

Australian Standard<sup>®</sup>

**Hearing aids**

**Part 0: Measurement of  
electroacoustical characteristics**

**STANDARDS**  
Australia



This Australian Standard® was prepared by Committee AV-003, Acoustics—Human Effects. It was approved on behalf of the Council of Standards Australia on 3 November 2006. This Standard was published on 20 February 2007.

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The following are represented on Committee AV-003:

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  - Association of Australian Acoustical Consultants
  - Association of Consulting Engineers Australia
  - Audiological Society of Australia
  - Australasian Faculty of Occupational Medicine
  - Australian Acoustical Society
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  - The Australian Society of Otolaryngological Head and Neck Surgery
  - Victorian WorkCover Authority
  - WorkCover New South Wales
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**Part 0: Measurement of  
electroacoustical characteristics**

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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 1088.0—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 revision is to update the Standard by adding the IEC amendment to the source text.

This Standard is identical with IEC 60118-0 Ed. 2.0 (1983), *Hearing aids – Part 0: Measurement of electroacoustical characteristics*, including its Amendment 1:1994, which has been incorporated into the source text.

As this Standard is reproduced from an international standard, the following applies:

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

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
IEC		AS	
60068	Basic environment testing procedures	60068	Environmental testing
60118	Hearing aids	60118	Hearing aids
60118-1	Part 1: Hearing aids with induction pick-up coil	60118.1	Part 1: Hearing aids with induction pick-up coil input
60118-2	Part 2: Hearing aids with automatic gain control circuits	60118.2	Part 2: Hearing aids with automatic gain control circuits
60118-7	Part 7: Measurement of the performance characteristics of hearing aids for quality inspection for delivery purposes	60118.7	Part 7: Measurement of the performance characteristics of hearing aids for quality inspection for delivery purposes
60118-8	Part 8: Methods of measurement of performance characteristics of hearing aids under simulated in situ working conditions	60118.8	Part 8: Methods of measurement of performance characteristics of hearing aids under simulated in situ working conditions
60126	IEC reference coupler for the measurement of hearing aids using earphones coupled to the ear by means of ear inserts	—	
60225	Octave, half-octave and third-octave band filters intended for the analysis of sounds and vibrations	—	
60263	Scales and sizes for plotting frequency characteristics and polar diagrams	—	
60711	Occluded-ear simulator for the measurement of earphones coupled to the ear by ear inserts	2928	Occluded-ear simulator for the measurement of earphones coupled to the ear by ear inserts

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## STANDARDS AUSTRALIA

## Australian Standard

## Hearing aids—Part 0: Measurement of electroacoustical characteristics

**1 Scope**

This standard describes the measurement of physical performance characteristics of air-conduction hearing aids based on a free-field technique and measured with an ear simulator.

**2 Object**

**2.1** The object of this standard is to describe methods of measurement for the evaluation of the electroacoustical characteristics of hearing aids.

The methods are chosen first of all to be practical and reproducible, and consequently they are based on fixed parameters chosen, to a certain extent, arbitrarily. This should be taken into consideration when comparisons are being made between test results for hearing aids of different models and manufacture, and in each case it is advisable to examine to what extent the arbitrarily chosen parameters will influence the comparison of such test results.

**2.2** The test results obtained by the methods specified in this standard express the performance under the conditions of the test and may deviate substantially from the performance of the hearing aid under practical conditions of use.

**2.3** It is not the purpose of this standard to restrict the variety of hearing aid performance and characteristics available, nor to inhibit in any way advances in the state of the art.

**2.4** The most significant change in this standard is the use of an ear simulator in accordance with IEC 60711: *Occluded Ear Simulator for the Measurement of Earphones Coupled to the Ear by Ear Inserts*, rather than an acoustic coupler, IEC 60126: *IEC Reference Coupler for the Measurement of Hearing Aids Using Earphones Coupled to the Ear by Means of Ear Inserts*. The effect of this change will be to give an apparent significant increase, at some frequencies, of both gain and saturation output levels over the results obtained when measurements are made with the acoustic coupler. Results obtained by using the methods described in this standard cannot therefore be directly compared with those previously obtained using the first edition of IEC 60118: *Recommended Methods for Measurement of the Electroacoustical Characteristics of Hearing Aids*, or IEC 60118-7: *Hearing Aids, Part 7: Measurement of Performance Characteristics of Hearing Aids for Quality Inspection for Delivery Purpose*, or IEC 60118-8: *Part 8: Methods of Measurement of Performance Characteristics of Hearing Aids under Simulated in situ Working Conditions*. (In preparation.)

**3 General conditions**

**3.1** Throughout this standard all sound pressure levels specified are referred to 20  $\mu\text{Pa}$ . When appropriate, sound pressure level will be abbreviated to SPL.

**3.2** Reference is made to IEC 60711 (1981): *Occluded Ear Simulator for the Measurement of Earphones Coupled to the Ear by Ear Inserts*.

**3.3** Test results obtained by the substitution method using point-by-point measurement shall be considered basic and should be used as a reference when results from the comparison method and the pressure method are being interpreted (see Sub-clauses 4.2, 4.3 and 4.4).