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load adjusted efficiency of the lowest and highest input dependency modes.

[81 FR 89821, Dec. 12, 2016]

§ 429.40 Candelabra base incandescent lamps and intermediate base incandescent lamps.

(a) *Sampling plan for selection of units for testing.* (1) The requirements of § 429.11 are applicable to candelabra base incandescent lamps; and

(2) For each basic model of candelabra base incandescent lamp and intermediate base incandescent lamp, a minimum sample of 21 lamps shall be randomly selected and tested. Any represented value of lamp wattage of a basic model shall be based on the sample and shall be less than or equal to the lower of:

(i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample;

Or,

(ii) The lower 97.5 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.975} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of

samples; and $t_{0.975}$ is the t statistic for a 97.5% one-tailed confidence interval with n-1

degrees of freedom (from Appendix A of this part).

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to candelabra base and intermediate base incandescent lamps; and

(2) Pursuant to § 429.12(b)(13), a certification report shall include the following public product-specific information:

(i) Candelabra base incandescent lamp: The rated wattage in watts (W).

(ii) Intermediate base incandescent lamp: The rated wattage in watts (W).

[76 FR 12451, Mar. 7, 2011; 76 FR 24774, May 2, 2011]

§ 429.41 Commercial warm air furnaces.

(a) *Determination of represented value.* Manufacturers must determine the represented value, which includes the certified rating, for each basic model of commercial warm air furnace either by

testing, in conjunction with the applicable sampling provisions, or by applying an AEDM.

(1) *Units to be tested.* (i) If the represented value is determined through testing, the general requirements of § 429.11 are applicable; and

(ii) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

(2) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with $n-1$ degrees of freedom (from Appendix A to subpart B of part 429). And,

(B) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

(2) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with $n-1$ degrees of freedom (from Appendix A to subpart B of part 429).

(2) *Alternative efficiency determination methods.* In lieu of testing, a represented value of efficiency or consumption for a basic model of commercial warm air furnace must be determined through the application of an AEDM pursuant to the requirements of § 429.70 and the provisions of this section, where:

(i) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the output of the AEDM and less than or equal to the Federal standard for that basic model; and

(ii) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the output of the AEDM and greater than or

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equal to the Federal standard for that basic model.

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to commercial warm air furnaces; and

(2) Pursuant to § 429.12(b)(13), a certification report must include the following public, equipment-specific information: The thermal efficiency in percent (%), and the maximum rated input capacity in British thermal units per hour (Btu/h).

(3) Pursuant to § 429.12(b)(13), a certification report must include the following additional equipment-specific information:

(i) Whether the basic model is engineered-to-order; and

(ii) For any basic model rated with an AEDM, whether the manufacturer elects the witness test option for verification testing. (See § 429.70(c)(5)(iii) for options). However, the manufacturer may not select more than 10% of AEDM-rated basic models.

(4) Pursuant to § 429.12(b)(13), a certification report may include supplemental testing instructions in PDF format. If necessary to run a valid test, the equipment-specific, supplemental information must include any additional testing and testing set up instructions (*e.g.*, specific operational or control codes or settings), which would be necessary to operate the basic model under the required conditions specified

by the relevant test procedure. A manufacturer may also include with a certification report other supplementary items in PDF format (*e.g.*, manuals) for DOE consideration in performing testing under subpart C of this part.

[79 FR 25500, May 5, 2014, as amended at 80 FR 151, Jan. 5, 2015]

§ 429.42 Commercial refrigerators, freezers, and refrigerator-freezers.

(a) *Determination of represented value.* Manufacturers must determine the represented value, which includes the certified rating, for each basic model of commercial refrigerator, freezer, or refrigerator-freezer either by testing, in conjunction with the applicable sampling provisions, or by applying an AEDM.

(1) *Units to be tested.* (i) If the represented value for a given basic model is determined through testing, the general requirements of § 429.11 are applicable; and

(ii) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

And \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; or,

(2) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.10, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

And \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval

with $n-1$ degrees of freedom (from Appendix A to subpart B of part 429); And,