

## Department of Energy

## § 429.14

and 431 or as specified in section 325 and 342 of the Act.

(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 re-

frigerators, 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  $i^{\text{th}}$  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  $i^{\text{th}}$  sample;

or,

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

(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<sup>3</sup>); and the adjusted total volume in cubic feet (ft<sup>3</sup>).

(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<sub>L</sub> and CT<sub>M</sub> (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 based on compartment volumes and compartment temperatures.

(1) Compartment volumes used to determine product category shall be the mean of the measured compartment volumes for each tested unit of the basic model 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 the compartment volumes of the basic model as calculated in accordance with § 429.72(c); and

(2) Compartment temperatures used to determine product category shall be the mean of the measured compartment temperatures at the coldest setting for each tested unit of the basic model according to the provisions of appendix A of subpart B of part 430 of this chapter for refrigerators and refrigerator-freezers and appendix B of

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subpart B of part 430 of this chapter for freezers.

[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]

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  $i^{\text{th}}$  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  $t_{.975}$  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 meas-

ure 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  $i^{\text{th}}$  sample; or,

(B) The lower 97½ percent confidence limit (LCL) of the true mean divided by 0.95, where: