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Australian Standard®

Acoustics—Statistical methods for determining and verifying stated noise emission values of machinery and equipment

Part 1: General considerations and definitions

[ISO title: Acoustics—Statistical methods for determining and verifying stated noise emission values of machinery and equipment
Part 1: General considerations and definitions]

This Australian Standard was prepared by Committee AV/6, Acoustics, Machinery Noise. It was approved on behalf of the Council of Standards Australia on 26 April 1990 and published on 17 September 1990.

The following interests are represented on Committee AV/6:

Australian and New Zealand Environment Council
Australian Coal Association
Australian Compressed Air and Mining Equipment Institute
Australian Federation of Construction Contractors
Confederation of Australian Industry
Construction Equipment Importers and Manufacturers of Australia
Council of the City of Sydney
Department of Industrial Relations and Employment, N.S.W.
Department of Labour, S.A.
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Monash University
National Association of Australian State Road Authorities
National Farmers Federation
Outdoor Power Equipment Association
Royal Institute of Naval Architects
Tractor and Machinery Association of Australia
The University of Melbourne

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PREFACE

This Standard was prepared by the Standards Australia Committee on Acoustics, Machinery Noise. It is identical with and has been reproduced from ISO 7574/1—1985, *Acoustics—Statistical methods for determining and verifying stated noise emission values of machinery and equipment—Part 1: General considerations and definitions*.

This Standard is one of the series which deals with statistical methods for determining and verifying noise emission values of machines and equipment, the series being arranged as follows:

Acoustics—Statistical methods for determining and verifying stated noise emission values of machinery and equipment.

Part 1: *General considerations and definitions (this Standard)*

Part 2: *Methods for stated values for individual machines*

Part 3: *Simple (transition) method for stated values for batches of machines*

Part 4: *Methods for stated values for batches of machines*.

For the purpose of this Australian Standard, the ISO text should be modified as follows:

References: The references to International Standards should be replaced by references to Australian Standards.

Reference to International Standard		*Australian Standard*	
ISO		AS	
3741	Acoustics—Determination of sound power levels of noise sources—Precision methods for broad-band sources in reverberation rooms	1217	Acoustics—Determination of sound power levels of noise sources
		1217.2	Part 2: Precision methods for broad-band sources in reverberation rooms
3742	Acoustics—Determination of sound power levels of noise sources—Precsion methods for discrete-frequency and narrow-band sources in reverberation rooms	1217.3	Part 3: Precision methods for discrete-frequency and narrow-band sources in reverberation rooms
3743	Acoustics—Determination of sound power levels of noise sources—Engineering methods for special reverberation test rooms	1217.4	Part 4: Engineering methods for special reverberation test rooms
3744	Acoustics—Determination of sound power levels of noise sources—Engineering methods for free-field conditions over a reflecting plane	1217.5	Part 5: Engineering methods for free-field conditions over a reflecting plane
3745	Acoustics—Determination of sound power levels of noise sources—Precision methods for anechoic and semi-anechoic rooms	1217.6	Part 6: Precision methods for anechoic and semi-anechoic rooms
3746	Acoustics—Determination of sound power levels of noise sources—Survey method	1217.7	Part 7: Survey method
4871	Acoustics—Noise labelling of machinery and equipment	3781	Acoustics—Noise labelling of machinery and equipment
IEC			
651	Sound level meters	1259	Sound level meters
		1259.1	Part 1: Non-integrating

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Acoustics—Statistical methods for determining and verifying stated noise emission values of machinery and equipment

Part 1: General considerations and definitions

0 Introduction

In order to state the noise emission value for a machine or a batch of machines in an unambiguous manner, this four-part series of International Standards provides guidelines for determining the noise emission value to be stated (e.g. as a labelled value) and specifies verification procedures. These methods are based on the premise of clearly defined acoustical measurement methods and describe the handling of the variability of the measurement results and, if relevant, of the noise emissions of the machines in a batch.

The methods presented in this series of International Standards are compatible with the requirements specified in ISO 4871, i.e.,

— the stated (e.g. labelled) value indicates the limit below which the noise emission value of the individual machine and/or a specified large proportion of the noise emission values of the batch lies;

— the basic noise emission quantity used is the A-weighted sound power level.

Although this series of International Standards is drafted mainly in terms of A-weighted sound power level as a noise emission quantity, it is equally applicable to other quantities.

In this series of International Standards the term “label” is considered to include all means for providing information on the noise emission values to potential users of the equipment; this includes labels, brochures, advertisements, commercial literature, etc. Requirements for this may be stipulated, for example in a contract or in regulations.

The methods described may be applied not only to values stated for labelling purposes, but also to values stated for other purposes, for example:

— to the upper noise limit set by an authority or specified in a technical standard for a specific family of machines;

— to contract values as agreed by the manufacturer and purchaser of the machine(s).

This series of International Standards does not specify whether, or for which specific family of machines, the purposes mentioned above are relevant or whether the methods for determining and verifying stated noise emission values should be applied. This is left to a labelling code specific to the machinery or equipment concerned or, if this does not exist, to an agreement between the users of the standards (e.g. in a contract).

Two cases are considered:

— the stated value is given for one individual machine;

— the stated value is given for an entire batch of machines.

For economic reasons, the stated values for batches of series-produced machines may be verified by sampling procedures.

This four-part series of International Standards does not deal with the consequences that ensue if the stated value is not verified for a single machine or for a batch (lot) of machines.

This series of International Standards which comprise ISO 7574 requires that the labelled value be determined using the same measurement test code as that specified for verification. It therefore applies to families of machines or equipment for which special measurement test codes for the determination of noise emission quantities are prepared. If no special test code for a particular family exists, the methods specified in ISO 3741, ISO 3742, ISO 3743, ISO 3744 and ISO 3745 may be appropriate.

NOTE — This does not preclude the use of other International Standards, e.g. ISO 3746, which may form the basis of special measurement test codes.

In each case the installation and operating conditions typical for normal use shall be clearly specified or agreed.

The relevant measurement conditions may provide information, in the form of standard deviations, on the dispersion of measurement results. A measure for the dispersion of the emission values due to the different emissions of the different machines is the standard deviation of production (see 3.18).

The series of International Standards which make up ISO 7574 comprises the following four parts:

Part 1: General considerations and definitions