

§ 431.97

10 CFR Ch. II (1–1–05 Edition)

TABLE 1 TO § 431.96.—TEST PROCEDURES FOR CERTAIN SMALL COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT (ALL WATER-SOURCE EQUIPMENT AND OTHER EQUIPMENT LESS THAN 65,000 BTU/H), FOR LARGE COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT AND FOR PACKAGED TERMINAL AIR CONDITIONERS AND PACKAGED TERMINAL HEAT PUMPS—Continued

Product	Category	Cooling capacity	Energy efficiency descriptor	Use tests, conditions and procedures <sup>1</sup> in
	HP .....	All .....	COP .....	ARI Standard 310/380–2004

<sup>1</sup> Incorporated by reference, see § 431.95.

TABLE 2 TO § 431.96.—TEST PROCEDURES FOR SMALL COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT ≥65,000 BTU/H AND <135,000 BTU/H (OTHER THAN WATER-SOURCE EQUIPMENT)

Category	Energy efficiency descriptor	Use tests, conditions and procedures <sup>1</sup> in	With these additional stipulations <sup>2</sup>
Air Cooled AC and HP.	EER COP	ARI Standard 340/360–2000.	1. Models with a desuperheater/water heating device: Establish Standard Ratings of units equipped with a refrigerant-to-water heat exchanger to heat domestic water ( <i>i.e.</i> , a desuperheater), with the desuperheater not in operation. 2. <i>Models Manufactured Without Indoor Air-Circulating Fans:</i> (a) Establish Standard Ratings of units which do not have indoor air circulating fans furnished as part of the model, <i>i.e.</i> , split systems with indoor coil alone, by subtracting from the total cooling capacity 1,250 Btu/h per 1,000 cfm [775 W/m <sup>3</sup> /s], and by adding the same amount to the heating capacity. Increase total power input for both heating and cooling by 365 W per 1,000 cfm [226 W/m <sup>3</sup> /s] of indoor air circulated. (b) Equipment which does not incorporate an indoor fan, but is rated in combination with a device employing a fan, shall be rated as described in 6.1.3.2a of 340/360–2000. For equipment of this class which is rated for general use to be applied to a variety of heating units, the indoor-coil airflow rate shall be (1) specified by the manufacturer in Standard Ratings, not to exceed 37.5 SCFM/1,000 Btu/h [0.06 m <sup>3</sup> /s per 1,000 W] of rated capacity, or (2) the airflow rate obtained through the indoor coil assembly when the pressure drop across the indoor coil assembly and the recommended enclosures and attachment means is not greater than 0.30 inch of water [75 Pa], whichever is less.
Water Cooled AC	EER	ARI Standard 340/360–2000.	3. <i>Models with Indoor Fans, Not Made for Use With Field Installed Duct Systems:</i> (a) Equipment with indoor fans not made for use with field installed duct systems (free discharge) shall be rated at the indoor-coil airflow rate delivered when operating at 0 inches of water [0 Pa] external pressure as specified by the manufacturer. (b) Test indoor air-moving equipment not intended for use with field installed duct systems (free discharge) at 0 inches of water [0 Pa] external pressure.
Evaporatively Cooled AC.	EER	ARI Standard 340/360–2000.	4. <i>Water cooled models:</i> For Standard Ratings of water-cooled units add a total allowance for cooling tower fan motor and circulating water pump motor power inputs in the amount of 10.0 W per 1,000 Btu/h [34.1 W per 1,000 W] cooling capacity.

<sup>1</sup> Incorporated by reference, see § 431.95.

<sup>2</sup> The content of stipulations 1, 2(a), 2(b), 3(a), 3(b), and 4 is taken from Sections 2.2.5, 6.1, 6.1.3.3 (c), 6.1.3.3 (b), 6.1.3.6, and 6.1, respectively, of ARI Standard 210/240–2003.

ENERGY EFFICIENCY STANDARDS

§ 431.97 Energy efficiency standards and their effective dates.

Each commercial air conditioner or heat pump manufactured on or after January 1, 1994 (except for large com-

mercial package air-conditioning and heating equipment, for which the effective date is January 1, 1995) must meet the applicable minimum energy efficiency standard level(s) set forth in Tables 1 and 2 of this section.

TABLE 1 TO § 431.97.—MINIMUM COOLING EFFICIENCY LEVELS

Product	Category	Cooling capacity	Sub-category	Efficiency level <sup>1</sup>	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled, 3 phase.	<65,000 Btu/h .....	Split System .....	SEER = 10.0 .....	SEER = 10.0.
			Single Package	SEER = 9.7 .....	SEER = 9.7.
	Air Cooled .....	≥65,000 Btu/h and <135,000 Btu/h.	All .....	EER = 8.9 .....	EER = 8.9.
	Water Cooled Evaporatively Cooled and Water-Source.	<17,000 Btu/h .....	AC .....	EER = 9.3 .....	EER = 12.1.
			HP .....	EER = 9.3 .....	EER = 11.2.
		≥17,000 Btu/h and <65,000 Btu/h.	AC .....	EER = 9.3 .....	EER = 12.1.
			HP .....	EER = 9.3 .....	EER = 12.0.
		≥65,000 Btu/h and <135,000 Btu/h.	AC .....	EER = 10.5 .....	EER = 11.5. <sup>2</sup>
			HP .....	EER = 10.5 .....	EER = 12.0.
	Large Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled .....	≥135,000 Btu/h and <240,000 Btu/h.	All .....	EER = 8.5 .....
Water-Cooled and Evaporatively Cooled.		≥135,000 and <240,000 Btu/h.	All .....	EER = 9.6 .....	EER = 9.6. <sup>3</sup>
Packaged Terminal Air Conditioners and Heat Pumps.	All .....	<7,000 Btu/h .....	All .....	EER = 8.88 .....	EER = 8.88.
		≥7,000 Btu/h and ≤15,000 Btu/h.		EER = 10.0 – (0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb temperature]).	EER = 10.0 – (0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb temperature]).
		>15,000 Btu/h .....		EER = 7.6 .....	EER = 7.6.

<sup>1</sup> For equipment rated according to the ARI standards, all EER values must be rated at 95 °F outdoor dry-bulb temperature for air-cooled products and evaporatively-cooled products and at 85 °F entering water temperature for water-cooled products. For water-source heat pumps rated according to the ISO standard, EER must be rated at 30 °C (86 °F) entering water temperature.  
<sup>2</sup> Deduct 0.2 from the required EER for units with heating sections other than electric resistance heat.  
<sup>3</sup> Effective 10/29/2004, the minimum value becomes EER = 11.0.

TABLE 2 TO § 431.97.—MINIMUM HEATING EFFICIENCY LEVELS

Product	Category	Cooling capacity	Sub-category	Efficiency level <sup>1</sup>	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled, 3 Phase.	<65,000 Btu/h .....	Split System .....	HSPF = 6.8 .....	HSPF = 6.8.
			Single Package .....	HSPF = 6.6 .....	HSPF = 6.6.
	Water-source .....	<135,000 Btu/h .....	Split System and Single Package.	COP = 3.8 .....	COP = 4.2.
	Air Cooled .....	≥65,000 Btu/h and <135,000 Btu/h.	All .....	COP = 3.0 .....	COP = 3.0.
Large Commercial Packaged Air Conditioning Package and Heating Equipment.	Air Cooled .....	≥135,000 Btu/h and <240,000 Btu/h.	Split System and Single Package.	COP = 2.9 .....	COP = 2.9.
Packaged Terminal Heat Pumps.	All .....	All .....	All .....	COP = 1.3+(0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels).	COP = 1.3+(0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels).

<sup>1</sup>For units tested by ARI standards, all COP values must be rated at 47 °F outdoor dry-bulb temperature for air-cooled products, and at 70 °F entering water temperature for water-source heat pumps. For heat pumps tested by the ISO Standard 13256-1, the COP values must be obtained at the rating point with 20 °C (68 °F) entering water temperature.

**Subpart G—Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks**

SOURCE: 69 FR 61983, Oct. 21, 2004, unless otherwise noted.

**§ 431.101 Purpose and scope.**

This subpart contains energy conservation requirements for certain commercial water heaters, hot water supply boilers and unfired hot water storage tanks, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6316.

**§ 431.102 Definitions concerning commercial water heaters, hot water supply boilers, and unfired hot water storage tanks.**

The following definitions apply for purposes of this subpart G, and of subparts J through M of this part. Any words or terms not defined in this section or elsewhere in this part shall be defined as provided in section 340 of the Act, 42 U.S.C. 6311.

*ASTM-D-2156-80* means the test standard published in 1980 by the American Society of Testing and Measurements and titled Method for Smoke Density in Flue Gases from Burning Distillate Fuels.

*Hot water supply boiler* means a packaged boiler that is industrial equipment and that,

- (1) Has an input rating from 300,000 Btu/hr to 12,500,000 Btu/hr and of at least 4,000 Btu/hr per gallon of stored water,
- (2) Is suitable for heating potable water, and
- (3) Meets either or both of the following conditions:

- (i) It has the temperature and pressure controls necessary for heating potable water for purposes other than space heating, or
- (ii) The manufacturer’s product literature, product markings, product marketing, or product installation and