

## REDLINE VERSION



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INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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BASIC EMC PUBLICATION

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**Specification for radio disturbance and immunity measuring apparatus and methods –  
Part 1-2: Radio disturbance and immunity measuring apparatus – Coupling  
devices for conducted disturbance measurements**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 33.100.10, 33.100.20

ISBN 978-2-8322-1497-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION  
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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

**Part 1-2: Radio disturbance and immunity measuring apparatus –**  
**~~Ancillary equipment – Conducted disturbances~~**  
**Coupling devices for 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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**This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions and deletions are displayed in red, with deletions being struck through.**

International Standard CISPR 16-1-2 has been prepared by subcommittee A: Radio-interference measurements and statistical methods, of IEC technical committee CISPR: International special committee on radio interference.

This second edition cancels and replaces the first edition published in 2003 and its Amendment 1 (2004) and Amendment 2 (2006). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) requirements from CISPR 22 for the AAN have been copied to this standard;
- b) the CDNE for measurement of disturbance voltage in the frequency range 30 MHz to 300 MHz is added;
- c) additional maintenance is 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:

|                   |                  |
|-------------------|------------------|
| FDIS              | Report on voting |
| CISPR/A/1051/FDIS | CISPR/A/1059/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.

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.

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 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 document using a colour printer.**

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

### Part 1-2: Radio disturbance and immunity measuring apparatus –

#### ~~Ancillary equipment – Conducted disturbances~~ Coupling devices for conducted disturbance measurements

## 1 Scope

This part of the CISPR 16 series ~~is designated a basic standard, which~~ specifies the characteristics and performance of equipment for the measurement of radio disturbance voltages and currents in the frequency range 9 kHz to 1 GHz.

NOTE In accordance with IEC Guide 107, CISPR 16 is a basic EMC standard 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 evaluation of the value of particular EMC tests for specific products.

Specifications for ancillary apparatus are included for artificial mains networks, current and voltage probes and coupling units for current injection on cables.

~~It is intended that~~ the requirements of this publication ~~shall be complied with~~ are fulfilled at all frequencies and for all levels of radio disturbance voltages and currents within the CISPR indicating range of the measuring equipment.

Methods of measurement are covered in the CISPR 16-2 series, and further information on radio disturbance is given in CISPR 16-3, ~~while uncertainties, statistics and limit modelling are covered in the CISPR 16-4 series.~~

## 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.

~~CISPR 14 1:2000, Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission~~

CISPR 16-1-1:~~2003~~2010, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus

CISPR 16-2-1:~~2003~~2014, 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 3:2003, Specification for radio disturbance and Immunity measuring apparatus and methods – Part 3: CISPR Technical reports~~

~~CISPR 16 4 1:2003, Specification for radio disturbance and immunity measuring apparatus and methods – Part 4 1: Uncertainties, statistics and limit modelling – Uncertainties in standardized EMC tests~~

CISPR 16-4-2:~~2003~~2011, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Measurement instrumentation uncertainty*

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

~~IEC 60050(161):1990, International Electrotechnical Vocabulary (IEV) — Chapter 161: Electromagnetic compatibility~~

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

~~International Vocabulary of Basic and General Terms in Metrology, International Organization for Standardization, Geneva, 2nd edition, 1993~~

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



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INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE  
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BASIC EMC PUBLICATION  
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**Specification for radio disturbance and immunity measuring apparatus and methods –**

**Part 1-2: Radio disturbance and immunity measuring apparatus – Coupling devices for conducted disturbance measurements**

**Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques –**

**Partie 1-2: Appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Dispositifs de couplage pour la mesure des perturbations conduites**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION  
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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

**Part 1-2: Radio disturbance and immunity measuring apparatus –  
Coupling devices for conducted disturbance measurements**

**FOREWORD**

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International Standard CISPR 16-1-2 has been prepared by subcommittee A: Radio-interference measurements and statistical methods, of IEC technical committee CISPR: International special committee on radio interference.

This second edition cancels and replaces the first edition published in 2003 and its Amendment 1 (2004) and Amendment 2 (2006). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) requirements from CISPR 22 for the AAN have been copied to this standard;
- b) the CDNE for measurement of disturbance voltage in the frequency range 30 MHz to 300 MHz is added;
- c) additional maintenance is 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:

|                   |                  |
|-------------------|------------------|
| FDIS              | Report on voting |
| CISPR/A/1051/FDIS | CISPR/A/1059/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.

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.

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 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 document using a colour printer.**

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

### **Part 1-2: Radio disturbance and immunity measuring apparatus – Coupling devices for conducted disturbance measurements**

#### **1 Scope**

This part of the CISPR 16 series specifies the characteristics and performance of equipment for the measurement of radio disturbance voltages and currents in the frequency range 9 kHz to 1 GHz.

NOTE In accordance with IEC Guide 107, CISPR 16 is a basic EMC standard 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 evaluation of the value of particular EMC tests for specific products.

Specifications for ancillary apparatus are included for artificial mains networks, current and voltage probes and coupling units for current injection on cables.

It is intended that the requirements of this publication are fulfilled at all frequencies and for all levels of radio disturbance voltages and currents within the CISPR indicating range of the measuring equipment.

Methods of measurement are covered in the CISPR 16-2 series, and further information on radio disturbance is given in CISPR 16-3, while uncertainties, statistics and limit modelling are covered in the CISPR 16-4 series.

#### **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.

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 16-2-1:2014, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-1: Methods of measurement of disturbances and immunity – Conducted disturbance measurements*

CISPR 16-4-2:2011, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Measurement instrumentation uncertainty*

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE  
COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES

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**SPÉCIFICATIONS DES MÉTHODES ET DES APPAREILS DE MESURE  
DES PERTURBATIONS RADIOÉLECTRIQUES ET DE L'IMMUNITÉ  
AUX PERTURBATIONS RADIOÉLECTRIQUES –**

**Partie 1-2: Appareils de mesure des perturbations  
radioélectriques et de l'immunité aux perturbations radioélectriques –  
Dispositifs de couplage pour la mesure des perturbations conduites**

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La Norme internationale CISPR 16-1-2 a été établie par le sous-comité A de la CISPR: Mesures des perturbations radioélectriques et méthodes statistiques, du comité d'études CISPR de la CEI: Comité international spécial des perturbations radioélectriques.

Cette deuxième édition annule et remplace la première édition parue en 2003, l'Amendement 1 (2004) et l'Amendement 2 (2006). Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) des exigences de la CISPR 22 relatives aux AAN ont été copiées dans la présente norme;
- b) le CDNE pour la mesure de la tension perturbatrice dans la gamme de fréquences de 30 MHz à 300 MHz a été ajouté;
- c) une maintenance supplémentaire est incluse.

Elle a le statut d'une publication fondamentale en CEM (Compatibilité Electromagnétique) conformément au Guide 107 de la CEI, *Compatibilité électromagnétique – Guide pour la rédaction des publications sur la compatibilité électromagnétique*.

Le texte de la présente norme est issu des documents suivants:

|                   |                  |
|-------------------|------------------|
| FDIS              | Rapport de vote  |
| CISPR/A/1051/FDIS | CISPR/A/1059/RVD |

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Une liste de toutes les parties de la série CISPR 16, publiées sous le titre général *Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques*, peut être consultée sur le site web de la CEI.

La présente publication a été rédigée selon les Directives ISO/CEI, Partie 2.

Le comité a décidé que le contenu de la présente publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de la CEI à l'adresse «<http://webstore.iec.ch>» dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
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# **SPÉCIFICATIONS DES MÉTHODES ET DES APPAREILS DE MESURE DES PERTURBATIONS RADIOÉLECTRIQUES ET DE L'IMMUNITÉ AUX PERTURBATIONS RADIOÉLECTRIQUES –**

## **Partie 1-2: Appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Dispositifs de couplage pour la mesure des perturbations conduites**

### **1 Domaine d'application**

La présente partie de la série CISPR 16 spécifie les caractéristiques et les performances des appareils de mesure de tensions et de courants perturbateurs radioélectriques dans la plage de fréquences comprises entre 9 kHz et 1 GHz.

NOTE Selon le Guide 107 de la CEI, la présente partie de la CISPR 16 constitue une norme fondamentale en CEM destinée à l'usage des comités de produits de la CEI. Comme mentionné dans le Guide 107, les comités de produits sont responsables de la détermination de l'applicabilité de la norme CEM. Le CISPR et ses sous-comités sont prêts à coopérer avec les comités de produits à l'évaluation de la valeur des essais CEM spécifiques à certains produits.

Les spécifications relatives aux matériels d'appoint sont incluses pour les réseaux fictifs, les sondes de courant et de tension et les boîtiers de couplage pour injection de courant au niveau des câbles.

Il est prévu que les exigences de la présente publication satisfassent à toutes les fréquences et à tous les niveaux de tension et de courant radioélectriques perturbateurs, dans les limites de la plage de lecture des appareils de mesure de la CISPR.

Les méthodes de mesure sont traitées dans la série CISPR 16-2, et des informations supplémentaires relatives aux perturbations radioélectriques sont communiquées par la série CISPR 16-3, alors que les incertitudes, les statistiques et la modélisation des limites sont fournies dans la série CISPR 16-4.

### **2 Références normatives**

Les documents suivants sont cités en référence de manière normative, en intégralité ou en partie, dans le présent document et sont indispensables pour son application. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

CISPR 16-1-1:2010, *Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Partie 1-1: Appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Appareils de mesure*

CISPR 16-2-1:2014, *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 16-4-2:2011, *Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Partie 4-2: Incertitudes, statistiques et modélisation des limites – Incertitudes de mesure de l'instrumentation*

CEI 60050 (toutes les parties), *Vocabulaire Electrotechnique International* (disponible sur «<http://www.electropedia.org>»)

CEI 61000-4-6:2008, *Compatibilité électromagnétique (CEM) – Partie 4-6: Techniques d'essai et de mesure – Immunité aux perturbations conduites, induites par les champs radioélectriques*