AS 60118.4—2007
IEC 60118-4, Ed. 1.0 (1981)
Includes Amendment 1:1998

Australian Standard®

Hearing aids

Part 4: Magnetic field strength in audio-frequency induction loops for hearing aid purposes

This Australian Standard® was prepared by Committee AV-003, Acoustics—Human Effects.
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- Association of Accredited Certification Bodies
- Association of Australian Acoustical Consultants
- Association of Consulting Engineers Australia
- Audiological Society of Australia
- Australasian Faculty of Occupational Medicine
- Australian Acoustical Society
- Australian Chamber of Commerce and Industry
- Australian Council of Trade Unions
- Australian Industry Group
- Department of Consumer & Employment Protection, WorkSafe Division, WA
- Department of Labour, NZ
- National Acoustic Laboratories
- New South Wales Nurses, Association
- New Zealand Audiological Society
- Royal Institute of Naval Architects
- Safety Institute of Australia
- The Australian Society of Otolaryngological Head and Neck Surgery
- Victorian WorkCover Authority
- WorkCover New South Wales

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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Australian Standard®

Hearing aids

Part 4: Magnetic field strength in audio-frequency induction loops for hearing aid purposes

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee AV-003, Acoustics—Human Effects, to supersede AS 1088.4—1987.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify a standard value of magnetic field strength in audio-frequency induction loops for hearing aid purposes, in order to give an adequate signal-to-noise ratio without overloading the hearing aid.

This Standard is identical with IEC 60118-4, Ed. 1.0 (1981), *Methods of measurement of electro-acoustical characteristics of hearing aids - Part 4: Magnetic field strength in audio-frequency induction loops for hearing aid purposes*, including its Amendment 1:1992 which has been incorporated into the source text.

As this Standard is reproduced from an International Standard its number does not appear on each page of text and its identity is shown only on the cover and title page.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard IEC		*Australian Standard* AS IEC	
61672	Electroacoustics—Sound level meters	61672	Electroacoustics—Sound level meters

CONTENTS

Page

NOTES

STANDARDS AUSTRALIA

Australian Standard

Hearing aids
Part 4: Magnetic field strength in audio-frequency induction loops for hearing aid purposes

Introduction

Induction loop systems generate an alternating magnetic field which may be detected over a definable area, by receivers equipped with induction pick-up coils. Induction loop systems are used for various applications, e.g. in public address, paging and simultaneous interpretation systems, and as an aid for the hearing-impaired. Audio-frequency induction loop systems, in particular, are often employed in schools for hearing-impaired children, as attachments to domestic radio and television receivers and in churches, theatres and cinemas for the benefit of hearing-impaired people.

The pick-up device for an audio-frequency induction loop system will usually be a personal hearing aid, of a type fitted with a pick-up coil; however, special induction loop receivers may be used in certain applications. 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 degraded by reverberation and background noise.

The use of personal hearing aids as loop system receivers enables the wearers of these aids to take advantage of induction loop signal transmission wherever such loops are provided. For this advantage to be most effective it is necessary for a standard value of magnetic field strength to be adopted, thus allowing a corresponding adjustment of the sensitivity of the pick-up coil in the hearing aid. The magnetic field strength must be chosen so that:

a) it is high enough to produce an acceptable signal-to-noise ratio over ambient electro-magnetic noise from power installations, etc.;

b) it is not so high as to cause overloading of the hearing aid.

The value of magnetic field strength recommended in this Standard has been chosen so that these requirements are met. The lower limit of magnetic field strength is governed by the expected level of ambient electro-magnetic noise, measurements of which have been made in a number of homes, churches, schools, theatres, etc., in order to determine typical values. Measurements have also been made on hearing aids currently in use, to determine an acceptable range of input levels and on which the higher limit is based.

An induction loop system will typically incorporate a driving amplifier which is not specified in this Standard. However, a recommendation of the frequency dependence of the magnetic field strength is included.

The recommended value for magnetic field strength may also be applicable to transmitting coils intended for very short range (i.e. close contact) inductive coupling of other devices, such as radio and television receivers, to hearing aids.

In the case of large areas of magnetic disturbances from mains or lighting regulation systems, it may be necessary to deviate from this Standard or refrain from using an induction loop system.