ANSI/AHRI Standard 270
(Formerly ARI Standard 270)

2008 Standard for

Sound Performance Rating of Outdoor Unitary Equipment

Approved American National Standard
ANSI

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IMPORTANT

SAFETY DISCLAIMER

AHRI does not set safety standards and does not certify or guarantee the safety of any products, components or systems designed, tested, rated, installed or operated in accordance with this standard/guideline. It is strongly recommended that products be designed, constructed, assembled, installed and operated in accordance with nationally recognized safety standards and code requirements appropriate for products covered by this standard/guideline.

AHRI uses its best efforts to develop standards/guidelines employing state-of-the-art and accepted industry practices. AHRI does not certify or guarantee that any tests conducted under its standards/guidelines will be non-hazardous or free from risk.

Note:

This standard supersedes ARI Standard 270-95 and differs in the following ways.

a. The single number overall A-weighted tone corrected sound power level rating has been replaced by ratings comprised of Sound Power Levels expressed in decibels and a numeric Sound Quality Indicator:

- Octave band Sound Power Levels, dB (125 Hz to 8,000 Hz are required, 63 Hz is optional)
- Overall A-Weighted Sound Power Level, dB (100 Hz to 10,000 Hz is required, 50 Hz to 10,000 Hz is optional)
- Sound Quality Indicator (SQI) per AHRI Standard 1140 (optional)
- One-third octave band Sound Power Levels, dB (optional)

b. The frequency range of interest has been expanded to include the 63 Hz Octave Band (comprised of the 50, 63 and 80 Hz One-Third Octave Bands) as optional data.

c. All Sound Power Levels are determined from one-third octave band sound pressure level measurements.

d. In addition to sound ratings for the complete unit, the scope of the ratings has been expanded to optionally include sound levels for “fan(s) only” operation as well.

e. This standard references AHRI Standard 220 for reverberation room qualification and testing replacing ANSI Standard S12.31 and ANSI Standard S12.32, which were withdrawn.

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SOUND PERFORMANCE RATING OF OUTDOOR UNITARY EQUIPMENT

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish for outdoor unitary equipment: definitions; test requirements; rating requirements; minimum data requirements for Published Ratings; marking and nameplate data; and conformance conditions.

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 the outdoor sections of factory-made air-conditioning and heat pump equipment as defined in AHRI Standard 210/240 or AHRI Standard 340/360 (cooling capacity ratings of equal to or less than 135,000 Btu/h [40.0 kW]).

Section 3. Definitions

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

3.1 *Air-Source Unitary Heat Pump.* One or more factory-made assemblies which normally include an indoor conditioning coil(s), compressor(s), and outdoor coil(s), including means to provide a heating function. When such equipment is provided in more than one assembly, the separated assemblies shall be designed to be used together, and the requirements of rating outlined in the standard are based upon the use of matched assemblies.

3.1.1 *Functions.* They shall provide the function of air heating with controlled temperature and may include the functions of air-cooling, air-circulating, air-cleaning, dehumidifying or humidifying.

3.2 *Hertz (Hz).* A unit of frequency equal to one cycle per second.

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. The One-Third Octave Bands used in this standard are those defined in ANSI Standard S1.11.

3.5 *Published Rating.* A statement of the assigned values of those performance characteristics, under stated rating conditions, by which a unit may be chosen to fit its application. These values apply to all units of like nominal size and type (identification) produced by the same manufacturer. As used herein, the term Published Rating includes the rating of all performance characteristics shown on the unit or published in specifications, advertising or other literature controlled by the manufacturer, at stated rating conditions.

3.5.1 *Application Rating.* A rating based on tests performed at application Rating Conditions (other than Standard Rating Conditions).

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