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by one manufacturer within a single equipment class, having the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common “nominal” cooling capacity.

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(7) *Variable refrigerant flow systems (excluding air-cooled, three-phase, variable refrigerant flow air conditioners and heat pumps with a cooling capacity of less than 65,000 Btu/h)* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s) that have a common “nominal” cooling capacity and the same heat rejection medium (e.g., air or water) (includes VRF water source heat pumps).

(8) *Air-cooled, three-phase, small commercial package air conditioning and heating equipment with a cooling capacity of less than 65,000 Btu/h and air-cooled, three-phase, variable refrigerant flow multi-split air conditioners and heat pumps with a cooling capacity of less than 65,000 Btu/h* means all units manufactured by one manufacturer, having the same primary energy source, and, which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency; where essentially identical electrical, physical, and functional (or hydraulic) characteristics means:

(i) For split systems manufactured by outdoor unit manufacturers (OUMs): all individual combinations having the same model of outdoor unit, which means comparably performing compressor(s) [a variation of no more than five percent in displacement rate (volume per time) as rated by the compressor manufacturer, and no more than five percent in capacity and power input for the same operating conditions as rated by the compressor manufacturer], outdoor coil(s) [no more than five percent variation in face area and total fin surface area; same fin material; same tube material], and outdoor fan(s) [no more than ten percent variation in airflow and no more than twenty percent variation in power input];

(ii) For split systems having indoor units manufactured by independent coil manufacturers (ICMs): all individual combinations having comparably performing indoor coil(s) [plus or minus one square foot face area, plus or minus one fin per inch fin density, and the same fin material, tube material, number of tube rows, tube pattern, and tube size]; and

(iii) For single-package systems: all individual models having comparably performing compressor(s) [no more than five percent variation in displacement rate (volume per time) rated by the compressor manufacturer,

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and no more than five percent variations in capacity and power input rated by the compressor manufacturer corresponding to the same compressor rating conditions], outdoor coil(s) and indoor coil(s) [no more than five percent variation in face area and total fin surface area; same fin material; same tube material], outdoor fan(s) [no more than ten percent variation in outdoor airflow], and indoor blower(s) [no more than ten percent variation in indoor airflow, with no more than twenty percent variation in fan motor power input];

(iv) Except that,

(A) For single-package systems and single-split systems, manufacturers may instead choose to make each individual model/combination its own basic model provided the testing and represented value requirements in 10 CFR 429.67 of this chapter are met; and

(B) For multi-split, multi-circuit, and multi-head mini-split combinations, a basic model may not include both individual small-duct, high velocity (SDHV) combinations and non-SDHV combinations even when they include the same model of outdoor unit. The manufacturer may choose to identify specific individual combinations as additional basic models.

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### TEST PROCEDURES

#### § 431.95 Materials incorporated by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, DOE must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at DOE, and at the National Archives and Records Administration (NARA). Contact DOE at: the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, Sixth Floor, 950 L’Enfant Plaza SW, Washington, DC 20024, (202) 586-9127, [Buildings@ee.doe.gov](mailto:Buildings@ee.doe.gov), <https://www.energy.gov/eere/buildings/building-technologies-office>. For information on the availability of this material at NARA, email: [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov), or go to: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html). The material may

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be obtained from the sources in the following paragraphs of this section.

(b) *AHRI*. Air-Conditioning, Heating, and Refrigeration Institute, 2311 Wilson Blvd., Suite 400, Arlington, VA 22201; (703) 524-8800; [www.ahrinet.org](http://www.ahrinet.org).

(1) ANSI/AHRI Standard 210/240-2008 (AHRI 210/240-2008), "2008 Standard for Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment," ANSI-approved October 27, 2011, and updated by addendum 1 in June 2011 and addendum 2 in March 2012; IBR approved for § 431.96.

(2) AHRI Standard 310/380-2014 ("AHRI 310/380-2014"), "Standard for Packaged Terminal Air-Conditioners and Heat Pumps," February 2014; IBR approved for § 431.96.

(3) ANSI/AHRI Standard 340/360-2007 (AHRI 340/360-2007), "2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment," ANSI-approved October 27, 2011, and updated by addendum 1 in December 2010 and addendum 2 in June 2011; IBR approved for § 431.96; appendix A to this subpart.

(4) ANSI/AHRI Standard 390-2003 (AHRI 390-2003), "2003 Standard for Performance Rating of Single Package Vertical Air-Conditioners and Heat Pumps," dated 2003; IBR approved for § 431.96.

(5) AHRI Standard 920 (I-P) with Addendum 1 ("AHRI 920-2020"), "2020 Standard for Performance Rating of Direct Expansion-Dedicated Outdoor Air System Units," copyright 2021; IBR approved for § 431.92; appendix B to this subpart.

(6) AHRI Standard 1060 (I-P) ("AHRI 1060-2018"), "2018 Standard for Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment," copyright 2018; IBR approved for appendix B to this subpart.

(7) ANSI/AHRI Standard 1230-2010, ("ANSI/AHRI 1230-2010"), "2010 Standard for Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment," approved August 2, 2010 and updated by addendum 1 in March 2011; IBR approved for § 431.96 and appendix D to this subpart.

(8) AHRI Standard 1230 (I-P), ("AHRI 1230-2021"), "2021 Standard for Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment", copyright in 2021; IBR approved for appendix D1 to this subpart.

(c) *ASHRAE*. American Society of Heating, Refrigerating and Air-Conditioning Engineers, 180 Technology Parkway, Peachtree Corners, Georgia 30092; (404) 636-8400; [www.ashrae.org](http://www.ashrae.org).

(1) ANSI/ASHRAE Standard 16-1983 (RA 2014), ("ANSI/ASHRAE 16"), "Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners," ASHRAE reaffirmed July 3, 2014, IBR approved for § 431.96.

(2) ANSI/ASHRAE Standard 37-2009, ("ANSI/ASHRAE 37-2009"), "Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment," ASHRAE approved June 24, 2009; IBR approved for § 431.96 and appendices A, B, and D1 to this subpart.

(3) Errata Sheet for ANSI/ASHRAE Standard 37-2009, *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment*, March 27, 2019; IBR approved for appendix D1 to this subpart.

(4) ANSI/ASHRAE Standard 41.1-2013 ("ANSI/ASHRAE 41.1-2013"), "Standard Method for Temperature Measurement," ANSI-approved January 30, 2013; IBR approved for appendix B to this subpart.

(5) ANSI/ASHRAE Standard 41.6-2014 ("ANSI/ASHRAE 41.6-2014"), "Standard Method for Humidity Measurement," ANSI-approved July 3, 2014; IBR approved for appendix B to this subpart.

(6) ANSI/ASHRAE Standard 58-1986 (RA 2014), ("ANSI/ASHRAE 58"), "Method of Testing for Rating Room Air-Conditioner and Packaged Terminal Air-Conditioner Heating Capacity," ASHRAE reaffirmed July 3, 2014, IBR approved for § 431.96.

(7) ASHRAE Standard 127-2007, "Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners," approved on June 28, 2007, (ASHRAE 127-2007), IBR approved for § 431.96.

(8) ANSI/ASHRAE Standard 198-2013 ("ANSI/ASHRAE 198-2013"), "Method

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of Test for Rating DX-Dedicated Outdoor Air Systems for Moisture Removal Capacity and Moisture Removal Efficiency,” ANSI-approved January 30, 2013; IBR approved for appendix B to this subpart.

(d) ISO. International Organization for Standardization, 1, ch. De la Voie-Creuse, Case Postale 56, CH-1211 Geneva 20, Switzerland, + 41 22 749 01 11 or go to: <http://www.iso.ch/>.

(1) ISO Standard 13256-1, “Water-source heat pumps—Testing and rating for performance—Part 1: Water-to-air and brine-to-air heat pumps,” approved 1998, IBR approved for § 431.96.

(2) [Reserved]

[77 FR 28989, May 16, 2012, as amended at 80 FR 37148, June 30, 2015; 80 FR 79669, Dec. 23, 2015; 87 FR 45198, July 27, 2022; 87 FR 63896, Oct. 20, 2022]

EFFECTIVE DATE NOTES: 1. At 87 FR 75168, Dec. 7, 2022, § 431.95 was amended by revising paragraphs (b)(4) and (c)(2), effective Jan. 6, 2023. For the convenience of the user, the revised text is set forth as follows:

### § 431.95 Materials incorporated by reference.

\* \* \* \* \*

(b) \* \* \*

(4) AHRI Standard 390(I-P)–2021 (“AHRI 390–2021”), *2021 Standard for Performance Rating of Single Package Vertical Air-Conditioners and Heat Pumps*, copyright 2021; (AHRI 390–2021), IBR approved for appendices G and G1 to this subpart.

\* \* \* \* \*

(c) \* \* \*

(2) ANSI/ASHRAE Standard 37–2009 (“ANSI/ASHRAE 37–2009”), *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment*, ASHRAE approved June 24, 2009, IBR approved for § 431.96 and appendices A, B, D1, G, and G1 to this subpart.

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2. At 87 FR 77325, Dec. 16, 2022, § 431.95 was amended by:

- a. Revising paragraph (b)(1);
- b. Redesignating paragraphs (b)(2) through (8) as (b)(3) through (9);
- c. Adding new paragraph (b)(2);
- d. Revising newly redesignated paragraph (b)(8); and
- e. Revising paragraph (c)(2).

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The amendments are effective Jan. 6, 2023. For the convenience of the user, the added and revised text is set forth as follows:

### § 431.95 Materials incorporated by reference.

\* \* \* \* \*

(b) \* \* \*

(1) ANSI/AHRI Standard 210/240–2008 (AHRI 210/240–2008), *2008 Standard for Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment*, approved by ANSI on October 27, 2011, and updated by addendum 1 in June 2011 and addendum 2 in March 2012; IBR approved for § 431.96 and appendix F to this subpart.

(2) AHRI Standard 210/240–2023 (AHRI 210/240–2023), *2023 Standard for Performance Rating of Unitary Air-conditioning & Air-source Heat Pump Equipment*, copyright May 2020; IBR approved for appendix F1 to this subpart.

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(8) ANSI/AHRI Standard 1230–2010 (AHRI 1230–2010), *2010 Standard for Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment*, approved August 2, 2010, and updated by addendum 1 in March 2011; IBR approved for § 431.96 and appendices D and F to this subpart.

(c) \* \* \*

(2) ANSI/ASHRAE Standard 37–2009 (“ANSI/ASHRAE 37–2009”), *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment*, ASHRAE approved June 24, 2009; IBR approved for § 431.96 and appendices A, B, D1, F1, G, and G1 to this subpart.

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### § 431.96 Uniform test method for the measurement of energy efficiency of commercial air conditioners and heat pumps.

(a) *Scope*. This section contains test procedures for measuring, pursuant to EPCA, the energy efficiency of any small, large, or very large commercial package air-conditioning and heating equipment, packaged terminal air conditioners and packaged terminal heat pumps, computer room air conditioners, variable refrigerant flow systems, single package vertical air conditioners and single package vertical heat pumps, and direct expansion-dedicated outdoor air systems.

(b) *Testing and calculations*. (1) Determine the energy efficiency of each type