

REDLINE VERSION



**Electromagnetic compatibility (EMC) –
Part 3-2: Limits – Limits for harmonic current emissions (equipment input
current ≤ 16 A per phase)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –**Part 3-2: Limits – Limits for harmonic current emissions
(equipment input current ≤ 16 A per phase)**

FOREWORD

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- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 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.

DISCLAIMER

This Redline version is not an official IEC Standard and is intended only to provide the user with an indication of what changes have been made to the previous version. Only the current version of the standard is to be considered the official document.

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 are in green text, deletions are in strikethrough red text.

International Standard IEC 61000-3-2 has been prepared by sub-committee 77A: EMC – Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms part 3-2 of the IEC 61000 series. It has the status of a product family standard.

This fifth edition cancels and replaces the fourth edition published in 2014. This edition constitutes a technical revision.

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

- a) an update of the emission limits for lighting equipment with a rated power ≤ 25 W to take into account new types of lighting equipment;
- b) the addition of a threshold of 5 W under which no emission limits apply to all lighting equipment;
- c) the modification of the requirements applying to the dimmers when operating non-incandescent lamps;
- d) the addition of test conditions for digital load side transmission control devices;
- e) the removal of the use of reference lamps and reference ballasts for the tests of lighting equipment;
- f) the simplification and clarification of the terminology used for lighting equipment;
- g) the classification of professional luminaires for stage lighting and studios under Class A;
- h) a clarification about the classification of emergency lighting equipment;
- i) a clarification for lighting equipment including one control module with an active input power ≤ 2 W;
- j) an update of the test conditions for television receivers;
- k) an update of the test conditions for induction hobs, taking also into account the other types of cooking appliances;
- l) for consistency with IEC 61000-3-12, a change of the scope of IEC 61000-3-2 from equipment with an input current ≤ 16 A to equipment with a rated input current ≤ 16 A.

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

FDIS	Report on voting
77A/986/FDIS	77A/990/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 in the IEC 61000 series, published under the general title, *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

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.

INTRODUCTION

IEC 61000 is published in separate parts, according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description levels

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, technical specifications, or as technical reports.~~

~~These standards and reports will be published in chronological order and numbered accordingly (for example, 61000-6-1).~~

~~This part is an international standard which gives emission limits for harmonic currents from equipment having an input current up to and including 16 A per phase.~~

~~This part is a Product Family Standard.~~

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

1 Scope

This part of IEC 61000 deals with the limitation of harmonic currents injected into the public supply system.

It specifies limits of harmonic components of the input current which ~~may~~ can be produced by equipment tested under specified conditions.

~~Harmonic components are measured according to Annexes A and B.~~

This part of IEC 61000 is applicable to electrical and electronic equipment having an ~~rated~~ input current up to and including 16 A per phase, and intended to be connected to public low-voltage distribution systems.

Arc welding equipment which is not professional equipment, with a ~~rated~~ input current up to and including 16 A per phase, is included in this document. Arc welding equipment intended for professional use, as specified in IEC 60974-1, is excluded from this document and ~~may~~ can be subject to installation restrictions as indicated in ~~IEC/TR 61000-3-4 or~~ IEC 61000-3-12.

The tests according to this document are type tests. ~~Test conditions for particular equipment are given in Annex C.~~

For systems with nominal voltages less than but not equal to 220 V (line-to-neutral), the limits have not yet been considered.

NOTE The words apparatus, appliance, device and equipment are used throughout this document. They have the same meaning for the purposes of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60050-131, International Electrotechnical Vocabulary (IEV) – Part 131: Electric and magnetic circuits~~

IEC 60050-161, International Electrotechnical Vocabulary (IEV) – Part 161: Electromagnetic compatibility (available at www.electropedia.org)

~~IEC 60107-1, Methods of measurement on receivers for television broadcast transmissions – Part 1: General considerations – Measurements at radio and video frequencies~~

IEC 60155, Glow-starters for fluorescent lamps

~~IEC 60268-1:1985, Sound system equipment – Part 1: General~~

IEC 60268-3, *Sound system equipment – Part 3: Amplifiers*

~~IEC 60335-2-2, Household and similar electrical appliances – Safety – Part 2-2: Particular requirements for vacuum cleaners and water suction cleaning appliances~~

~~IEC 60335-2-14, Household and similar electrical appliances – Safety – Part 2-14: Particular requirements for kitchen machines~~

IEC 60335-2-24:2010, *Household and similar electrical appliances – Safety – Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice makers*

~~IEC 60335-2-79, Household and similar electrical appliances – Safety – Part 2-79: Particular requirements for high pressure cleaners and steam cleaners~~

~~IEC 60974-1, Arc welding equipment – Part 1: Welding power sources~~

~~IEC 61000-2-2, Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems~~

~~IEC/TR 61000-3-4, Electromagnetic compatibility (EMC) – Part 3-4: Limits – Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A~~

~~IEC 61000-3-12, Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase~~

IEC 61000-4-7:2002, *Electromagnetic compatibility (EMC) – Part 4-7: Testing and measurement techniques – General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto*
IEC 61000-4-7:2002/AMD1:2008

~~Recommendation ITU-R BT.471-1, Nomenclature and description of colour bar signals~~

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electromagnetic compatibility (EMC) –
Part 3-2: Limits – Limits for harmonic current emissions (equipment input
current ≤ 16 A per phase)**

**Compatibilité électromagnétique (CEM) –
Partie 3-2: Limites – Limites pour les émissions de courant harmonique
(courant appelé par les appareils ≤ 16 A par phase)**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

COMPATIBILITÉ ÉLECTROMAGNÉTIQUE (CEM) –

Partie 3-2: Limites – Limites pour les émissions de courant harmonique (courant appelé par les appareils ≤ 16 A par phase)

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La Norme internationale IEC 61000-3-2 a été établie par le sous-comité 77A: CEM – Phénomènes basse fréquence, du comité d'études 77 de l'IEC: Compatibilité électromagnétique.

Elle constitue la partie 3-2 de la série IEC 61000. Elle a le statut d'une norme de famille de produit.

Cette cinquième édition annule et remplace la quatrième édition parue en 2014. Cette édition constitue une révision technique.

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

- a) une mise à jour des limites d'émission pour les appareils d'éclairage ayant une puissance assignée ≤ 25 W afin de tenir compte des nouveaux types d'appareils d'éclairage;
- b) l'ajout d'un seuil de 5 W en dessous duquel aucune limite d'émission ne s'applique à l'ensemble des appareils d'éclairage;
- c) la modification des exigences qui s'appliquent aux variateurs de lumière lorsqu'ils font fonctionner des lampes qui ne sont pas à incandescence;
- d) l'ajout de conditions d'essai applicables aux dispositifs de commande d'éclairage par transmission numérique côté charge;
- e) la suppression de l'emploi de lampes de référence et de ballasts de référence pour les essais des appareils d'éclairage;
- f) la simplification et la clarification de la terminologie employée pour les appareils d'éclairage;
- g) la classification en classe A des luminaires professionnels pour l'éclairage des scènes de théâtre et pour les studios;
- h) une clarification de la classification des appareils d'éclairage de secours;
- i) une clarification pour les appareils d'éclairage comportant un module de commande ayant une puissance active d'entrée ≤ 2 W;
- j) une mise à jour des conditions d'essai des récepteurs de télévision;
- k) une mise à jour des conditions d'essai des tables de cuisson à induction, tenant compte également des autres types d'appareils de cuisson;
- l) en cohérence avec l'IEC 61000-3-12, une modification du domaine d'application de l'IEC 61000-3-2, qui couvrait les appareils ayant un courant d'entrée ≤ 16 A, et qui couvre maintenant les appareils ayant un courant d'entrée assigné ≤ 16 A.

Le texte de cette norme est issu des documents suivants.

FDIS	Rapport de vote
77A/986/FDIS	77A/990/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.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2

Une liste de toutes les parties de la série IEC 61000, publiées sous le titre général *Compatibilité électromagnétique (CEM)*, peut être consultée sur le site web de l'IEC.

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

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

IMPORTANT – Le logo "*colour inside*" qui se trouve sur la page de couverture de cette publication indique qu'elle contient des couleurs qui sont considérées comme utiles à une bonne compréhension de son contenu. Les utilisateurs devraient, par conséquent, imprimer cette publication en utilisant une imprimante couleur.

INTRODUCTION

L'IEC 61000 est publiée sous forme de plusieurs parties séparées, conformément à la structure suivante:

Partie 1: Généralités

Considérations générales (introduction, principes fondamentaux)

Définitions, terminologie

Partie 2: Environnement

Description de l'environnement

Classification de l'environnement

Niveaux de compatibilité

Partie 3: Limites

Limites d'émission

Limites d'immunité (dans la mesure où elles ne relèvent pas des comités de produits)

Partie 4: Techniques d'essai et de mesure

Techniques de mesure

Techniques d'essais

Partie 5: Guides d'installation et d'atténuation

Guides d'installation

Méthodes et dispositifs d'atténuation

Partie 6: Normes génériques

Partie 9: Divers

Chaque partie est à son tour subdivisée en plusieurs parties, publiées soit comme Normes internationales, soit comme spécifications techniques ou rapports techniques, dont certaines ont déjà été publiées en tant que sections. D'autres seront publiées avec le numéro de partie, suivi d'un tiret et d'un second numéro identifiant la subdivision (exemple: IEC 61000-6-1).

COMPATIBILITÉ ÉLECTROMAGNÉTIQUE (CEM) –

Partie 3-2: Limites – Limites pour les émissions de courant harmonique (courant appelé par les appareils ≤ 16 A par phase)

1 Domaine d'application

La présente partie de l'IEC 61000 traite de la limitation des courants harmoniques injectés dans le réseau public d'alimentation.

Elle définit les limites des harmoniques du courant d'entrée qui peuvent être produits par les matériels soumis à l'essai dans des conditions spécifiées.

La présente partie de l'IEC 61000 est applicable aux appareils électriques et électroniques ayant un courant d'entrée assigné dont la valeur est inférieure ou égale à 16 A par phase et qui sont destinés à être raccordés à des réseaux publics de distribution à basse tension.

Le matériel de soudage à l'arc qui n'est pas du matériel professionnel, dont le courant d'entrée assigné est inférieur ou égal à 16 A par phase, relève du présent document. Le matériel de soudage à l'arc destiné à un usage professionnel, tel que spécifié dans l'IEC 60974-1, est exclu du domaine d'application du présent document et peut être sujet à des restrictions d'installation comme indiqué dans l'IEC 61000-3-12.

Les essais effectués conformément au présent document sont des essais de type.

Les limites applicables aux réseaux dont la tension nominale est strictement inférieure à 220 V (entre phase et neutre) n'ont pas encore été envisagées.

NOTE Les mots «appareil», «matériel» et «dispositif» sont utilisés dans le présent document. Ils ont la même signification pour les besoins du présent document.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. 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).

IEC 60050-161, *Vocabulaire Electrotechnique International (VEI) – Partie 161: Compatibilité électromagnétique* (disponible sous www.electropedia.org)

IEC 60155, *Interrupteurs d'amorçage à lueur pour lampes à fluorescence (starters)*

IEC 60268-3, *Équipements pour systèmes électroacoustiques – Partie 3: Amplificateurs*

IEC 60335-2-24:2010, *Appareils électrodomestiques et analogues – Sécurité – Partie 2-24: Règles particulières pour les appareils de réfrigération, les sorbetières et les fabriques de glace*

IEC 61000-4-7:2002, *Compatibilité électromagnétique (CEM) – Partie 4-7: Techniques d'essai et de mesure – Guide général relatif aux mesures d'harmoniques et d'interharmoniques, ainsi qu'à l'appareillage de mesure, applicable aux réseaux d'alimentation et aux appareils qui y sont raccordés*

IEC 61000-4-7:2002/AMD1:2008