ASHRAE Standard Project Committee 16–1983 (RA 99)
Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners
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(This foreword is not part of this standard but is provided for information purposes only.)

FOREWORD

This standard prescribes a method of testing for obtaining cooling capacity and airflow quantity for rating room air conditioners and packaged terminal air conditioners.

The standard, originally evolved from the American Society of Refrigerating Engineers' (ASRE) Circular 13-42, Standard Methods of Rating and Testing Air-Conditioning Equipment, *and ASRE Standard 16-56, was first issued as* ASHRAE Standard 16-1961, Method of Testing for Rating Room Air Conditioners, *with revisions in 1969 and 1983.*

The 1983 standard was approved by the ASHRAE Standards Committee on September 16, 1983; by the ASHRAE Board of Directors on December 1, 1983; and by the American National Standards Institute on February 24, 1984.

The 1983 standard was recommended for reaffirmation with minor editorial changes by the Standards Committee on January 31, 1988. Since the ASHRAE Journal intent-to-reaffirm notice elicited no negative comments, the Board of Directors approved the reaffirmation with minor editorial changes on June 30, 1988.

The reaffirmed standard was recognized as an American National Standard by ANSI on December 14, 1988.

1. SCOPE AND PURPOSE

1.1 Scope

1.1.1 This standard prescribes a method of testing for obtaining cooling capacity and airflow quantity for rating room air conditioners and packaged terminal air conditioners.

1.1.2 For purposes of this standard:

(a) A room air conditioner is defined as an encased assembly designed as a unit, primarily for mounting in a window or through the wall or as a console. It is designed primarily to provide free delivery of conditioned air to an enclosed space, room, or zone. It includes a prime source of refrigeration and dehumidification and means for circulating and cleaning air and may also include means for heating and ventilating.

(b) A packaged terminal air conditioner is a factory selected combination of heating and cooling components, assemblies, or sections, intended to serve an individual room or zone.

1.1.3 Room conditioners employing water-cooled condensers are included in this standard.

1.1.4 This standard does not prescribe methods of testing for obtaining heating capacity (see ASHRAE Standard 58-1986).[1]

1.2 Purpose

The purpose of this standard is to

(a) establish a uniform method of testing for obtaining rating data,

(b) specify types of test equipment for performing such tests,

(c) specify data required and calculations to be used, and

(d) list and define the terms used in testing.

1.3 Method of Using This Standard

1.3.1 Determine whether this standard is applicable by review of Sections 1 and 2.

1.3.2 Select the type of room calorimeter from Section 4, the instrumentation from Section 5, and the airflow measuring equipment from Section 7. Instruments other than those described in these sections may be used provided the accuracy is within the limits defined herein. Such acceptable alternatives shall be limited to those described in the *1997 ASHRAE Handbook—Fundamentals*, chapter on measurements and instruments.[2]

1.3.3 Test and calculate ratings in accordance with appropriate methods in Sections 6 and 7.

2. DEFINITIONS

Accuracy of readings: where percentage limits of readings are given herein, the reference basis is the magnitude of the greater quantity measured and not the scale of instrument.

Evaporative equilibrium of a wet-bulb thermometer: the condition obtained when the wetted wick surrounding the temperature-sensing bulb has reached a state of constant temperature. When the temperature-sensing bulb and wick are exposed to air at velocities of approximately 1000 fpm (5 m/s), the temperature indicated by the thermometer may be considered a true wet-bulb temperature.

Exhaust airflow of an air conditioner: the amount of room air delivered to the outside directly through the unit.

Free delivery type air conditioner: takes in air and discharges it directly to the space to be treated without external elements that impose air resistance.

Leakage airflow: the amount of air interchanged between the room side and outdoor side through a unit as a result of construction features or faulty sealing techniques.

Net latent cooling effect: the total useful capacity of the air conditioner for removing water vapor from the space to be conditioned.

Net sensible cooling effect: the difference between the net total cooling effect and the dehumidifying effect.

Net total cooling effect of an air conditioner: the total useful capacity of the unit for removing heat from the space to be conditioned.

Recirculated airflow: the air discharged from the air conditioner to the conditioned space when all test unit ventilating dampers are closed.