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**Electroacoustics - Hearing aids -
Part 4: Induction-loop systems for hearing aid purposes - System
performance requirements
(IEC 60118-4:2014)**

Électroacoustique - Appareils de correction auditive -
Partie 4: Systèmes de boucles d'induction utilisées à des
fins de correction auditive - Exigences de performances
système
(IEC 60118-4:2014)

Akustik - Hörgeräte -
Teil 4: Induktionsschleifen für Hörgeräte -
Leistungsanforderungen
(IEC 60118-4:2014)

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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 29/855/FDIS, future edition 3 of IEC 60118-4, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60118-4:2015.

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) 2015-10-15
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61938	NOTE	Harmonised as EN 61938.
IEC 61260-1	NOTE	Harmonised as EN 61260-1.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60268-3	2013	Sound system equipment -- Part 3: Amplifiers	EN 60268-3	2013
IEC 60268-10	1991	Sound system equipment -- Part 10: Peak programme level meters	HD 483.10 S1	1993
IEC 61672-1	2013	Electroacoustics - Sound level meters -- Part 1: Specifications	EN 61672-1	2013
IEC 62489-1	2010	Electroacoustics - Audio frequency induction loop systems for assisted hearing -- Part 1: Methods of measuring and specifying the performance of system components	EN 62489-1	2010



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auditive – Exigences de performances système**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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Part 4: Induction-loop systems for hearing aid purposes – System performance
requirements**

**Électroacoustique – Appareils de correction auditive –
Partie 4: Systèmes de boucles d'induction utilisées à des fins de correction
auditive – Exigences de performances système**

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**ELECTROACOUSTICS –
HEARING AIDS –****Part 4: Induction-loop systems for hearing aid purposes –
System performance requirements****FOREWORD**

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International Standard IEC 60118-4 has been prepared by IEC technical committee 29: Electroacoustics.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition: Addition of Annexes G, H and I where more information is provided about practical considerations and methods of measurement.

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

FDIS	Report on voting
29/855/FDIS	29/861/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 60118 series, published under the general title *Electroacoustics – Hearing aids*, 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

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- withdrawn,
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INTRODUCTION

Audio-frequency induction-loop systems are widely used to provide a means for hearing aid users, whose hearing aids are fitted with induction pick-up coils, generally known as 'telecoils', to minimise the problems of listening when at a distance from a source of sound, shielded from the person speaking by a protective window, and/or in a background noise. Background noise and distance are two of the main causes of hearing aid users being unable to hear satisfactorily in other than face-to-face quiet conditions. Induction-loop systems have been widely installed in churches, theatres and cinemas, for the benefit of hearing-impaired people. The use of induction-loop systems has been extended to many transient communication situations such as ticket offices, bank counters, drive-in/drive-through service locations, lifts/elevators etc. The widespread provision of telephone handsets that provide inductive coupling to hearing aids is another significant application, where ITU-T Recommendation P370 [1]¹ applies.

Transmission of an audio-frequency signal via an induction-loop system can often establish an acceptable signal-to-noise ratio in conditions where a purely acoustical transmission would be significantly degraded by reverberation and background noise.

One form of audio frequency induction-loop system comprises a cable installed in the form of a loop usually around the perimeter of a room or area in which a group of hearing impaired persons wish to listen. The cable is connected via an amplifier to a microphone system or other source of audio signal, such as a radio receiver, CD player etc. The amplifier produces an audio-frequency electric current in the induction loop cable, causing a magnetic field to be produced inside the loop. The design and implementation of the induction loop is determined by the construction of the building in which it is installed, particularly by the presence of large amounts of iron, steel or aluminium in the structure. In addition the layout and position of electrical cables and equipment may generate high levels of background audio frequency magnetic fields that may interfere with the reception of the loop signal.

Another form of induction-loop system employs a small loop, intended for communication with a hearing-aid user in its immediate vicinity. Examples are: neck loops, ticket-counter systems, self-contained 'portable' systems and chairs incorporating induction loops. (See Annex A)

The pick-up device for an audio-frequency induction-loop system is usually a personal hearing aid, of a type fitted with a pick-up coil (telecoil); however, special induction loop receivers may be used in certain applications.

¹ Numbers in square brackets refer to the Bibliography.

ELECTROACOUSTICS – HEARING AIDS –

Part 4: Induction-loop systems for hearing aid purposes – System performance requirements

1 Scope

This part of IEC 60118 is applicable to audio-frequency induction-loop systems producing an alternating magnetic field at audio frequencies and intended to provide an input signal for hearing aids operating with an induction pick-up coil (telecoil). Throughout this standard, it is assumed that the hearing aids used with it conform to all relevant parts of IEC 60118.

This standard specifies requirements for the field strength in audio-frequency induction loops for hearing aid purposes, which will give adequate signal-to-noise ratio without overloading the hearing aid. The standard also specifies the minimum frequency response requirements for acceptable intelligibility.

Methods for measuring the magnetic field strength are specified, and information is given on appropriate measuring equipment (see Annex B), information that should be provided to the operator and users of the system (see Annex C), and other important considerations.

This standard does not specify requirements for loop driver amplifiers or associated microphone or audio signal sources, which are dealt with in IEC 62489-1, or for the field strength produced by equipment, such as telephone handsets, within the scope of ITU-T P.370.

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 60268-3:2013, *Sound system equipment – Part 3: Amplifiers*

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

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

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