequency range 9 kHz to 30 MHz.

#### 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.

IEC 60364-4 (all parts), *Electrical installations of buildings – Part 4: Protection for safety*

CISPR 14-1, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

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

CISPR 16-1-2, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Conducted disturbances*

CISPR/TR 16-3:2003, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 3: CISPR technical reports*  
Amendment 1:2005  
Amendment 2:2006

#### 3 Definitions

For the purposes of this part of CISPR 16, the definitions of IEC 60050-161 apply, as well as the following.

##### 3.1

##### **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

##### 3.2

##### **associated equipment**

##### **AE**

apparatus, which is not part of the system under test, but needed to help exercise the EUT

**3.3****auxiliary equipment****AuxEq**

peripheral equipment which is part of the system under test

**3.4****EUT**

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

**3.5****product publication**

publication specifying EMC requirements for a product or product family, taking into account specific aspects of such a product or product family

**3.6****emission limit (from a disturbing source)**

specified maximum emission level of a source of electromagnetic disturbance

[IEV 161-03-12]

**3.7****ground reference**

connection that constitutes a defined parasitic capacitance to the surrounding of an EUT and serves as reference potential

NOTE See also IEV 161-04-36 (modified).

**3.8****(electromagnetic) emission**

phenomenon by which electromagnetic energy emanates from a source

[IEV 161-01-08]

**3.9****coaxial cable**

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

**3.10****common mode (asymmetrical) 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 IEV 161-04-09.

**3.11****common mode current**

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

**3.12****differential mode (symmetrical) voltage**

RF disturbance voltage between the wires of a two conductor line

[IEV 161-04-08, modified]