AS 1269—1989

Australian Standard®

Acoustics—Hearing conservation

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STANDARDS AUSTRALIA

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The following interests are represented on Committee AV/3:

Association of Consulting Engineers, Australia

Australian and New Zealand Pulp and Paper Industry Technical Association (Appita)

Australian Environment Council

Confederation of Australian Industry

Department of Industrial Relations and Employment, N.S.W.

Department of Occupational Health, Safety and Welfare, W.A.

Institute of Marine Engineers

Metal Trades Industry Association of Australia

National Acoustic Laboratories

National Occupational Health and Safety Commission

Otolaryngological Society of Australia

Royal Australian Institute of Architects

Royal Institution of Naval Architects

South Australian Health Commission

Safety Institute of Australia

University of Queensland

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Australian Standard®

Acoustics—Hearing conservation

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STANDARDS AUSTRALIA

Amendment No 1
to
AS 1269—1989
Acoustics—Hearing conservation

CORRECTIONS

The 1989 edition of AS 1269 is amended as follows; the amendments should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clauses 3.2.2, 3.2.3, 3.2.4.2, 3.2.4.3, Table 3.1, and Appendix A.

Published on 13 October 1989.

AMDT No 1 OCT. 1989

Page 10. Clause 3.2.2.

Delete '$L_{Aeq,T,i}$' and *substitute* '$L_{Aeq,Ti}$'.

AMDT No 1 OCT. 1989

Page 10. Clause 3.2.3.

Delete '$L_{Aeq,T,i}$' and *substitute* '$L_{Aeq,Ti}$'.

AMDT No 1 OCT. 1989

Page 10. Table 3.1.

Delete '$L_{AeqT,i}$' and *substitute* '$L_{Aeq,Ti}$'.

Delete '$L_{Aeq,T}$' and *substitute* '$L_{Aeq,8h}$'.

AMDT No 1 OCT. 1989

Page 11. Clause 3.2.4.2. Note 2.

Delete

$L_{Aeq,8h} = 90 + 10 \log_{10}(8.5/6.5) \times 10 \log_{10}0.86 = 91$ dB(A).

and *substitute*

$L_{Aeq,8h} = 90 + 10 \log_{10}(8.5/6.5) + 10 \log_{10}0.86 = 91$ dB(A).

AMDT No 1 OCT. 1989

Page 11. Clause 3.2.4.3.

Delete

$$L_{Aeq.8h} = 90 = 10 \log_{10}\left[D_M + \sum_{i}^{n} (PND)_i\right]$$

and *substitute*

$$L_{Aeq.8h} = 90 + 10 \log_{10}\left[D_M + \sum_{i}^{n} (PND)_i\right]$$

AMDT No 1 OCT. 1989

Page 20. Paragraph A2. Lines 9, 12, and 14.

Delete 'Table A2' and *substitute* 'Table A1'.

AMDT No 1 OCT. 1989

Page 21. Figure A1.

Delete '$L_{Aeq,T,i}$' and *substitute* '$L_{Aeq,Ti}$'.

AMDT No 1 OCT. 1989

Page 22. Paragraph A3.

Line 4, *delete* 'L_A' and *substitute* '$L_{Aeq,T}$'.

Line 12, *delete* 'L_{A1}, L_{A2}, L_{A3}, L_{A4}' and *substitute* '$L_{Aeq,T1}$, $L_{Aeq,T2}$, $L_{Aeq,T3}$, $L_{Aeq,T4}$'.

Line 13, *delete* 'Table A1' and *substitute* 'Table A2'.

Line 13, *delete* 'L_A' and *substitute* '$L_{Aeq,T}$'.

Line 16, after 'hour' *insert* 'is'.

Line 16, *delete* 'Table A1' and *substitute* 'Table A2'.

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PREFACE

This Standard was prepared by Standards Australia's Committee on Acoustics—Human Effects, to supersede AS 1269—1983, *Hearing Conservation*.

AS 1269 has been widely used since its introduction in 1976 and its revisions in 1979 and 1983. The 1979 edition was called up in statutory regulations relating to protection of hearing of persons exposed to occupational noise and the 1983 edition continued to be part of those regulations.

This edition incorporates changes to Table 5.1 which now includes additional data for various types of earphone/cushion or earphone/enclosure combination fitted to audiometers. Appendix D has been revised to reflect the estimated incidence of hearing impairment, which is defined in the body of the Standard, in noise-exposed populations, instead of the hearing loss incidence presented in the 1983 edition.

The utilization of a criterion based on an $L_{Aeq,8h}$ of 90 dB(A) may not necessarily provide adequate protection for all persons in the working population. Appendix A in this Standard provides calculation of daily noise dose (*DND*) from equivalent continuous sound pressure level (L_{Aeq}) or cumulative exposure to different levels of sound exposure. Some persons have been shown to be more susceptible than others to noise-induced impairment, and Appendix D has been revised to provide data on estimated incidence of hearing impairment. As a general rule, it appears essential that personal hearing protection be provided at lower levels than those specified in statutory regulations, in the interest of protecting the more susceptible members of the working community.

The detection of the early stage of noise-induced hearing impairment is of crucial importance. Persons highly susceptible to noise-induced hearing loss will suffer loss of hearing sensitivity early in their exposure history. Experience has shown that such impairment can be detected by audiometric monitoring only if the standard of testing and the reliability of the tests are very high. Accordingly, this edition introduces a recommendation that all audiograms be obtained by averaging the results of at least two separate tests.

Part of Table 5.1, showing maximum permissible background noise levels for audiometric testing using noise-excluding audiometric headsets, has been revised and extended on the basis of data supplied by the National Acoustic Laboratories.

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SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard describes the establishment of a hearing conservation program to protect persons who are occupationally exposed to noise.

For the purpose of this Standard, a hearing conservation program is a planned procedure to evaluate and control noise and to prevent impairment of hearing in persons exposed to excessive noise. The components of the program are as follows:

(a) Motivation and education of all concerned to accept responsibility for their part in the hearing conservation program.

(b) Measurement of the noise.

(c) Evaluation of any noise problem.

(d) Reduction of noise exposure.

(e) Provision of personal hearing protection and regular hearing testing if noise exposure remains excessive.

This Standard does not specify limits for exposure to occupational noise. Attention is invited to the appropriate limits for exposure to occupational noise specified in the relevant Statutory Regulations.

NOTE: Aspects of the implementation of the programs regarded as mandatory, if the programs are to be effective, are indicated by the use of words 'shall', or 'is necessary'. Aspects to be regarded as highly advisable are indicated by the use of the word 'should'. Clauses of both types, together with informative material for further guidance, are collated into a continuous text for easier comprehension.

1.2 OBJECTIVES.

1.2.1 Noise reduction program. As a primary aim, the Standard seeks to reduce exposure to noise by reducing noise levels. The Standard describes methods of measurement (see Section 2) which can be used to determine whether statutory noise exposure limits are exceeded (see Section 3), and provides advice on methods of reducing noise levels by engineering means (see Section 4). Where such methods of hearing conservation are not readily feasible, it becomes necessary to introduce other methods, such as the wearing of hearing protection devices (see Section 5).

1.2.2 Hearing protection program. The Standard also describes methods for personal hearing protection and regular hearing testing (see Section 5) to be adopted where technical or economic problems delay the reduction of noise exposure by engineering means or by administrative procedures.

1.3 REFERENCED DOCUMENTS. The following documents are referred to in this Standard.

AS
1259 Sound level meters
1270 Acoustics—Hearing protectors
1319 Safety signs for the occupational environment
2399 Personal noise dosemeters
2586 Audiometers
2659 Guide to the use of sound measuring equipment
2659.1 Part 1: Portable sound level meters
2659.2 Part 2: Portable equipment for integration of sound signals
2680 Acoustics—Performance requirements for tape recording equipment for use in acoustical measurement systems
Z41 Octave, half octave and one-third octave band pass filters intended for the analysis of sound and vibrations

IEC
804 Integrating-averaging sound level meters

ISO
1999 Acoustics—Assessments of occupational noise exposure for hearing conservation purposes

1.4 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

1.4.1 Daily noise dose (*DND*)—the sum of partial noise doses to which an employee is exposed throughout a representative working day. It is the ratio of the noise exposure experienced by a person in a representative working day to a reference value of noise exposure.

NOTES:

1. The reference value of noise exposure is defined in AS 2399 as being 3.2 $Pa^2.h$, where the pressure quantity is A-weighted. This reference value corresponds to a *DND* of 1.0, or an $L_{Aeq,8h}$ value of 90 dB(A) re 20 μPa. The reference value has been set arbitrarily.
2. For the basis of *DND* calculations, see Clause 3.2 and Appendix A.

1.4.2 Partial noise dose—a parameter determined by a sound pressure level and its duration during a representative working day.

1.4.3 Equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$)—that steady sound pressure level which would in the course of time period T cause the same A-weighted sound energy as that due to the actual noise over the same time period.

Symbol: $L_{Aeq,T}$ Unit symbol: dB(A)

1.4.4 Eight-hour equivalent continuous A-weighted sound pressure level ($L_{Aeq,8h}$)—that steady sound pressure level which would in the course of an 8-hour period cause the same A-weighted sound energy as that due to the actual noise over a representative working day.

Symbol: $L_{Aeq,8h}$ Unit symbol: dB(A)

NOTES:

1. For the basis of $L_{Aeq,8h}$ calculations, see Clause 3.2.
2. $L_{Ceq,8h}$ is a similar quantity, but refers to the C-weighted sound energy. (See Clause 2.2.4 and Appendix A).