

AMCA Publication 311-05 (Rev. 10/10)

Certified Ratings Program -
Product Rating Manual for
Fan Sound Performance



**AIR MOVEMENT AND CONTROL
ASSOCIATION INTERNATIONAL, INC.**

The International Authority on Air System Components

AMCA Publication 311-05 (Rev. 10/10)

Certified Ratings Program Product Rating Manual for Fan Sound Performance



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AMCA Publications

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The May 2007 revision was approved by the AMCA International membership on 6 May 2007, and became effective on 1 June, 2007. This revision introduces a new sone rating called spherical sones, differentiating from the traditional sone rating (now referred to as hemispherical sones), and adds Annex B to provide the method of calculating and presenting spherical sones.

The July 2009 revision was approved by the AMCA membership on 25 July 2009, and became effective on 1 August 2009. This revision introduces Annex C, which adds requirements for certifying sound performance of air curtain units.

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Related AMCA Documents

Related Publications

AMCA Publication 11

*Certified Ratings Program
Operating Manual*

AMCA Publication 211

*Certified Ratings Program
Product Rating Manual for Fan Air Performance*

Related Standards

ANSI/AMCA Standard 300

Reverberant Room Method for Sound Testing of Fans

ANSI/AMCA Standard 301

Methods for Calculating Fan Sound Ratings from Laboratory Test Data

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This is a preview of "AMCA 311-05 (Rev. 10...". [Click here to purchase the full version from the ANSI store.](#)

Product Rating Manual for Fan Sound Performance

1. Purpose

The purpose of this manual is to prescribe/establish definitions and specifications to be used in connection with the AMCA Certified Ratings Program for the sound performance of fans.

2. Product scope

Products that can be licensed by AMCA International to bear the AMCA Certified Sound Ratings Seal are centrifugal fans, axial fans, power roof ventilators, air curtains, agricultural fans and other air moving devices within the product scope of AMCA.

The program applies only to complete air moving devices which are already licensed to bear the AMCA Certified Performance Seal for Air Performance.

The program applies to fans within the scope of AMCA International for which performance catalogs are published and made available to the public. It does not apply to special units for which performance ratings are not published. When performance ratings for both licensed and non-licensed products are contained in the same catalog, there must be a clear distinction made between licensed and non-licensed products, as required in Section 11 of AMCA Publication 11.

When one or more licensed products are used as component parts of a larger unit, the AMCA Certified Sound Ratings Seal may not be applied to the complete unit unless the unit itself has been licensed in accordance with this program.

3. General Guidelines for Developing Fan Sound Ratings

3.1 Definitions

All technical terms specific to sound are defined in the appropriate test standards referenced herein.

A "spherical sone" is defined as the loudness, in sones, of the sound pressure level at a distance of 1.5 m (5 ft) from the acoustic center of the fan in a spherical free field.

A "hemispherical sone" is defined as the loudness, in sones, of the sound pressure level at a distance of 1.5 m (5 ft) from the acoustic center of the fan in a hemispherical free field.

A hemispherical sone is calculated in accordance with the procedures found in ANSI/AMCA 301. Licensees may label

a hemispherical sone rating as a "fan sone". In this document, the term "hemispherical sone" will be used to clearly differentiate the two terms.

3.2 Rating development

The sound performance rating of a fan or a series of dynamically similar fans are developed from tests conducted in accordance with ANSI/AMCA 300, ANSI/AMCA 320, ANSI/AMCA 330, or other such standards as allowed under AMCA 111.

The performance rating of a fan can be developed for a range of speeds from the test of the fan at one speed utilizing the procedures defined in ANSI/AMCA 301.

The performance rating of one or more larger fan sizes can be developed based on the test of a smaller fan utilizing the procedures defined in ANSI/AMCA 301.

3.3 Similarity

The sound performance of a fan shall not be calculated from a fan larger in size.

The performance rating of one or more larger fan sizes can be developed based on the test of a smaller fan provided that the larger size fans meet the requirements of geometric similarity given in ANSI/AMCA 301, Sections 5.2.1 and 5.2.2. Similarity is discussed in AMCA 211.

Materials used in the rated fans must have acoustic properties similar to those of the test fan, but gauges need not be exactly proportional.

3.4 Rating methods

A sound performance rating may be presented by any one or combination of the three following methods, as applicable. The methods shall be in conformance with ANSI/AMCA 301 or Annex B of AMCA 311.

3.4.1 Octave and one-third octave band sound power levels

Sound power levels in full octave bands (8 values) or one-third octave bands (24 values) are presented in decibels (dB) rounded to the closest integer.

3.4.2 Loudness

Sound performance is presented as a single loudness value in hemispherical sones or spherical sones.