

Technical Requirement for Environmental Products  
The Certificable Technical Requirement for Environmental Labelling Products

Energy-saving Low-noise Room Air Conditioners

HJBZ 18—2000

Replace HJBZ 18—1997

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### 1 Scope

This technical requirement specifies definition, category, basic requirement, technical content and test method for environmental labelling products of energy-saving low-noise room air conditioners.

This technical requirement shall apply to household or similar room air conditioners to create comfortable indoor environment which use air-cooled condenser, fully enclosed motor compressor and with  $\leq 1.4\text{kW}$  refrigerating capacity.

### 2 Standards cited

Provisions in the following standards are cited in this technical requirement, and therefore form the provisions in this standard. They have the same effectiveness as the technical requirement itself.

GB 4706.32—1996 Particular requirement for safe household thermal pump, air conditioner and dehumidifier and similar electric appliances

GB/T 7725—1996 Room air conditioners

In case of the criteria above are revised, the latest version should be applied.

### 3 Definition

3.1 "Energy efficiency ratio (EER)" means the ratio of refrigerating capacity over valid input capacity when the air conditioner cooling air under rated conditions. It is expressed in unit of W/W.

3.2 "Coefficient of performance (COP)" means the ratio of quantity of heat over valid input capacity when the air conditioner heating air by thermal pump under rated operating mode (high temperature) and given conditions. The value is expressed in unit of W/W.

3.3 "Power ratio" means ratio of the power in low frequency over that in nominal frequency when frequency-changing air conditioner is working in standard cooling or standard heating operating mode.

3.4 "Nominal frequency" means the frequency when frequency-changing air conditioner may operating stably in rated conditions.

### 4 Category

4.1 According to climatic environment ( maximum temperature), air conditioners may be divided into:

| Category | Maximum temperature of climatic environment |
|----------|---|
| T1       | 43°C  |
| T2       | 35°C  |
| T3       | 52°C  |

4.2 According to structure formation, air conditioners may be divided into one unit type and split type.

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4.2.1 One unit air conditioner may be classified into window type, wall type, movable type by structure.

4.2.2 Split type air conditioner contains indoor set and outdoor set. Indoor set may be classified into suspended ceiling type, wall built-up type, floor-type, dooryard type, embedded type by structure.

## 5 Basic requirements

5.1 Quality of products should conform with requirement of GB/T 7725—1996.

5.2 Safety performance of products should conform with the requirement in GB 4706.32—1996.

5.3 Pollutant emission of the company should conform with requirement of pollutant emission standards nationally or locally.

## 6 Technical contents

6.1 Indexes of energy-saving

6.1.1 Energy efficiency ratio, coefficient of performance of various types of fixed-frequency air conditioners should conform with requirement in table 1.

Table 1

| Nominal cooling (heating) capacity (W) |                   | EER、COP (W/W) |            |
|--|-------------------|---------------|------------|
|  |                   | On unit type  | Split type |
| <2500                                  | Cooling only type | ≥2.4          | ≥2.85      |
|  | Thermal pump type | ≥2.3          | ≥2.75      |
| 2500—4500                              | Cooling only type | ≥2.4          | ≥2.70      |
|  | Thermal pump type | ≥2.3          | ≥2.60      |
| >4500—7100                             | Cooling only type | —             | ≥2.55      |
|  | Thermal pump type | —             | ≥2.45      |
| >7100                                  | Cooling only type | —             | ≥2.55      |
|  | Thermal pump type | —             | ≥2.45      |

6.1.2 Energy efficiency ratio, coefficient of performance of various types of frequency-changing air conditioners should conform with requirement in table 2.

Table 2

| Nominal cooling (heating) capacity (W) |                   | EER、COP (W/W) |            | Power ratio |
|--|-------------------|---------------|------------|-------------|
|  |                   | One unit type | Split type |             |
| <2500                                  | Cooling only type | ≥2.16         | ≥2.56      | ≤30%        |
|  | Thermal pump type | ≥2.07         | ≥2.48      |             |
| 2500—4500                              | Cooling only type | ≥2.16         | ≥2.43      |             |
|  | Thermal pump type | ≥2.07         | ≥2.34      |             |
| >4500—7100                             | Cooling only type | —             | ≥2.30      |             |
|  | Thermal pump type | —             | ≥2.20      |             |
| >7100                                  | Cooling only type | —             | ≥2.30      |             |
|  | Thermal pump type | —             | ≥2.20      |             |

6.2 Noise indexes

Noise level of various types of product should conform with requirement of table 3. By measuring according to the method of 7.4, measured noise level (acoustic pressure level) of T1 type and T2 type air conditioners in semianechoic room should conform with the values given in table 3, and the values in table 3 minus 1 db (A) for in full anechoic room. As for T3 type air conditioner, the noise level is allowed to plus 2 db(A).

Table 3

| Nominal<br>cooling<br>capacity (W) | Indoor noisedB(A) |            | Outdoor noisedB(A) |            |
|------------------------------------|-------------------|------------|--------------------|------------|
|                                    | One unit type     | Split type | One unit type      | Split type |
| <2500                              | ≤48               | ≤40        | ≤54                | ≤50        |
| 2500—4500                          | ≤51               | ≤43        | ≤57                | ≤53        |
| >4500—7100                         | ≤55               | ≤50        | ≤60                | ≤57        |
| >7100                              |                   | ≤57        |                    | ≤63        |

## 7 Test

7.1 Energy efficiency ratio of frequency-changing air conditioners at design frequency (i. e. pursuant frequency by labelling parameters) should be determined under the condition and by the method described in GB/T 7725 - 1996.

7.2 Coefficient of performance of frequency-changing air conditioners at design frequency (i. e. pursuant frequency by labelling parameters) should be determined under the condition and by the method described in GB/T 7725 - 1996.

7.3 Adjust air conditioner according to operating mode described in GB/T 7725 - 1996, operate the air conditioner in low-frequency cooling condition and at nominal cooling frequency (i. e. frequency that may stably work in rated conditions), measure ratios over input power after the operating conditions stabilized; adjust air conditioner according to operating mode described in GB/T 7725 - 1996 respectively, operate the air conditioner in low-frequency heating condition and at nominal heating frequency (i. e. frequency that may stably work in rated conditions), measure ratios over input power after conditions stabilized.

7.4 Running noises of products should be measured according to method described by annex B in GB/T 7725 - 1996.

## Annotations:

This technical requirement has been prepared by Department of Science, Technology and Standards of State Environment Protection Administration.

The State Environment Protection Administration keeps the right of interpretation for this technical requirement.