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PART 429—CERTIFICATION, COMPLIANCE, AND ENFORCEMENT FOR CONSUMER PRODUCTS AND COMMERCIAL AND INDUSTRIAL EQUIPMENT

Subpart B—Certification

§429.63 Compressors.

(a) *Determination of represented value.* Manufacturers must determine the represented value, which includes the certified rating, for each basic model of compressor 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 apply; and

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

(A) *Measures of energy efficiency.* Any represented value of the full- or part-load package isentropic efficiency or other measure of energy efficiency of a basic model for which customers would favor higher values is less than or equal to the lower of:

(1) The mean of the sample, where:

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

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

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

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

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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 percent one-tailed confidence interval with $n-1$ degrees of freedom (from appendix A of this subpart); and

(B) *Package specific power.* The representative value(s) of package specific power of a basic model must be the mean of the package specific power measurement(s) for each tested unit of the basic model.

(2) *Alternative efficiency determination methods.* In lieu of testing, any represented value of efficiency, consumption, or other non-energy metrics listed in paragraph (a)(3) of this section for a basic model may 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 values of package isentropic efficiency or other measure of energy consumption of a basic model for which customers would favor higher values must be less than or equal to the output of the AEDM; and

(ii) Any represented values of package specific power, pressure ratio at full-load operating pressure, full-load actual volume flow rate, or full-load operating pressure must be the output of the AEDM corresponding to the represented value of package isentropic efficiency determined in paragraph (a)(2)(i) of this section.

(3) *Representations of non-energy metrics—(i) Full-load actual volume flow rate.* The representative value of full-load actual volume flow rate of a basic model must be either—

(A) The mean of the full-load actual volume flow rate for the units in the sample; or

(B) As determined through the application of an AEDM pursuant to the requirements of §429.70.

(ii) *Full-load operating pressure.* The representative value of full-load operating pressure of a basic model must be less than or equal to the maximum full-flow operating pressure and greater than or equal to the lesser of—

(A) 90 percent of the maximum full-flow operating pressure; or

(B) 10 psig less than the maximum full-flow operating pressure, where the maximum full-flow operating pressure must either be determined as the mean of the maximum full-flow operating pressure values for the units in the sample or through the application of an AEDM pursuant to the requirements of §429.70.

(iii) *Pressure ratio at full-load operating pressure.* The representative value of pressure ratio at full-load operating pressure of a basic model must be either be determined as the mean of the pressure ratio at full-load operating pressure for the units in the sample or through the application of an AEDM pursuant to the requirements of §429.70.

(b) [Reserved]

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