Australian Standard®

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

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The following interests are represented on Committee AK/2:

Australian Acoustical Society
CSIRO, Division of Building Research
CSIRO, National Measurement Laboratory
Department of Aviation
Department of Industrial Relations, N.S.W.
Department of Housing and Construction
Environment Protection Authority of Victoria
Metal Trades Industry Association of Australia
National Acoustic Laboratories
Telecom Australia
University of Adelaide
University of Queensland

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PREFACE

This standard was prepared by the Association's Committee on Techniques for Measurement. It supersedes AS 1217—1972, Methods of Measurement of Airborne Sound Emitted by Machines.

This standard is based on ISO 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.

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STANDARDS ASSOCIATION OF AUSTRALIA

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FOREWORD

This standard is one of a series setting out various methods for determining the sound power levels of machines and equipment.

The most important factor in the selection of a noise measurement method is the ultimate use of the data that are to be obtained. This standard introduces a series of six other standards being published as AS 1217.2 to AS 1217.7, describing various methods for determining the sound power levels of machines and equipment. Sound power level data are useful for—

(a) calculating the approximate sound pressure level at a given distance from a machine operating in a specified environment;

(b) comparing the noise radiated by machines of the same type and size;

(c) comparing the noise radiated by machines of different types and sizes;

(d) determining whether a machine complies with a specified upper limit of sound emission;

(e) planning in order to determine the amount of transmission loss or noise control required under certain circumstances; and

(f) engineering work to assist in developing quiet machinery and equipment.

The sound power level of a source is essentially independent of the environment in which the source is operating. This is one of the reasons for using sound power level of characterize the noise emitted by various types of machines and equipment. These basic standards specify the acoustical requirements for measurements of sound power appropriate for different test environments and accuracies.

Where these basic standards are applied to sound measurements on specific machines, it is necessary to decide which one of the basic standards is most appropriate for the particular class of machine or equipment, and for the purpose of the test it is also necessary to decide on specific details for mounting and operating the machine to be tested within the general principles stated in the basic documents.

Guidelines for making these decisions are provided in this standard. These guidelines are essential to the proper application of the basic acoustical measurement standards and to the preparation of specific sound test codes for various types of machines and equipment.

If no specific sound test code exists for a particular type of machine, the most suitable of the basic documents should be followed and the mounting and operating conditions used should be described in the test report. These conditions should be in accordance with the general principles given in the basic documents.

Control of noise from machines or equipment requires effective exchange of acoustical information among the several parties concerned. These include the manufacturer, specifier, installer and user of the machine or equipment. This acoustical information is obtained from measurements. These measurements are useful only if they are carried out under specified conditions to obtain defined acoustical quantities using standardized instruments.

The set of basic standards being published as parts of AS 1217, for which this standard serves as the introduction, includes the following:

Part 2—Precision Methods for Broad-band sources in Reverberation Rooms

Part 3—Precision Methods for Discrete-frequency and Narrow-band Sources in Reverberation Rooms

Part 4—Engineering Methods for Special Reverberation Test Rooms