



中国标准化研究院
CHINA NATIONAL INSTITUTE OF STANDARDIZATION

MEPS and Energy Labeling for Room AC in China



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1. MEPS and Labeling levels



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GB 21455-2019 “Minimum allowable values of the energy efficiency and energy efficiency grades for room air conditioners”

Table 1 Indicators of energy efficiency grades for heat-pump type room ACs

Rated cooling capacity (CC) W	Annual performance factor (APF)				
	Energy efficiency grades				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
CC≤4 500	5.00	4.50	4.00	3.50	3.30
4 500<CC≤7 100	4.50	4.00	3.50	3.30	3.20
7 100<CC≤14 000	4.20	3.70	3.30	3.20	3.10

Table 2 Indicators of EE grades for cooling only type room ACs

Rated cooling capacity (CC) W	Seasonal energy efficiency ratio (SEER)				
	Energy efficiency grades				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
CC≤4 500	5.80	5.40	5.00	3.90	3.70
4 500<CC≤7 100	5.50	5.10	4.40	3.80	3.60
7 100<CC≤14 000	5.20	4.70	4.00	3.70	3.50

Table 3 Indicators of EE grades for low ambient temp air source heat pump air heaters

Nominal heating capacity (HC) W	Heating seasonal performance factor (HSPF)		
	Energy efficiency grades		
	Grade 1	Grade 2	Grade 3
HC≤4 500	3.40	3.20	3.00
4 500<HC≤7 100	3.30	3.10	2.90
7 100<HC≤14 000	3.20	3.00	2.80

1. MEPS and Labeling levels



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Label template



66mm

Background: Blue and White

Length: 109 mm, width: 66 mm

Information required for Heat pump ACs:

- (1) Name of Manufacturer;
- (2) Model;
- (3) EE grade;
- (4) Annual performance factor [(W h)/(W h)];
- (5) Rated cooling capacity (W);
- (6) Rated heating capacity (W);
- (7) Cooling seasonal power consumption(kW h);
- (8) Heating seasonal power consumption(kW h);
- (9) No. of EE standard;
- (10) QR code;



1. MEPS and Labeling levels



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Label template



109mm

66mm

Background: Blue and White

Length: 109 mm, width: 66 mm

Information required for cooling ACs:

- (1) Name of Manufacturer;
- (2) Model;
- (3) EE grade;
- (4) Seasonal energy efficiency rating SEER[(W h)/(W h)];
- (5) Rated cooling capacity (W);
- (6) Cooling seasonal power consumption(kW h);
- (7) No. of EE standard;
- (8) QR code;



1. MEPS and Labeling levels



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Label template



Background: Blue and White

Length: 109 mm, width: 66 mm

Information required for Low ambient temperature air source heat pump air heaters :

- (1) Name of Manufacturer;
- (2) Model;
- (3) EE grade;
- (4) Heating seasonal performance factor (HSPF) [(W h)/ (W h)];
- (5) Rated heating capacity (W);
- (6) Heating seasonal power consumption(kW h);
- (7) No. of EE standard;
- (8) QR code;



2. Challenges

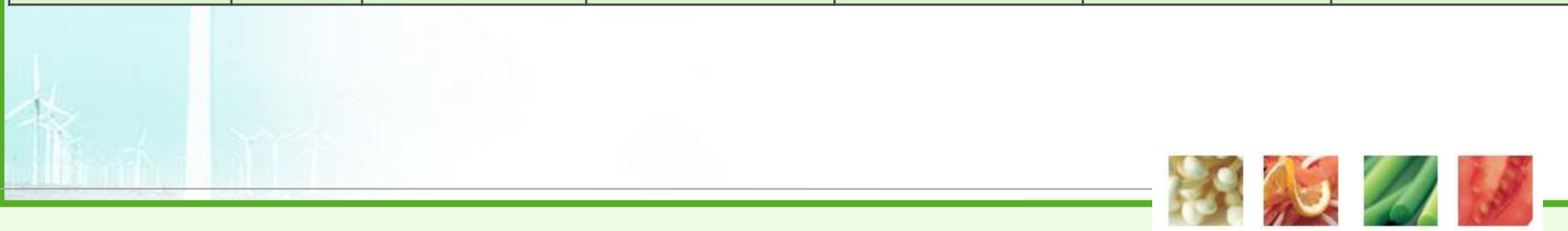


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For fix speed AC, the newly revised MEPS (GB 21455-2019) changes the efficiency metric from EER to APF.

The only way is to test and measure the fix speed AC by following APF methods and then calculate the APF corresponding value to EER value. The problem is that **there are multi corresponding APF values to the one EER value** rather than one to one match. **It should be decided by market survey, further testing and analysis.**

Capacity	Metric	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
CC ≤ 4500	EER	5.6	5.0	4.4	3.8	3.6
	APF	4.48~5.04	4.05~4.53	3.63~4.02	3.21~3.51	3.07~3.34



3. Stakeholders involvement



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Manufacturers were widely involved in the development of MEPS and labeling

- Gree
- Midea
- Haier
- CHANGHONG
- DAIKIN (China)
- HISENSE
- TCL
- Panasonic(Guangzhou)
- MITSUBISHI(Shanghai)
- SANYO(Shenyang)
- AUX
- CHIGO
-



3. Stakeholders involvement



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Besides widely involvement in the development of national MEPS and labeling, **the *Enterprise Standards Forerunner Program* (企业标准领跑者)** has been launched in China and **the manufacturers are encouraged to develop their own enterprise standards with higher efficiency requirements** for producing ACs more efficient than the national MEPS.

Regular evaluation is conducted to the manufacturers standards and the best standard is selected as the enterprise standards forerunner, in other word, which could be seen as the benchmark of the most energy efficient.



4. Implementation



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- GB 21455-2019 came into effect on **July 1, 2019**.
- Products that have been delivered or imported before the implementation date of this standard may be marketed **before June 30, 2021**.



5. Market impact



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- The energy efficiency of RAC is improved significantly, the less efficient products (fix-speed RACs) are phasing out rapidly.
- The product price goes up at very beginning, but with more products being produced and deployed, the product price will goes down rapidly to the normal price level based on the past 30 years experiences.
- Technology update is being accelerated.



5. Market impact



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Promotion of EE products

- About 80 million ACs are promoted annually
- Measures for promoting EE ACs
 - ✓ Local subsidy program for ACs of grade 1 and 2;
 - ✓ Local shopping allowance distributed through Apps and online retailers websites for boosting consumption during COVID-19.
 - ✓ “Old for new” launched by large online retailers such as JD, Suning, Gome, subsidy are provided for consumers who return old appliances through the designated channels, and the installation fee will be discounted





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Thank you for your attention!!

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