

## § 431.429

(b) A final rule withdrawing a rule exempting a State standard will be effective upon publication in the FEDERAL REGISTER.

### § 431.429 Request for reconsideration.

(a) Any petitioner whose petition for a rule has been denied may request reconsideration within 30 days of denial. The request shall contain a statement of facts and reasons supporting reconsideration and shall be submitted in writing to the Secretary.

(b) The denial of a petition will be reconsidered only where it is alleged and demonstrated that the denial was based on error in law or fact and that evidence of the error is found in the record of the proceedings.

(c) If the Secretary fails to take action on the request for reconsideration within 30 days, the request is deemed denied, and the petitioner may seek such judicial review as may be appropriate and available.

(d) A petitioner has not exhausted other administrative remedies until a request for reconsideration has been filed and acted upon or deemed denied.

### § 431.430 Finality of decision.

(a) A decision to prescribe a rule that a State energy conservation standard or other requirement not be preempted is final on the date the rule is issued, *i.e.*, signed by the Secretary. A decision to prescribe such a rule has no effect on other regulations of covered equipment of any other State.

(b) A decision to prescribe a rule withdrawing a rule exempting a State standard or other requirement is final on the date the rule is issued, *i.e.*, signed by the Secretary. A decision to deny such a petition is final on the day a denial of a request for reconsideration is issued, *i.e.*, signed by the Secretary.

## Subpart X—Small Electric Motors

SOURCE: 74 FR 32072, July 7, 2009, unless otherwise noted.

### § 431.441 Purpose and scope.

This subpart contains definitions, test procedures, and energy conservation requirements for small electric motors, pursuant to Part A-1 of Title

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III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311-6317.

### § 431.442 Definitions.

The following definitions are applicable to this subpart:

*Alternative efficiency determination method*, or AEDM, means, with respect to a small electric motor, a method of calculating the total power loss and average full-load efficiency.

*Average full-load efficiency* means the arithmetic mean of the full-load efficiencies of a population of small electric motors of duplicate design, where the full-load efficiency of each motor in the population is the ratio (expressed as a percentage) of the motor's useful power output to its total power input when the motor is operated at its full rated load, rated voltage, and rated frequency.

*Basic model* means, with respect to a small electric motor, all units of a given type of small electric motor (or class thereof) manufactured by a single manufacturer, and which have the same rating, have electrical characteristics that are essentially identical, and do not have any differing physical or functional characteristics that affect energy consumption or efficiency. For the purpose of this definition, "rating" means a combination of the small electric motor's group (*i.e.*, capacitor-start, capacitor-run; capacitor-start, induction-run; or polyphase), horsepower rating (or standard kilowatt equivalent), and number of poles with respect to which § 431.446 prescribes nominal full load efficiency standards.

*CAN/CSA* means Canadian Standards Association.

*DOE* or *the Department* means the U.S. Department of Energy.

*EPCA* means the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6291-6317.

*IEC* means International Electrotechnical Commission.

*IEEE* means Institute of Electrical and Electronics Engineers, Inc.

*NEMA* means National Electrical Manufacturers Association.

*Small electric motor* means a NEMA general purpose alternating current single-speed induction motor, built in a

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two-digit frame number series in accordance with NEMA Standards Publication MG1-1987, including IEC metric equivalent motors.

### TEST PROCEDURES

#### § 431.443 Materials incorporated by reference.

(a) *General.* The Department incorporates by reference the following standards into subpart X of part 431. The Director of the Federal Register has approved the material listed in paragraph (b) of this section for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to a standard by the standard-setting organization will not affect the DOE test procedures unless and until the DOE amends its test procedures. DOE incorporates the material as it exists on the date of the approval and a notice of any change in the material will be published in the FEDERAL REGISTER. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). Also, this material is available for inspection at 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) 586-2945, or go to [http://www1.eere.energy.gov/buildings/appliance\\_standards/](http://www1.eere.energy.gov/buildings/appliance_standards/). Standards can be obtained from the sources below.

(b) *CAN/CSA.* Canadian Standards Association, Sales Department, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, L4W 5N6, Canada, 1-800-463-6727, or go to <http://www.shopcsa.ca/onlinestore/welcome.asp>.

(1) CAN/CSA-C747-94 ("CAN/CSA-C747") (Reaffirmed 2005), *Energy Efficiency Test Methods for Single- and Three-Phase Small Motors*, IBR approved for § 431.444.

(2) [Reserved]

(c) *IEEE.* Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ

08855-1331, 1-800-678-IEEE (4333), or go to <http://www.ieee.org/web/publications/home/index.html>.

(1) IEEE Std 112™-2004 (Revision of IEEE Std 112-1996) ("IEEE Std 112"), *IEEE Standard Test Procedure for Polyphase Induction Motors and Generators*, approved February 9, 2004, IBR approved for § 431.444.

(2) IEEE Std 114-2001™ (Revision of IEEE Std 114-1982) ("IEEE Std 114"), *IEEE Standard Test Procedure for Single-Phase Induction Motors*, approved December 6, 2001, IBR approved for § 431.444.

#### § 431.444 Test procedures for the measurement of energy efficiency.

(a) *Scope.* Pursuant to section 346(b)(1) of EPCA, this section provides the test procedures for measuring, pursuant to EPCA, the efficiency of small electric motors pursuant to EPCA. (42 U.S.C. 6317(b)(1)) For purposes of this part 431 and EPCA, the test procedures for measuring the efficiency of small electric motors shall be the test procedures specified in § 431.444(b).

(b) *Testing and Calculations.* Determine the energy efficiency and losses by using one of the following test methods:

(1) Single-phase small electric motors: either IEEE Std 114, (incorporated by reference, see § 431.443), or CAN/CSA C747, (incorporated by reference, see § 431.443);

(2) Polyphase small electric motors less than or equal to 1 horsepower (0.746 kW): IEEE Std 112 (incorporated by reference, see § 431.443), Test Method A; or

(3) Polyphase small electric motors greater than 1 horsepower (0.746 kW): IEEE Std 112 (incorporated by reference, see § 431.443), Test Method B.

#### § 431.445 Determination of small electric motor efficiency.

(a) *Scope.* When a party determines the energy efficiency of a small electric motor to comply with an obligation imposed on it by or pursuant to Part A-1 of Title III of EPCA, 42 U.S.C. 6311-6317, this section applies.

(b) *Provisions applicable to all small electric motors—(1) General requirements.* The average full-load efficiency of each basic model of small electric motor must be determined either by testing

in accordance with § 431.444 of this subpart, or by application of an alternative efficiency determination method (AEDM) that meets the requirements of paragraphs (a)(2) and (3) of this section, provided, however, that an AEDM may be used to determine the average full-load efficiency of one or more of a manufacturer's basic models only if the average full-load efficiency of at least five of its other basic models is determined through testing.

(2) *Alternative efficiency determination method.* An AEDM applied to a basic model must be:

(i) Derived from a mathematical model that represents the mechanical and electrical characteristics of that basic model, and

(ii) Based on engineering or statistical analysis, computer simulation or modeling, or other analytic evaluation of performance data.

(3) *Substantiation of an alternative efficiency determination method.* Before an AEDM is used, its accuracy and reliability must be substantiated as follows:

(i) The AEDM must be applied to at least five basic models that have been tested in accordance with § 431.444; and

(ii) The predicted total power loss for each such basic model, calculated by applying the AEDM, must be within plus or minus 10 percent of the mean total power loss determined from the testing of that basic model.

(4) *Subsequent verification of an AEDM.* (i) Each manufacturer that has used an AEDM under this section shall have available for inspection by the Department of Energy records showing the method or methods used; the mathematical model, the engineering or statistical analysis, computer simulation or modeling, and other analytic evaluation of performance data on which the AEDM is based; complete test data, product information, and related information that the manufacturer has generated or acquired pursuant to paragraph (a)(3) of this section; and the calculations used to determine the efficiency and total power losses of each basic model to which the AEDM was applied.

(ii) If requested by the Department, the manufacturer shall conduct simulations to predict the performance of

particular basic models of small electric motors specified by the Department, analyses of previous simulations conducted by the manufacturer, sample testing of basic models selected by the Department, or a combination of the foregoing.

(c) *Additional testing requirements—(1) Selection of basic models for testing if an AEDM is to be applied.*

(i) A manufacturer must select basic models for testing in accordance with the criteria that follow:

(A) Two of the basic models must be among the five basic models with the highest unit volumes of production by the manufacturer in the prior year, or during the prior 12-month period before the effective date of the energy efficiency standard, whichever is later, and in identifying these five basic models, any small electric motor that does not comply with § 431.446 shall be excluded from consideration;

(B) The basic models should be of different horsepower ratings without duplication;

(C) At least one basic model should be selected from each of the frame number series for the designs of small electric motors for which the AEDM is to be used; and

(D) Each basic model should have the lowest nominal full-load efficiency among the basic models with the same rating ("rating" as used here has the same meaning as it has in the definition of "basic model").

(ii) If it is impossible for a manufacturer to select basic models for testing in accordance with all of these criteria, the criteria shall be given priority in the order in which they are listed. Within the limits imposed by the criteria, basic models shall be selected randomly.

(2) [Reserved]

ENERGY CONSERVATION STANDARDS

**§ 431.446 Small electric motors energy conservation standards and their effective dates.**

(a) Each small electric motor manufactured (alone or as a component of another piece of non-covered equipment) after March 9, 2015, or in the

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case of a small electric motor which requires listing or certification by a nationally recognized safety testing laboratory, after March 9, 2017, shall have an average full load efficiency of not less than the following:

Motor horsepower/standard kilowatt equivalent	Average full load efficiency		
	Polyphase		
	Open motors (number of poles)		
	6	4	2
0.25/0.18 .....	67.5	69.5	65.6
0.33/0.25 .....	71.4	73.4	69.5
0.5/0.37 .....	75.3	78.2	73.4
0.75/0.55 .....	81.7	81.1	76.8
1/0.75 .....	82.5	83.5	77.0
1.5/1.1 .....	83.8	86.5	84.0
2/1.5 .....	N/A	86.5	85.5
3/2.2 .....	N/A	86.9	85.5

  

Motor horsepower/standard kilowatt equivalent	Average full load efficiency		
	Capacitor-start capacitor-run and capacitor-start induction-run		
	Open motors (number of poles)		
	6	4	2
0.25/0.18 .....	62.2	68.5	66.6
0.33/0.25 .....	66.6	72.4	70.5
0.5/0.37 .....	76.2	76.2	72.4
0.75/0.55 .....	80.2	81.8	76.2
1/0.75 .....	81.1	82.6	80.4
1.5/1.1 .....	N/A	83.8	81.5
2/1.5 .....	N/A	84.5	82.9
3/2.2 .....	N/A	N/A	84.1

(b) For purposes of determining the required minimum average full load efficiency of an electric motor that has a horsepower or kilowatt rating between two horsepower or two kilowatt ratings listed in any table of efficiency standards in paragraph (a) of this section, each such motor shall be deemed to have a listed horsepower or kilowatt rating, determined as follows:

(1) A horsepower at or above the midpoint between the two consecutive horsepower ratings shall be rounded up to the higher of the two horsepower ratings;

(2) A horsepower below the midpoint between the two consecutive horsepower ratings shall be rounded down to the lower of the two horsepower ratings; or

(3) A kilowatt rating shall be directly converted from kilowatts to horsepower using the formula 1 kilowatt = (1/0.746) hp, without calculating beyond three significant decimal places, and the resulting horsepower shall be rounded in accordance with paragraphs

(b)(1) or (b)(2) of this section, whichever applies.

[75 FR 10947, Mar. 9, 2010; 75 FR 17036, Apr. 5, 2010]

**PART 433—ENERGY EFFICIENCY STANDARDS FOR NEW FEDERAL COMMERCIAL AND MULTI-FAMILY HIGH-RISE RESIDENTIAL BUILDINGS**

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- 433.1 Purpose and scope.
- 433.2 Definitions.
- 433.3 Materials incorporated by reference.
- 433.4 Energy efficiency performance standard.
- 433.5 Performance level determination.
- 433.6 Sustainable principles for siting, design and construction. [Reserved]
- 433.7 Water used to achieve energy efficiency. [Reserved]
- 433.8 Life-cycle costing.

AUTHORITY: 42 U.S.C. 6831–6832, 6834–6835; 42 U.S.C. 7101 *et seq.*

SOURCE: 71 FR 70281, Dec. 4, 2006, unless otherwise noted.

**§ 433.1 Purpose and scope.**

This part establishes an energy efficiency performance standard for the new Federal commercial and multi-family high-rise buildings, for which design for construction began on or after January 3, 2007, as required by section 305(a) of the Energy Conservation and Production Act, as amended (42 U.S.C. 6834(a)).

**§ 433.2 Definitions.**

For purposes of this part, the following terms, phrases and words are defined as follows:

*ANSI* means the American National Standards Institute.

*ASHRAE* means the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

*ASHRAE Baseline Building 2004* means a building that is otherwise identical to the proposed building but is designed to meet, but not exceed, the energy efficiency specifications in ANSI/ASHRAE/IESNA Standard 90.1–2004, Energy Standard for Buildings Except Low-Rise Residential Buildings, January 2004 (incorporated by reference, see § 433.3).