ANSI/ASHRAE Standard 37-2009
(Supersedes ANSI/ASHRAE Standard 37-2005)

ASHRAE STANDARD

Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment

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NOTE

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FOREWORD

This is a revision of Standard 37-2005. This standard was prepared under the auspices of the American Heating Refrigerating and Air-Conditioning Engineers (ASHRAE). It may be used, in whole or in part, by an association or government agency with due credit to ASHRAE. Adherence is strictly on a voluntary basis and merely in the interests of obtaining uniform standards throughout the industry. This version updates the references section, superscripts references cited in the text and corrects the erratum in section 7.7.2.1.

1. PURPOSE

1.1 The purpose of this standard is to provide test methods for determining the cooling capacity of unitary air-conditioning equipment and the cooling or heating capacities, or both, of unitary heat pump equipment.

1.2 These test methods do not specify methods of establishing ratings that involve factors such as manufacturing tolerances and quality control procedures.

2. SCOPE

2.1 This standard applies to electrically driven mechanical-compression unitary air conditioners and heat pumps consisting of one or more assemblies that include an indoor air coil(s), a compressor(s), and an outdoor coil(s). Where such equipment is provided in more than one assembly, the separated assemblies are designed to be used together.

2.2 This standard does not include methods of testing the following:

(a) cooling coils for separate use
(b) condensing units for separate use
(c) room air conditioners
(d) heat-operated unitary equipment
(e) liquid chilling packages
(f) multiple indoor air coils operating simultaneously in heating and cooling modes

3. DEFINITIONS

air, standard: dry air having a mass density of 1.204 kg/m^3 (0.075 lb/ft^3).

apparatus: as used in this standard, this term refers exclusively to test room facilities and instrumentation.

capacity, heating: the rate, expressed in watts (Btu/h), at which the equipment adds heat to the air passing through it under specified conditions of operation.

capacity, latent cooling: the rate, expressed in watts (Btu/h), at which the equipment removes latent heat from the air passing through it under specified conditions of operation.

capacity, sensible cooling: the rate, expressed in watts (Btu/h), at which the equipment removes sensible heat from the air passing through it under specified conditions of operation.

capacity, total cooling: the rate, expressed in watts (Btu/h), at which the equipment removes heat from the air passing through it under specified conditions of operation.

coil, indoor: the heat exchanger that removes heat from or adds heat to the conditioned space.

coil, outdoor: the heat exchanger that rejects heat to or absorbs heat from a source external to the conditioned space.

equipment: as used in this standard, this term refers exclusively to the unitary equipment to be tested.

equipment, unitary: this term shall be defined as provided in Section 2 and Section 4.

indoor side: that part of the system that removes heat from or adds heat to the indoor airstream.

outdoor side: that part of the system that rejects heat to or absorbs heat from a source external to the indoor airstream.

pressure, standard barometric: 101.325 kPa (14.696 psi).

refrigerant, volatile: a refrigerant that changes from the liquid to the vapor state in the process of absorbing heat.

shall: where "shall" or "shall not" is used for a provision, that provision is mandatory if compliance with the standard is claimed.

***should, recommended, or it is recommended*:** "should," "recommended," or "it is recommended" are used to indicate provisions that are not mandatory but that are desirable as a good practice.

4. CLASSIFICATIONS

Unitary equipment within the scope of this standard may be classified as follows:

4.1 Component Arrangement:

(a) Units employing compressor(s), indoor air coil(s), and outdoor coil(s) in a single package assembly.
(b) Units employing compressor(s) and indoor coil(s) in one or more assemblies with remote outdoor coil(s).
(c) Units employing indoor coil assemblies, with outdoor coil(s) and compressor(s) in one or more assemblies.