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Laboratory Methods of Testing Fans for Aerodynamic Performance Rating

1. Purpose

This standard establishes uniform test methods for a laboratory test of a fan or other air moving device to determine its aerodynamic performance in terms of airflow rate, pressure developed, power consumption, air density, speed of rotation and efficiency for rating or guarantee purposes.

2. Scope

This standard applies to a fan or other air moving device when air is used as the test gas, with the following exceptions:

- Air circulating fans (ceiling fans, desk fans)
- Positive pressure ventilators
- Compressors with interstage cooling
- Positive displacement machines
- Test procedures to be used for design, production or field testing

3. Normative References

The following standards contain provisions that, through specific reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

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ANSI/AMCA Standard 99-25, *Standards Handbook,* Air Movement and Control Association International, Arlington Heights, IL USA.

AMCA Publication 203-11, *Field Performance Measurement of Fan Systems,* Air Movement and Control Association International, Arlington Heights, IL USA.

ANSI/ASHRAE Standard 222-18, *Standard Method of Test for Electrical Power Drive Systems,* ASHRAE, Peachtree Corners, GA USA.

ASHRAE Standard 41.5-75, *Standard Measurement Guide: Engineering Analysis of Experimental Data,* ASHRAE, Peachtree Corners, GA USA.

ASHRAE Standard 41.1-86 (RA91), *Standard Measurements Guide,* ASHRAE, Peachtree Corners, GA USA.

ANSIASHRAE Standard 41.11, *Standard Methods for Power Measurement,* ASHRAE, Peachtree Corners, GA USA.

IEEE 112-17, *Standard Test Procedure for Polyphase Induction Motors and Generators*, The Institute of Electrical and Electronic Engineers, Piscataway, NJ USA.

ISO 5801:1997. *Industrial fans – Performance testing using standardized airways,* International Organization for Standardization, Geneva, Switzerland.

ISO 12759-4:2010. *Fans – Efficiency classification for fans,* International Organization for Standardization, Geneva, Switzerland.