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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 19576-2019

Replacing GB 19576-2004

**Minimum allowable values of energy efficiency and energy
efficiency grades for unitary air conditioners**

单元式空气调节机能效限定值及能效等级

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB 19576-2004 Minimum allowable values of energy efficiency and energy efficiency grades for unitary air conditioners. Apart from editorial changes, the main technical changes with respect to GB 19576-2004 are the following: the term and definition "energy-saving evaluation value of air conditioner" has been deleted (see 3.2 of the 2004 edition); the energy-saving evaluation value has been deleted (see 5.2 of the 2004 edition); the grading indexes for the energy efficiency of the product have been revised (see Clause 4); the minimum allowable values of energy efficiency of the product have been revised (see Clause 5); the inspection rules have been deleted (see Clause 7 of the 2004 edition); and the marking of the energy efficiency grade has been deleted (see Clause 8 of the 2004 edition).

This standard was proposed by and is under the jurisdiction of the Standardization Administration of China.

The previous edition of the standard replaced by this one was GB 19576-2004.

1 Scope

China's mandatory energy label for unitary air conditioners - the packaged machines that cool shops, workshops, server rooms and telecom base stations rather than single dwellings. A unitary machine is bought once and then runs for a decade, so the difference between an efficient model and a wasteful one is paid for in electricity long after the purchase order is forgotten, and a buyer comparing two nameplates has no way of telling them apart. This standard closes that gap: it fixes the energy efficiency grades, the technical requirements and the test methods that decide which grade a machine may claim. Machines are sorted into three grades on the strength of their performance coefficient,

grade 1 being the best, and the minimum allowable value below which a product may not lawfully be made or sold in China is set at the third grade. It covers air conditioners with motor-driven compressors and an indoor unit static pressure of zero gauge pressure, together with the unitary machines built for computer and data processing rooms, for telecommunication base stations, and the constant temperature and humidity type; multi-connected heat pump units, rooftop units and ducted air supply units are outside it. The 2019 edition rewrote both the grading indexes and the minimum allowable values, and dropped the energy-saving evaluation value that the 2004 edition had carried. Manufacturers, importers, testing houses and the market regulator all read it, because it is the document a product is measured against before it can carry an energy label.

This standard specifies the energy efficiency grades, the technical requirements and the test methods for unitary air conditioners.

This standard applies to unitary air conditioners using motor-driven compressors and having an indoor unit static pressure of 0 Pa (gauge pressure), to unitary air conditioners for computer and data processing rooms, to unitary air conditioners for telecommunication base stations, and to unitary air conditioners of the constant temperature and constant humidity type.

This standard does not apply to multi-connected air conditioning (heat pump) units, to rooftop air conditioning units or to ducted air supply air conditioning (heat pump) units.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 17758-2010 Unitary air conditioners.

GB/T 19413-2010 Unitary air conditioners for computer and data processing room.

JB/T 11968-2014 Unitary air conditioners for telecommunication base station.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 17758-2010 and the following apply.

3.1 Minimum allowable values of energy efficiency for unitary air conditioners

The minimum allowable value of the performance coefficient of a unitary air conditioner under the specified conditions; abbreviated as the minimum allowable value of energy efficiency.

4 Energy efficiency grade

The energy efficiency grade of a unitary air conditioner is determined by the magnitude of its performance coefficient and is divided into three grades, 1, 2 and 3; grade 1 denotes the highest efficiency.

Table 1 carries the index value of each grade. It is set out by machine family and, within each family, by the metric that applies to it and by nominal cooling capacity: air-cooled unitary air conditioners are graded on SEER when they are cooling-only and on APF when they are heat pumps; water-cooled unitary air conditioners on IPLV; unitary air conditioners for computer and data processing rooms on AEER across five cooling arrangements (air-cooled, water-cooled, glycol economiser cooling, air-cooled dual cooling source and water-cooled dual cooling source); unitary air conditioners for telecommunication base stations on COP; and constant temperature and humidity machines on AEER. The index values themselves are in the standard.

5 Technical requirements

The minimum allowable value of energy efficiency of an air conditioner is grade 3 of the energy efficiency grades in Table 1.

A product that uses supplementary electric heating shall allow the supplementary electric heating system to be switched on and off by hand, and shall carry in a conspicuous position a device that shows the operating state of that system.

The supplementary electric heating shall not switch itself on automatically when the outdoor dry-bulb temperature is at or above the temperature stated in the standard.

Clause 5.4 sets the permissible deviations, in four lettered items, between what a product declares and what is actually measured: the declared energy efficiency value against the index value of its rated grade and against the range of that grade; the measured energy efficiency against the declared value; the calculated seasonal electricity consumption against the declared value; and the declared and measured rated cooling capacity against the cooling capacity range of the rated grade. The percentages themselves are in the standard.

6 Test methods

The energy efficiency of air-cooled and water-cooled unitary air conditioners is tested in accordance with GB/T 17758-2010; the clause also allows part of the SEER test on air-cooled machines to be replaced by a calculation from the measurements taken under another operating condition, using the factors given in the standard.

The energy efficiency of unitary air conditioning units for computer and data processing

rooms is tested in accordance with GB/T 19413-2010.

The energy efficiency of unitary air conditioners for telecommunication base stations is tested in accordance with JB/T 11968-2014.

The energy efficiency of constant temperature and constant humidity unitary air conditioners is tested in accordance with GB/T 17758-2010.

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