(b) Where DOE has determined a particular entity is in noncompliance with an applicable standard or certification requirement, DOE may impose additional testing requirements as a remedial measure.

§ 429.14 Consumer refrigerators, refrigerator-freezers and freezers.

(a) *Sampling plan for selection of units for testing.* (1) The requirements of § 429.11 are applicable to residential refrigerators, refrigerator-freezers and freezers; and

(2) For each basic model of residential refrigerators, refrigerator-freezers, and freezers, a sample of sufficient size shall be randomly selected and tested to ensure that—

(i) Any represented value of estimated annual operating cost, energy consumption, or other measure of energy consumption of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(A) 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,

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

$$UCL = \bar{x} + t_{.95}\left(\frac{s}{\sqrt{n}}\right)$$

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).

and

(ii) Any represented value of the energy factor 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:

(A) 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,

(B) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.90, where:

$$LCL = \bar{x} - t_{.95}\left(\frac{s}{\sqrt{n}}\right)$$

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).

(3) The value of total refrigerated volume of a basic model reported in accordance with paragraph (b)(2) of this section shall be the mean of the total refrigerated volumes measured for each tested unit of the basic model or the total refrigerated volume of the basic model as calculated in accordance with § 429.72(c). The value of adjusted total volume of a basic model reported in accordance with paragraph (b)(2) of this section shall be the mean of the adjusted total volumes measured for each tested unit of the basic model or the adjusted total volume of the basic model as calculated in accordance with § 429.72(c).

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to residential refrigerators, refrigerator-freezers and freezers; and

(2) Pursuant to § 429.12(b)(13), a certification report shall include the following public product-specific information: The annual energy use in kilowatt hours per year (kWh/yr); the total refrigerated volume in cubic feet (ft^3); and the adjusted total volume in cubic feet (ft^3).

(3) Pursuant to § 429.12(b)(13), a certification report shall include the following additional product-specific information: Whether the basic model has variable defrost control (in which case, manufacturers must also report the values, if any, of CT_L and CT_M (See section 5.3 of appendix A and appendix B to subpart B of 10 CFR part 430) used in the calculation of energy consumption), whether the basic model has variable anti-sweat heater control (in which case, manufacturers must also report the values of heater Watts at the ten humidity levels (5%, 15%, 25%, 35%, 45%, 55%, 65%, 75%, 85%, and 95%) used to calculate the variable anti-sweat heater ''Correction Factor''), and whether testing has been conducted with modifications to the standard temperature sensor locations, as specified in section 5.1(g) of appendices A and B to subpart B of 10 CFR part 430, as applicable.

(c) *Rounding requirements for representative values, including certified and rated values.* (1) The represented value of annual energy use must be rounded to the nearest kilowatt hour per year.

(2) The represented value of total refrigerated volume must be rounded to the nearest 0.1 cubic foot.

(3) The represented value of adjusted total volume must be rounded to the nearest 0.1 cubic foot.

(d) *Product category determination.* Each basic model shall be certified according to the appropriate product category as defined in § 430.2 of this chapter based on compartment volumes and compartment temperatures. If one or more compartments could be classified as both a fresh food compartment and a freezer compartment, the model must be certified to each applicable product category based on the operation of the compartment(s) as both fresh food and freezer compartments.

(1) Compartment volume used to determine product category shall be, for each compartment, the mean of the volumes of that specific compartment for the sample of tested units of the basic model, measured according to the provisions in section 4.1 of appendix A of subpart B of part 430 of this chapter for refrigerators and refrigerator-freezers and section 4.1 of appendix B of subpart B of part 430 of this chapter for freezers, or, for each compartment, the volume of that specific compartment calculated for the basic model in accordance with § 429.72(c).

(2) Determination of the compartment temperature ranges shall be based on operation under the conditions specified and using measurement of compartment temperature as specified in appendix A of subpart B of part 430 of this chapter for refrigerators and refrigerator-freezers and appendix B of subpart B of part 430 of this chapter for freezers. The determination of compartment status may require evaluation of a model at the extremes of the range of user-selectable temperature control settings. If the temperature ranges for the same compartment of multiple units of a sample are different, the maximum and minimum compartment temperatures for compartment status determination shall be based on the mean measurements for the units in the sample.

[76 FR 12451, Mar. 7, 2011; 76 FR 24762, May 2, 2011, as amended at 79 FR 22348, Apr. 21, 2014; 81 FR 46789, July 18, 2016; 86 FR 56819, Oct. 12, 2021; 88 FR 7845, Feb. 7, 2023]

EFFECTIVE DATE NOTE: At 81 FR 46789, July 18, 2016, § 429.14(c)(2) and (3) were stayed indefinitely.

§ 429.15 Room air conditioners.

(a) *Sampling plan for selection of units for testing.* (1) The requirements of § 429.11 are applicable to room air conditioners; and

(2) For each basic model of room air conditioners, a sample of sufficient size shall be randomly selected and tested to ensure that—

(i) Any represented value of estimated annual operating cost, energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(A) 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,

(B) The upper 97½ percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{.975}\left(\frac{s}{\sqrt{n}}\right)$$

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).

and

(ii) Any represented value of the combined energy efficiency ratio (CEER) (determined in § 430.23(f)(3) for each unit in the sample) 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:

(A) The mean of the sample, where: