2000 STANDARD for

SOUND RATING AND SOUND TRANSMISSION LOSS OF PACKAGED TERMINAL EQUIPMENT

AIR-CONDITIONING &
REFRIGERATION
INSTITUTE

Standard 300

4301 NORTH FAIRFAX DRIVE · ARLINGTON, VIRGINIA 22203

IMPORTANT

SAFETY RECOMMENDATIONS

It is strongly recommended that the product be designed, constructed, assembled and installed in accordance with nationally recognized safety requirements appropriate for products covered by this standard.

ARI, as a manufacturers' trade association, uses its best efforts to develop standards employing state-of-the-art and accepted industry practices. However, ARI does not certify or guarantee safety of any products, components or systems designed, tested, rated, installed or operated in accordance with these standards or that any tests conducted under its standards will be non-hazardous or free from risk.

Note:

This standard supersedes ARI Standard 300-88.

Note:

This version of the standard differs from the 1988 version of the standard in the following:

a. The single number Sound Rating (SR_{ARI}) in bels has been replaced by a Sound Rating comprised of a set of Sound Power Levels expressed in decibels (dB). The set of Sound Power Levels include Octave Band Sound Power Levels ($L_{W(n)}$), an A-Weighted Sound Power Level (L_{WA}), and a Tone Adjusted A-Weighted Sound Power Level (L_{WAT}). The Sound Power Levels used for the Sound Rating are all determined from the same One-Third Octave Band sound pressure measurements that are required in the 1988 version of the standard.

b. The Reference Sound Source used in the sound test is calibrated in accordance with ARI Standard 250.

c. ARI Standard 280 has been incorporated for obtaining optional sound data below 100 Hz.

d. This standard includes the addition of an Outdoor-Indoor Transmission Class (OITC). The OITC is provided in both overall A-Weighted and One-Third Octave Band forms. Future editions of this standard will eliminate the use of Sound Transmission Class (STC) in lieu of the more appropriate OITC.

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APPENDICES

SOUND RATING AND SOUND TRANSMISSION LOSS OF PACKAGED TERMINAL EQUIPMENT

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish a method to determine the Sound Rating of both the indoor and outdoor portions of Packaged Terminal Equipment. The Sound Rating is comprised of a set of Sound Power Levels that include Octave Band Sound Power Levels; an A-Weighted Sound Power Level; and a Tone-Adjusted A-Weighted Sound Power Level.

Additionally, this standard establishes a method to determine sound transmission loss for Packaged Terminal Equipment.

Established are definitions; test requirements; rating requirements; minimum data requirements for Published Ratings; 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 Packaged Terminal Equipment as defined in ARI Standard 310/380.

Section 3. Definitions

Definitions. All terms in this document shall 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-Weighting.* A frequency weighting applied to One-Third Octave Band data in accordance with the provisions of ANSI Standard S1.4A Amendment to ANSI S1.4.

3.2 *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.

3.3 *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 as defined in ANSI Standard S1.11.

3.4 *Outdoor-Indoor Transmission Class (OITC)*. The A-Weighted sound reduction calculated using its sound transmission loss in the range of 80 to 4000 Hz, as measured in accordance with ASTM Test Method E90 and ASTM Guide E966.

3.5 *Packaged Terminal Air Conditioner.* A wall sleeve and a separate unencased combination of heating and cooling assemblies specified by the builder and intended for mounting through the wall. It includes a prime source of refrigeration, separable outdoor louvers, forced ventilation and heating availability by purchaser's choice of at least hot water, steam or electric resistance heat.

3.6 *Packaged Terminal Heat Pump.* A separate unencased refrigeration system installed in a cabinet of similar function and configuration to that of a packaged terminal air conditioner. It utilizes reverse cycle refrigeration as its prime heat source and has other supplementary heat source availability by purchaser's with the choice of hot water, steam or electric resistance heat.

3.7 *Published Ratings.* 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.

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

3.7.2 *Standard Rating.* A rating based on tests performed at Standard Rating Conditions.

3.8 *Reference Sound Source (RSS).* A portable, aerodynamic sound source that produces a known stable broad band sound power output. The device shall meet the performance requirements as defined in ARI Standard 250.