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**Specifikacija merilnih naprav in metod za merjenje radijskih motenj in odpornosti - 1-3. del: Merilne naprave za merjenje radijskih motenj in odpornosti - Pomožna oprema – Moč motenj (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 16-1-3:2004)

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English version

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

Spécifications des méthodes  
et des appareils de mesure  
des perturbations radioélectriques  
et de l'immunité aux perturbations  
radioélectriques  
Partie 1-3: Appareils de mesure  
des perturbations radioélectriques  
et de l'immunité aux perturbations  
radioélectriques -  
Matériels auxiliaires -  
Puissance perturbatrice  
(CISPR 16-1-3:2004)

Anforderungen an Geräte  
und Einrichtungen sowie Festlegung  
der Verfahren zur Messung  
der hochfrequenten Störaussendung  
(Funkstörungen) und Störfestigkeit  
Teil 1-3: Geräte und Einrichtungen  
zur Messung der hochfrequenten  
Störaussendung (Funkstörungen)  
und Störfestigkeit -  
Zusatz-/Hilfseinrichtungen -  
Störleistungsmessung  
(CISPR 16-1-3:2004)

This European Standard was approved by CENELEC on 2006-07-01. 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.

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**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 the International Standard CISPR 16-1-3:2004, prepared by CISPR SC A, Radio-interference measurements and statistical methods, was submitted to the CENELEC Unique Acceptance Procedure and was approved by CENELEC as EN 55016-1-3 on 2006-07-01.

This European Standard supersedes EN 55016-1-3:2004.

In this EN 55016-1-3:2006, a more detailed calibration method for the absorbing clamp is specified. Furthermore, new alternative calibration methods are introduced which are more practicable than the one that was specified previously. Additional parameters to describe the absorbing clamp are defined, like the decoupling factor for the broadband absorber (DF) and the decoupling factor for the current transformer (DR), along with their validation methods. A procedure for the validation of the absorbing clamp test site (ACTS) is also included in the document.

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) 2007-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-07-01

Annex ZA has been added by CENELEC.

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**Endorsement notice**

The text of the International Standard CISPR 16-1-3:2004, including the corrigendum February 2006, 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>
CISPR 16-1-2	2003	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
CISPR 16-2-2	2003	Specification for radio disturbance and immunity measuring apparatus and methods Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power	EN 55016-2-2	2004
CISPR 16-4-2	- <sup>1)</sup>	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 <sup>2)</sup>
IEC 60050-161	1990	International Electrotechnical Vocabulary	-	-
+ A1	1997	(IEV) - Chapter 161: Electromagnetic	-	-
+ A2	1998	compatibility	-	-

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

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

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

**CISPR**  
**16-1-3**

Second edition  
2004-06

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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**Specification for radio disturbance and immunity  
measuring apparatus and methods –**

**Part 1-3:**

**Radio disturbance and immunity measuring  
apparatus – Ancillary equipment –  
Disturbance power**

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION  
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**SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY  
MEASURING APPARATUS AND METHODS –**

**Part 1-3: Radio disturbance and immunity measuring apparatus –  
Ancillary equipment – Disturbance power**

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 16-1-3 has been prepared by CISPR subcommittee A: Radio interference measurements and statistical methods.

This second edition cancels and replaces the first edition published in 2003. It constitutes a technical revision. In this edition a more detailed calibration method for the absorbing clamp is specified. Furthermore, new alternative calibration methods are introduced which are more practicable than the one which was specified previously. Additional parameters to describe the absorbing clamp are defined, like the decoupling factor for the broadband absorber (DF) and the decoupling factor for the current transformer (DR), along with their validation methods. A procedure for the validation of the absorbing clamp test site (ACTS) is also included in the document.

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

FDIS	Report on voting
CISPR/A/517/FDIS	CISPR/A/532/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.

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.

The contents of the corrigendum of February 2006 have been included in this copy.

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

## Part 1-3: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Disturbance power

### 1 Scope

This part of CISPR 16 is designated a basic standard, which specifies the characteristics and calibration of the absorbing clamp for the measurement of radio disturbance power in the frequency range 30 MHz to 1 GHz.

### 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 16-1-2:2003, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Conducted disturbances*

CISPR 16-2-2:2003, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-2: Methods of measurement of disturbances and immunity – Measurement of disturbance power*  
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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) – Chapter 161: Electromagnetic compatibility*  
Amendment 1 (1997)  
Amendment 2 (1998)

### 3 Terms, definitions and abbreviations

#### 3.1 Terms and definitions

See IEC 60050-161, where applicable.

#### 3.2 Abbreviations

ACA	Absorbing clamp assembly
ACMM	Absorbing clamp measurement method
ACRS	Absorbing clamp reference site
ACTS	Absorbing clamp test site
CF	Clamp factor

CRP	Clamp reference point
DF	Decoupling factor
DR	Decoupling factor that specifies the decoupling of the current transformer from the common mode impedance of the measurement receiver
JTF	Jig transfer factor
LUT	Lead under test
RTF	Reference transfer factor
SAD	Secondary absorbing device
SAR	Semi-anechoic room
SRP	Slide reference point

## 4 Absorbing clamp instrumentation

### 4.1 Introduction

The measurement of disturbance power using an absorbing clamp is a method for the determination of the radiated disturbance in the frequency range above 30 MHz. This measurement method represents an alternative approach to the measurement of the disturbance field strength on an OATS. The absorbing clamp measurement method (ACMM) is described in Clause 7 of CISPR 16-2-2.

The ACMM uses the following measurement instrumentation:

- the absorbing clamp assembly;
- the secondary absorbing device;
- the absorbing clamp test site.

Figure 1 gives an overview of the absorbing clamp measurement method including the instrumentation required for this method and the calibration and validation methods for the instrumentation. The requirements for the instrumentation necessary for the ACMM are specified in this clause. Details of the absorbing clamp calibration method, and validation of other properties of the clamp and the secondary absorbing device, are described in Annex B. Details of the absorbing clamp test site validation are described in Annex C. Absorbing clamps are suitable for the measurement of disturbances from some types of equipment, depending on construction and size. The precise measuring procedure and its applicability is to be specified for each category of equipment. If the EUT itself (without connecting leads) has a dimension that approaches 1/4 of the wavelength, direct cabinet radiation may occur. The disturbance capability of an appliance having a mains lead as the only external lead may be taken as the power the appliance could supply to its mains lead, which acts as a transmitting antenna. This power is nearly equal to that supplied by the appliance to a suitable absorbing device placed around the lead at the position where the absorbed power is at a maximum. Direct radiation from the appliance is not taken into account. Equipment having external leads other than a mains lead can radiate disturbance energy from such leads, whether shielded or unshielded, in the same manner as radiation from the mains lead. Measurements using the absorbing clamp can be made on these types of lead as well.

The application of the ACMM is specified in more detail in 7.9 of CISPR 16-2-2.