Irish Standard
I.S. EN 62489-2:2014

Electroacoustics - Audio-frequency induction loop systems for assisted hearing - Part 2: Methods of calculating and measuring the low-frequency magnetic field emissions from the loop for assessing conformity with guidelines on limits for human exposure

I.S. EN 62489-2:2014

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 62489-2

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English Version

Electroacoustics - Audio-frequency induction loop systems for assisted hearing - Part 2: Methods of calculating and measuring the low-frequency magnetic field emissions from the loop for assessing conformity with guidelines on limits for human exposure (IEC 62489-2:2014)

Electroacoustique - Systèmes de boucles d'induction audiofréquences pour améliorer l'audition - Partie 2: Méthodes de calcul et de mesure des émissions de champ magnétique basse fréquence à partir de la boucle pour l'évaluation de la conformité aux instructions sur les limites d'exposition humaine (CEI 62489-2:2014)

Akustik - Audiofrequenz-Induktionsschleifenanlagen zur Unterstützung von Hörsystemen - Teil 2: Verfahren zur Berechnung und Messung der niederfrequenten Emissionen des durch die Schleife erzeugten Magnetfeldes zur Einschätzung der Konformität mit Richtlinien zu Grenzwerten für die Belastung des Menschen (IEC 62489-2:2014)

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Comité Européen de Normalisation Electrotechnique
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Foreword

The text of document 29/847/FDIS, future edition 2 of IEC 62489-2, prepared by IEC/TC 29 "Electroacoustics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62489-2:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-07-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-10-29

This document supersedes EN 62489-2:2011.

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The text of the International Standard IEC 62489-2:2014 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:

IEC 62233	NOTE	Harmonized as EN 62233.
IEC 62311:2007	NOTE	Harmonized as EN 62311:2008 (modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60118-4	2006	Electroacoustics - Hearing aids - Part 4: Induction loop systems for hearing aid purposes - Magnetic field strength	EN 60118-4	2006
IEC 60268-1	1985	Sound system equipment - Part 1: General	HD 483.1 S2	1989
IEC 60268-2	1987	Sound system equipment - Part 2: Explanation of general terms and calculation methods	HD 483.2 S2	1993
IEC 60268-10	1991	Sound system equipment - Part 10: Peak programme level meters	HD 483.10 S1	1993

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IEC 62489-2

Edition 2.0 2014-09

INTERNATIONAL STANDARD

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Electroacoustics – Audio-frequency induction loop systems for assisted hearing – Part 2: Methods of calculating and measuring the low-frequency magnetic field emissions from the loop for assessing conformity with guidelines on limits for human exposure

Électroacoustique – Systèmes de boucles d'induction audiofréquences pour améliorer l'audition – Partie 2: Méthodes de calcul et de mesure des émissions de champ magnétique basse fréquence à partir de la boucle pour l'évaluation de la conformité aux instructions sur les limites d'exposition humaine

IEC 62489-2:2014-09(en-fr)

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IEC 62489-2

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ELECTROACOUSTICS – AUDIO-FREQUENCY INDUCTION LOOP SYSTEMS FOR ASSISTED HEARING –

Part 2: Methods of calculating and measuring the low-frequency magnetic field emissions from the loop for assessing conformity with guidelines on limits for human exposure

FOREWORD

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International Standard IEC 62489-2 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition: it reflects several updates to the ICNIRP Guide [1][1] to which it makes frequent

[1] Numbers in square brackets refer to the Bibliography.

reference. The most significant change is that the underlying metric in the Guide has been changed from tissue current density to induced electric field.

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

FDIS	Report on voting
29/847/FDIS	29/854/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 the IEC 62489 series, published under the general title *Electroacoustics – Audio-frequency induction loop systems for assisted hearing*, 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.

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INTRODUCTION

A revision of IEC 62489-2 is necessary because, while the standard does not call up any particular set of exposure limits, it has numerous references to the ICNIRP Guide, which has profoundly changed between the 1998 and 2010 editions. This has resulted in a change in the physical quantity on which the basic restrictions are established, from tissue current density to induced electric field, resulting in changes to the reference levels and a considerable simplification of the application of the guidelines.

The recommendations of the new Guide have not yet been adopted at the regulatory level in the European Union. However, since the references to the Guide in IEC 62489-2 are purely informative, it does not appear that this revision should be unacceptable in Europe.

ELECTROACOUSTICS – AUDIO-FREQUENCY INDUCTION LOOP SYSTEMS FOR ASSISTED HEARING –

Part 2: Methods of calculating and measuring the low-frequency magnetic field emissions from the loop for assessing conformity with guidelines on limits for human exposure

1 Scope

This part of IEC 62489 applies to audio-frequency induction-loop systems for assisted hearing. It may also be applied to such systems used for other purposes, as far as it is applicable. The standard is intended for assessment of human exposure to low-frequency magnetic fields produced by the system, by calculation and by in-situ testing.

This standard does not deal with other aspects of safety, for which IEC 60065 applies, or with EMC.

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.

IEC 60118-4:2006, *Electroacoustics - Hearing aids - Part 4: Induction loop systems for hearing aid purposes - Magnetic field strength*

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

IEC 60268-2:1987, *Sound system equipment – Part 2: Explanation of general terms and calculation methods*

IEC 60268-10:1991, *Sound system equipment – Part 10: Peak programme level meters*

3 Rated values

The term "rated" means "the value stated by the manufacturer". Rated values are of two kinds: rated conditions, which are fundamental values that cannot be verified by measurement, and others that can be so verified. For a full explanation, see IEC 60268-2.

4 Situation regarding current standards

Current published and draft IEC standards on EMF exposure can be ambiguous in their guidance on the approach that should be taken by product committees. The differences between the signals that are of concern and those considered in depth in EMF exposure standards are the following:

- wide relative bandwidth, i.e. the ratio of highest to lowest frequency present, 5 kHz and 100 Hz;
- no predominant frequency within the band;