AS 3755—1990
ISO 7779:1988

Australian Standard®

Acoustics—Measurement of airborne noise emitted by computer and business equipment

This Australian Standard was prepared by Committee AV/7, Acoustics, Noise from Office and Household Equipment. It was approved on behalf of the Council of Standards Australia on 28 November 1989 and published on 14 May 1990.

The following interests are represented on Committee AV/7:

Association of Consulting Engineers Australia
Australian Acoustical Society
Australian Consumer Association
Australian Electrical and Electronic Manufacturers Association
Australian Environment Council
CSIRO, Division of Applied Physics

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First published as AS 3755—1990.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 6074 6

PREFACE

This Standard was prepared by the Standards Australia Committee on Acoustics—Noise from Office and Household Equipment.

It is identical with and has been reproduced from ISO 7779 (1988), Acoustics—Measurement of airborne noise emitted by computer and business equipment.

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

(a) *Subclause 5.3.2*: In line 4, delete '300 m^3' and substitute '350 m^3'.

(b) *References.* The references to other publications should be replaced by references to Australian Standard.

Reference to International Standard		*Australian Standard*	
ISO		AS	
266	Acoustics—Preferred frequencies for measurements	2533	Acoustics—Preferred frequencies for measurements
3740	Acoustics—Determination of sound power levels of noise sources—Guidelines for the use of basic standards and for the preparation of noise test codes	1217.1	Acoustics—Determination of sound power levels of noise sources, Part 1: Guidelines for the use of basic standards for the preparation of noise test codes
3741	Acoustics—Determination of sound power levels of noise sources—Precision methods for broad-band sources in reverberation rooms	1217.2	Acoustics—Determination of sound power levels of noise sources, Part 2: Precision methods for broad-band sources in reverberation rooms
3742	Acoustics—Determination of sound power levels of noise sources—Precision methods for discrete-frequency and narrow-band sources in reverberation room	1217.3	Acoustics—Determination of sound power levels of noise sources, Part 3: Precision methods for discrete-frequency and narrow-band sources in reverberation room
3743	Acoustics—Determination of sound power levels of noise sources—Engineering methods for special reverberation test rooms	1217.4	Acoustics—Determination of sound power levels of noise sources, Part 4: Engineering methods for special reverberation test rooms
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3745	Acoustics—Determination of sound power levels of noise sources—Precision methods for anechoic and semi-anechoic rooms	1217.6	Acoustics—Determination of sound power levels of noise sources, Part 6: Precision methods for anechoic and semi-anechoic rooms
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225	Octave, half-octave and third-octave band filters intended for the analysis of sounds and vibrations	Z41	Octave, half-octave and one-third octave band pass filters intended for analysis of sound and vibrations
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0 Introduction

This International Standard specifies methods for the measurement of airborne noise emitted by computer and business equipment. Hitherto, a wide variety of methods has been applied by individual manufacturers and users to satisfy particular equipment or application needs. These diverse practices have, in many cases, made comparison of noise emission difficult. This International Standard simplifies such comparisons and is the basis for declaration of the noise emission level of computer and business equipment.

In order to ensure accuracy, validity and acceptability, this International Standard is based on the basic International Standards for determining the sound power level (ISO 3741, ISO 3742, ISO 3744 and ISO 3745) and the sound pressure level at the operator position(s) (ISO 6081). Furthermore, implementation is simplified by conformance to these International Standards.

In many cases, free-field conditions over a reflecting plane are obtained by semi-anechoic rooms. These rooms may be particularly useful during product design to locate and to improve individual contributing noise sources. Reverberation rooms may be more economical for production control and for obtaining sound power levels for declaration purposes.

The method for measuring the sound pressure level at the operator or bystander positions (see ISO 6081) is specified in a separate clause, as this level is not considered to be primary declaration information. The measurements can, however, be carried out at the same time as those for sound power determination in a free field over a reflecting plane.

For comparison of similar equipment it is essential that the installation conditions and mode of operation be the same. In annex C these parameters are standardized for many categories of equipment. It is intended to extend annex C to other categories in a future revision.

1 Scope and field of application

1.1 Scope

This International Standard specifies procedures for measuring and reporting the noise emitted by computer and business equipment. It is based on the measurement procedures specified in ISO 3740, ISO 3741, ISO 3742, ISO 3744 and ISO 3745. The basic emission quantity is the A-weighted sound power level which may be used for comparing equipment of the same type, but from different manufacturers, or for comparing different equipment.

The A-weighted sound power level is supplemented by the A-weighted sound pressure level measured at the operator position(s) or the bystander positions. This sound pressure level is not a measurement of total occupational noise exposure of workers (noise immission).

Two methods for determining the sound power levels are specified in this International Standard in order to avoid undue restriction on existing facilities and experience. The first method is based on reverberant room measurements (see ISO 3741 and ISO 3742); the second is based on measurements in an essentially free field over a reflecting plane (see ISO 3744 and ISO 3745). Either method may be used in accordance with this International Standard. They are comparable in accuracy and yield the same A-weighted sound power level within the tolerance range of the methods specified in this International Standard.

1.2 Field of application

This International Standard is suitable for type tests and provides methods for manufacturers and testing laboratories to obtain comparable results.

The method specified in clause 5 provides a comparison procedure for determining sound power levels in a reverberation room. The method specified in clause 6 provides a direct procedure for determining sound power levels using essentially free-field conditions over a reflecting plane. The method specified in clause 7 provides a procedure for measuring noise at the operator or bystander positions. The proceduresin this International Standard may be applied to equipment which radiates broad-band noise, narrow-band noise, noise which contains discrete-frequency components or impulsive noise.

The methods specified in this International Standard allow the determination of noise emission levels for a unit tested individually.

The sound power levels and sound pressure levels are used for noise emission declaration and comparison purposes. They are not to be considered as installation noise levels, however they may be used for installation planning.

If sound power levels obtained are determined for several units of the same production series, the result can be used to determine a statistical value for that production series.