

# **ANSI/AHRI Standard 575** **(Formerly ARI Standard 575)**

## **2008 Standard for** **Method of Measuring** **Machinery Sound** **Within an Equipment Space**



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## **IMPORTANT**

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## **FOREWORD**

This document establishes a uniform method of measuring the sound levels produced by air-conditioning and refrigerating machinery installed in mechanical equipment spaces. However, it should be emphasized that this standard was developed for use where the test conditions usually cannot be controlled, e.g., ambient temperature; equipment loading; physical attributes of the space; background sound sources, etc. Since the results obtained may vary substantially, a tolerance on these results cannot be specified.

Uniform practices in making sound level measurements are necessary for effective communication between the owner, the architect, the acoustician, the consulting engineer, the contractor and the equipment manufacturer.

Specifications for sound levels produced by machinery may be written, both for the purpose of supplying information in order to evaluate compliance with noise exposure limits and for the purpose of providing information for adequate building design to meet the acoustical design goals of adjacent occupied spaces. In view of the geometrical and acoustical properties of large equipment, both purposes can best be served by sound data expressed in terms of Sound Pressure Level measured close to the equipment. Sound pressure measurements close to the equipment are least affected by the environment in which the machines are installed.

This standard is based upon the procedures established in ANSI Standard S1.13.

### **Note:**

This standard supersedes ARI Standard 575-94 and has no technical changes.



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# METHOD OF MEASURING MACHINERY SOUND WITHIN AN EQUIPMENT SPACE

## Section 1. Purpose

**1.1 Purpose.** The purpose of this standard is to establish a uniform method of measuring and recording the Sound Pressure Level of machinery installed in a mechanical equipment space. It is not the intent of this standard to be used for the sound rating of equipment.

**1.1.1 Intent.** This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

**1.1.2 Review and Amendment.** This standard is subject to review and amendment as technology advances.

## Section 2. Scope

**2.1 Scope.** This standard applies to water chilling systems, pumps and similar operating machines and parts thereof, which for reasons of size or operating characteristics are more practically evaluated in situ.

## Section 3. Definitions

All terms in this document follow the standard industry definitions in the current edition of *ASHRAE Terminology of Heating, Ventilation, Air-Conditioning, and Refrigeration*, unless otherwise defined in this section.

**3.1 "A"-Weighted Sound Pressure Level.** The measured value obtained with a sound level meter using its "A"-weighting network.

**3.2 Key Measurement Points.** Points located on the measurement parallelepiped at the center of each vertical plane.

**3.3 Octave Band.** A band of sound covering a range of frequencies such that the highest is twice the lowest. The Octave Bands used in this standard are those defined in ANSI Standard S1.11.

**3.4 One-Third Octave Band.** A band of sound covering a range of frequencies such that the highest frequency is the cube root of two times the lowest frequency. The One-Third Octave Bands used in this standard are those defined in ANSI Standard S1.11.

**3.5 Operating Conditions.** Those conditions specified for a particular installation. In general, they are those parameters listed in the job specification sheets for the particular equipment. Examples of parameters to be recorded are found on data forms in Appendix C.

**3.6 Representative "A"-Weighted Sound Pressure Level.** An average "A"-Weighted Sound Pressure Level from a measurement made with a majority of measurement locations not affected by nearby reflective surfaces.

**3.7 Representative High Limit "A"-Weighted Sound Pressure Levels.** An average "A"-Weighted Sound Pressure Level from a measurement made with a majority of measurement locations affected by reflections from nearby surfaces. The value represents an upper bound to the representative "A"-weighted value.

**3.8 Representative High Limit Octave Band Sound Pressure Level.** An average Octave Band Sound Pressure Level calculated from a measurement made with more than two key measurement locations affected by reflections from nearby surfaces.

**3.9 Representative Octave Band Sound Pressure Levels.** An average Octave Band Sound Pressure Level calculated from a measurement made with two or less key measurement locations affected by reflections from nearby surfaces.